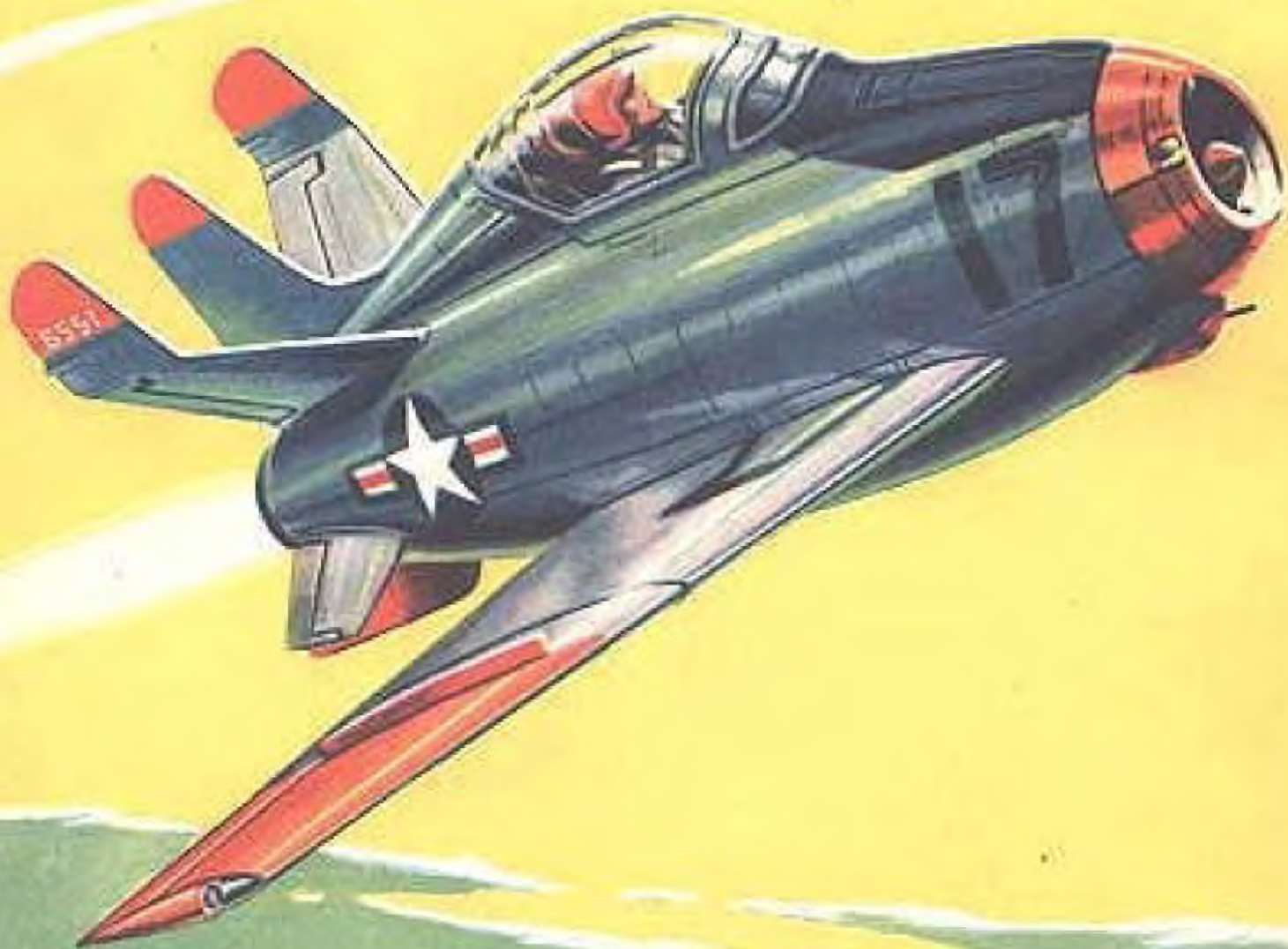


AIR TRAILS

B JUNE 1949

25 CENTS

Pictorial



NEW MODEL PLANS! SEE PAGE 37

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angle to penetrate
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φ The Greek letter (Phi) in this illustration denotes the angle of sweepback of the wing of the aircraft. Only by incorporating wings with the extreme sweepback as shown have aeronautical engineers succeeded in designing airplanes that not only attain the speed of sound but surpass it... penetrating the sonic barrier! In its present form, the familiar straight wing, hitherto satisfactory at lower speeds, cannot cope with the demands of supersonic flight. Its design allows the onrushing air to strike all points of the leading edge at the same time... creating destructive vibration, while the swept-back wing cuts into the air like a spearhead... with a minimum of resistance.

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AIR TRAILS

Pictorial

JUNE, 1949 • VOL. XXXII, NO. 3

This month's cover shows the McDonnell XF-85 "parasite" fighter soon after release from a B-36. The design of this plane presented quite a problem, as it entailed development of a very short coupled aircraft which to accomplish its mission had to be maneuverable. Tail surfaces had to be small to fit in bomb bay, which explains the porcupine tail.



THE READERS WRITE:

CAP Training Helpful

Sirs:

I have been reading Air Trails for about the last six years, ever since I started high school in 1943. I notice that in the last three issues you have printed news about the Civil Air Patrol. I like to read this news, as I have been a member of the C.A.P. since March 24, 1944. I have held the rank of Corporal since about August, 1945. I then enlisted in the U. S. Air Force. I was especially glad that I had been a member of the C.A.P., as the training I had received helped me a great deal in my basic training. The last I heard about our Flight (Flight "D," Canton, N. Y.) was that it disbanded. I am hoping it will reorganize again so I can learn aviation inside and out. I want to congratulate you for publishing C.A.P. News.

CPL. WILLIAM H. COX

Montgomery, Ala.

Mystery Air Force

Sirs:

Your Mystery Air Force in the March issue is a lead pipe cinch! Give us something harder. For instance, how many readers know what the two Canadian planes in the Photo Competition on page 37 are? I take them to be Hawker Sea Furies. Am I right?

WILLIAM B. ROOSA

Fort Worth, Tex.

● You're right.

Junior Goodyear Event

Sirs:

I found your "Why Not a Junior Goodyear Event?" very interesting. I am a free-fighter and have been one for the past ten years. When U-control first came out I tried it, and have tried it many times since, but I still cannot get any real fun out of it. I have always wanted speed to be semi-scale with a set of rules that would keep the

(Continued on page 9)

Letters to the Editors

All communications to the Air Trails editorial offices should be sent to Air Trails, Box 489, Elizabeth, N. J.

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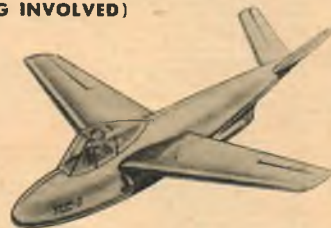
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The Readers Write

(Continued from page 4)

planes looking like the real thing. For the first time I am all for U-control speed. Let's have a set of rules here in the East so we can get busy designing and building. I will not quit free-flight, but I will go into U-control along with it. Let's have the rules. The West Coast rules would be a good starting place.

CHARLES CORTRIGHT

Phillipsburg, N. J.

Sirs:

In your March issue you speak of a Junior Goodyear Event. I am in favor of such an idea, except that it leaves out some of us real beginning amateurs who have or hope to have a new K&B Infant, or other such motor. Your idea is fine for the majority, but what about us minority? I think you should abolish your rules 6 and 7, or have a special event for .009 to .020 motors with a minimum wing area of 50 square inches. For motors of that power, no weight or line rule is necessary. I am no "pro," but these are the rules that I favor:

(1) No prop under 4" diameter; no metal props; (2) motor must be between .009 and .020 displacement; must be cowed; any tank may be used; (3) plane must have cockpit and dummy

head; (4) no dollies may be used; (5) minimum wing area, 50 sq. in.; (6) interchangeable motor may be used; (7) planes will be flown two at a time, one at 15' altitude, other at 10' altitude; (8) 20' lines must be used; (9) a team will consist of two flyers, between 12 and 18 years of age, not members of any model club; (10) one event for speed, one for stunt, one for endurance—same plane to be used for all three events; (11) fifty cents entrance fee, to pay for trophy; (12) West Coast meet to be held in Los Angeles.

Some of these rules may sound crazy, but the main idea is to keep the competition on one level.

R. SEILER

San Diego, Calif.

Experience Exchange

Sirs:

I would like to have a little information concerning the Solo Club. Is it possible for me to send in my old student permit showing my solo and X-C dates of flight as proof?

The Solo Club column is really full of a lot that a guy can't learn by himself but only from someone else's experience. I'm sure a lot of guys keep their heads out of slings by reading it. Many times I've found myself wanting to do some crazy stunts such as you've cautioned us against. Keep it coming.

CARL J. SCHMURA

Reading, Pa.

● Sure, send along your old student permit giving evidence of your solo flights. We'll return the permit to you.

B-25 Boy Speaks Up

Sirs:

Some time ago I ordered from you, and received, Plan No. 101. In the last three weeks I found time to build the ship (a Waco), and today I flew it. It brought me many compliments, both as to appearance and flying qualities. I'm a scale model lover, as you guessed, but this is the first scale model I've built that flew worth a darn. My Hurricane has ridden through disaster in four other scale jobs. I used a couple of tricks I picked up in past issues of Air Trails, with good success. First, I made a beautiful aluminum cowl from a 25c dipper from Montgomery Ward's. Didn't even cut a hole through it for the exhaust. It has somewhat of a muffling effect and looks swell. The only holes in it are for the needle valve and cylinder. I used a gravity tank (made from a paprika can) laid across the crutch behind the firewall, so the engine starts easily with no priming or choking! Glow plug, of course.

I spent 1,500 hours in B-25's in the service and was beginning to learn to handle them fairly well (about 1,300 hours instructing), but I'll be darned if I can keep from overcontrolling most models—unless they have a 5" bellcrank—so a second idea from Air Trails saved the day. I brought the control wires out through the line guide spaced as planned and hooked them to an aluminum strip $\frac{3}{8}$ " x 5". Then I hooked my control lines to the ends of the strip, cutting the moment arm way down—and it really worked.

BOB MYERS

Eureka, Calif.

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Specifications: Span 32" Area 150 sq." Length 20", Wt. 4.5 OZ.

Pre-Fab Fuselage, Tapered Trailing Edges, Formed J-Gate Exhaust

Showcase

See your hobby shop for the items shown here. Both the price and specifications subject to change.

Testor's Baby →

A scaled-down model of the TC-2 is Testor Chemical Co.'s (Rockford, Ill.) Baby TC-2. Has 18" wing span and can be flown indoors with Infant Torpedo and similar sized engines as U-control trainer. With .099 engines it really steps around. All parts furnished in kit; price, \$1.98. With controls locked in neutral position plane can be flown on single line.



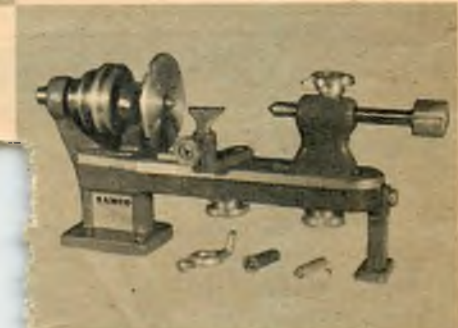
← Family Affair

A companion line of acclimatized glow fuels is marketed by Francisco Laboratories (3787 Griffith View Drive, Los Angeles, Calif.). These are Power Mist Hi-Thrust for use when relative humidity is above 50%; Spitfire Astra-Glow for lower compression engines; and Power Mist Nitrol Ultra-Glow Concentrate, a nitrated fuel for more complete combustion.



Mini-Lathe →

Something new in small machining equipment is the Samco precision miniature lathe made by Sals Mfg.



← Sparkling Performance

Specially developed for jet engines or for other places where a portable, integral spark is needed is the Vibro-Jet coil of Modelectric Products Corp. (1500 Bangs Ave., Asbury Park, N. J.). This vibrator-type spark coil operates from a 3-volt booster or two door-bell batteries. Weighs 3 ounces and mounts directly on battery's binding post with plastic clamp. \$6.50.



Mfd. by Air-O Model. (Limited quantity)
 Displ. .45 cu. in. **\$9.95**
 Over 1/2" Horsepower.
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Showcase

Price and specifications are checked carefully, but are subject to change. Mention "Air Trails" when ordering.

Same Cyke, New Price→

A new low price of \$12.95 for the Super-Cyclone engine has been announced by Super-Cyclone Inc. (Grand Central Air Terminal, 1310 Airway, Glendale, Calif.). This Class D motor has displacement of .604 cu. in. Concern offers free booklet of new A.M.A. precision acrobatics regulations with flight pattern illustrations. Write to the above address.



←Speed Stuff

Kinetic Power Nose is new device of Step-A-Head Mfg. Co. (Box 103, Los Angeles, Calif.). Consists of nose nut, shaft, tube, conical nose and fly wheel. Self-aligning, it smooths out motor, increases rpm, centrifugal force and kinetic power. Available in 10 sizes; prices from 60c to \$1.40. Outfit also produces race car and airplane gas tanks, wheels, shafts.

Happy Warrior→

Henry Engineering Co. (Burbank, Calif.) presents as most recent addition to Veco Products line the Warrior stunt model kit which takes engines from .19 to .36 cubic inch displacement. Sells for \$3.95. Span is 36 inches; length, 26 3/4 inches; wing area, with flaps, 354 sq. in.; wing chord, including flaps, 10 inches. Wt., with O&R g.p., .29, 1 lb., 6 oz.



←Petite Props

Rev-Up propellers distributed by John E. Clemens (2114 Greenville Ave., Dallas, Tex.) offers some new miniature props for the new midjet engine family. Suitable also for CO₂ motors, these propellers are available in 5 1/4-inch diameters with pitches of 2, 3 or 4 inches. They retail for 35c each. Rev-Up also makes standard and special size props for 50c apiece.

Gliders Galore→

The Widget Fleet, a 5-gliders-in-1 kit deal, is latest offering by Zenith Model Airplane Co. (Box 95, South Orange, N. J.). Sells for 50c. Consists of complete plans and necessary materials for building pylon-type Contester, stub-wing Old Timer, tip-dihedral and V-tail Boid, delta-wing Manta and contest styled Pursuit. Two glider models are illustrated here.



CONVAIR B-36B INTERCONTINENTAL BOMBER

What's a ZB-20H? A B-29M?? Or a ZF-24B?? Mystified???? See . . .

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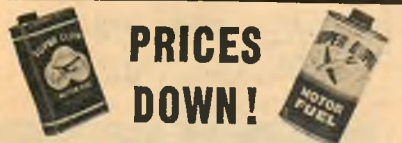
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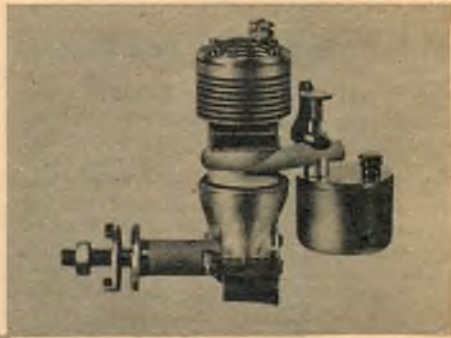
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Showcase

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Same-for-less→

In a direct factory-to-you offer the H & H Model Motor Co. (307 West Marshall St., Norristown, Pa.) makes available its H & H "45" glow plug engine for \$12.50. Described as the first glow engine, it features fully exposed platinum for efficiency in starting and operation. Concern offers complete details on specifications and design free upon request.



←Technical Speaking

Tech-Ni-Cote is plastic protective coating which resists hot fuels. Made by Technical Chemical Corp. and available only through your hobby shop. Comes in white, black, blue, yellow, red, maroon, silver, gold, gray. Four ounces for 60c. New Wood-Filler is also on market, sells for same price. Items not affected by acids, salt water, hot fuels, gasoline.



Fine Stuff→

To go along with the new small control-line models powered with Infant-type engines, Midwest Model Aircraft Co. (445 W. 69th St., Chicago, Ill.) has Micro Wire (.004) in 50-foot rolls for 35c. Lightweight, small in diameter, it's designed to be strong enough to handle the small ships, yet not be a drag to hinder performance. Is carded, in transparent envelope.



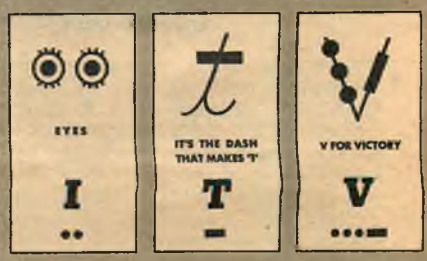
←Correct Story

In a recent issue we reported on the new Ohlsson & Rice .29-cu.-in.-disp. job featuring a rollerized main bearing. We erred in stating that fuel came with glow plug version; it's the glow plug that's furnished, not fuel. Ignition .29 includes Champion spark plug and O&R adjustomatic timer. Ignition job, \$13.95; g. p. version, \$12.95; glow plug engine "pak," \$11.95.



Code in Your Head→

Relief for worried would-be radio-control flyers hoping to get a "ham" radio license is offered by Otto W. Luther (New Preston, Conn.). For \$1 he offers a new course which helps you learn Morse International Code by visual association. Color charts speed up learning time; audio visual method was developed by Luther who is a noted commercial artist.



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Aeronautical Engineering offers you a wide choice of creative and practical duties. Here two engineers install a guided missile model in the Northrop Aircraft, Inc. wind tunnel to study its aerodynamic characteristics.



In a huddle on their design for the rudder of a student project aircraft, these Northrop students study their assembly drawings—a scene they will repeat many times during their careers.



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All-wing glider designed by Northrop engineering students—a typical training project for practical design and production experience.

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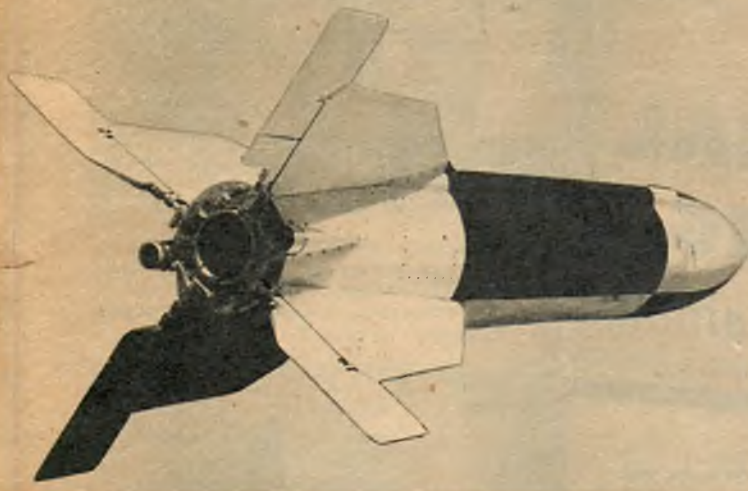
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DEVELOPMENT HIGHLIGHTS



● The U. S. Air Force test rocket missile NATIV designed and built by North American Aviation. Length 13 feet, diameter at center 18 inches. Used as research instrument for development of control systems and training rocket. Has reached altitude of 10 miles.



● For the sportsman. Midget Mustang, designed by David Long of Piper Aircraft, and flown by him in races at Cleveland and Miami. Ship is very easy to fly, has cruising speed of 170 mph. Will be produced commercially by Schweizer Aircraft Corp., Elmira, N. Y.



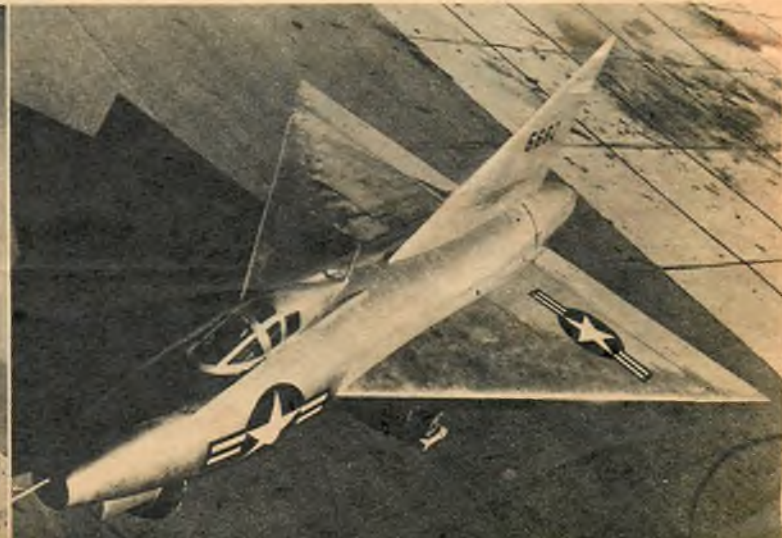
● Republic XF-91, latest Air Force jet fighter. Interesting feature is the inversely tapered wing, wider at tip than at root to reduce tip stall. This wing necessitates use of tandem wheel landing gear. Powered by J-47 turbojet and four rockets in tail.



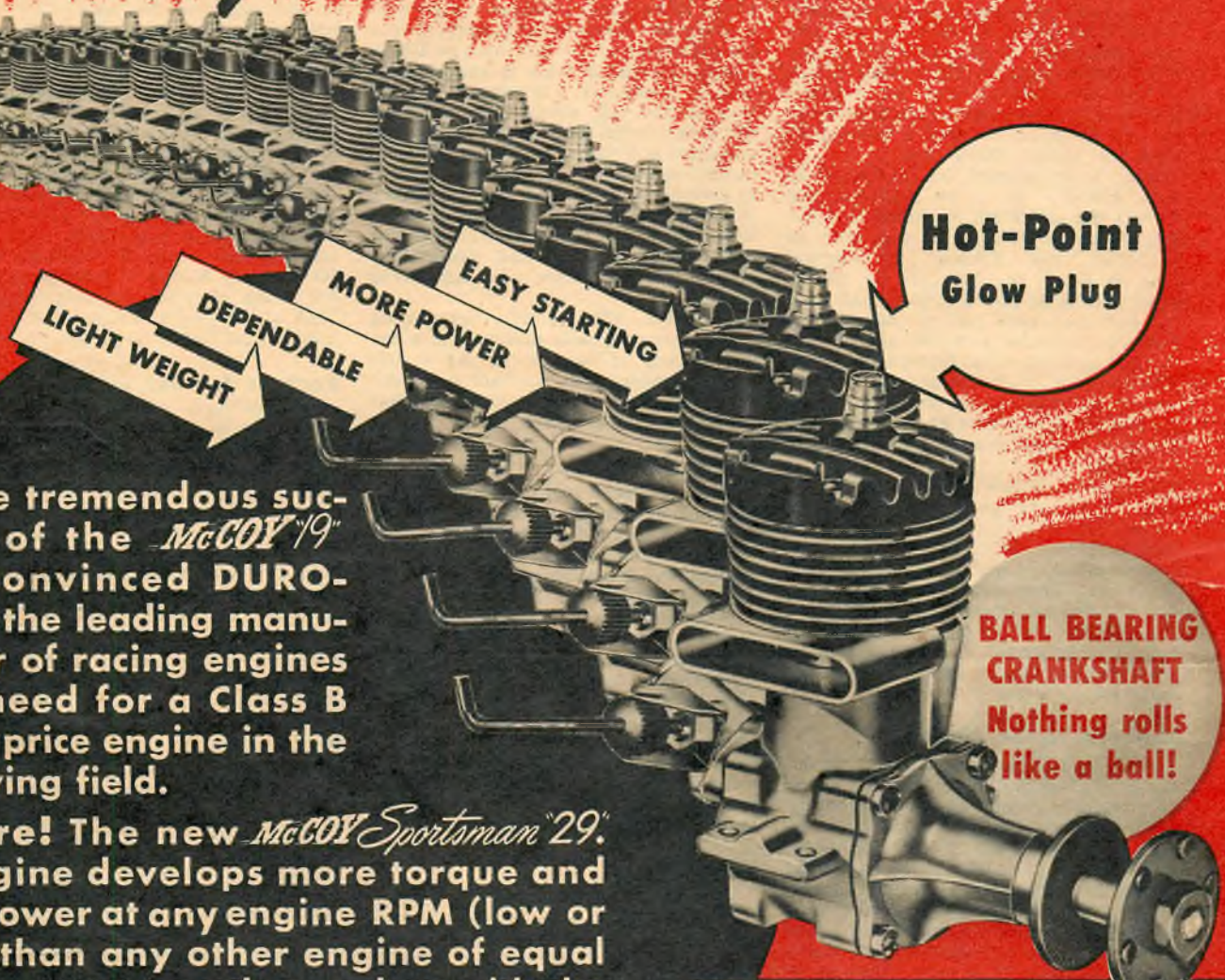
● Navy's latest helicopter, Piasecki XHJP-1. Carries five passengers and crew of two, or three litter patients. Especially designed for carrier operation. Machine recently established unofficial speed record of 131 mph. Powered by 525-hp Continental engine.

● Prone position test bed developed by Materiel Command, Wright Field. Prone position allows pilot to take higher G loading than sitting down. During recent tests at Wright Field, pilots were capable of withstanding 12 G's in a centrifuge on such a bed.

● Consolidated-Vultee Model 7002, a delta-wing research plane. Evolved from the company's XF-92 project, which was cancelled, the craft features a 60° sweptback wing and is supposedly capable of a speed of over 1,000 mph. Power, Allison J-33 of 5,200-lbs. thrust.



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Accent on Interceptors:

The Air Force hopes to buy approximately 1,000 fighter planes in fiscal 1950, and a good share of them will probably be high-altitude interceptors—Republic XF-91's, Lockheed XF-90's or both. The new emphasis on interception results from recent tests at Eglin AFB which proved conclusively that jet fighters, unless specifically designed for interception duty, cannot stop a bomber at altitudes above 40,000 feet.

Eglin tests matched the Convair B-36 with USAF's three jet fighters, the F-80, F-84, and F-86. At 40,000 feet the comparatively slow B-36 was able to evade all three. Present jets took too long to locate the bombers by radar; after getting in position, they had time for only one pass before the bomber reached its strike position; and in the rarefied atmosphere at that altitude they showed poor maneuverability, due to danger of stalling out in tight turns. Republic F-84 did best of the three, but not good enough; speedy F-86 was least successful.

The probable new interceptors, XF-91 and XF-90, are both specifically designed for interception work and include features (still classified) which permit maneuvering up to altitudes of 50,000 feet. Both have auxiliary rocket engines for top speeds over 700 mph. The XF-91, first of the two to reach flight-testing stage, is now at Muroc, after initial taxi tests at Republic's Long Island plant.

Bombers to Go Higher:

While the Eglin tests showed weaknesses of present fighters, the Air Force believes they re-proved strength of the B-36. On two missions B-36B's stayed above 40,000 feet for 12 hours or more, safe from any available fighters. USAF thinks this is the strategy of the future. There'll be less work on development of long-range escort fighters and parasites, more on development of high-flying bombers. It is now planned to equip all B-36's with four jet engines to supplement their normal six piston power plants. Operating altitude will be increased to 45,000 feet, possibly higher, and true air speed jumped from current 382 mph at 40,000 feet to 435 mph.

Engine Data:

United Aircraft reports that engines produced by the Pratt & Whitney division last year used parts, raw materials, supplies and services of more than 4,000 firms in 36 states and the District of Columbia. The JT-6B Turbo-Wasp, in production the last four months, required parts and materials from 145 subcontractors in 16 states. . . . Allison division, GM, will supply a more powerful version of the J-35 to power the E series of Republic's F-84's.

Delta Wing Research:

USAF is conducting tests at Muroc on the Convair Model 7002 to evaluate the stability and control characteristics of the delta wing, a radical design with a sharp 60° sweepback, compared with the maximum of 35° now used on USAF planes. The delta wing is almost completely triangular. It extends all the way to the tail, eliminating the need for a horizontal tail section. A vertical stabilizer and rudder provide directional control and stability. Elevons are used to give both aileron and elevator action. Wind tunnel tests over several years have shown that the delta wing has low drag characteristics and satisfactory control at trans-sonic and supersonic speeds.

The 7002, USAF's first delta wing plane, was originally designed as a flying mockup of the Convair XF-92 jet-rocket fighter. That contract has since been cancelled, but the 7002 will continue tests for research.

Radar Network:

The Air Force plans to build an air warning network over the continent as protection against aerial attack. The program calls for establishment of 20 control centers serving the basic warning installations for 20 defense areas. The system will be only a start on a far more extensive network that has been discussed by Canadian and U. S. joint chiefs of staff but is not possible now because of costs. USAF calls its plan the "irreducible minimum" for national defense. Strategically dispersed radar stations, radar-equipped picket ships for off-shore service, and a system of intercommunication will supplement the 20 control centers.

Prone Pilots:

When flying gets tough, the pilot of the future may take it lying down. USAF's Air Materiel Command has developed and is now testing a prone position pilot "bed" which lessens the dangers of flying fatigue and gravitational pull and reduces the possibilities of "blackout." The bed consists of a length of nylon netting supported over specially curved sides to conform to body contour. Abdominal support is adjustable. The pilot's head is supported by an adjustable padded jaw rest, neck strain relieved by a counter-weighted head support.

The bed has been installed in a B-17 and will be tried in a jet F-80. During tests, pilots in prone position have withstood up to 12 g's (gravity pull up to 12 times their normal weight) without blackout, while the conventionally seated pilot can tolerate only about 4.5 or 5 g's. The prone position also requires less space for the cockpit, so would permit development of planes with slimmer silhouettes, reducing drag.

Plane Changes:

The F-84D, newest version of a standard USAF fighter, is now in production, with a further-changed F-84E on the way. New features of the F-84D are reinforced metal skins on wings and ailerons; hinged gun deck cover; mechanical landing gear retraction instead of hydraulic; shift of pitot tube from tail fin to nose duct; new armament; and winterized fuel system. . . . Small wingtip tanks have been fitted to the Navy's D-558-1 Skystreak to increase its test time at high speed. . . . An F-86 to be tested in USAF's winterization program was fitted with drop tanks tucked under its sweptback wings for flight to Alaska. . . . Seaplane floats are being installed on 14 Cessna LC-126A utility planes which the Air Force will use for rescue operations in Alaska.

Rockets for Jet Fighters:

Rockets are scheduled to become standard armament on USAF jet fighters now that a satisfactory retracting mount has been developed. Tests on a Lockheed F-80 have shown that the new disappearing mounts don't affect the plane's speed or maneuverability after the rockets are fired. They disappear into the wings, eliminating the drag of old-type fixed mounts. Five-inch high-velocity rockets, each packing the punch of a five-inch artillery shell, have been satisfactorily fired from the new mounts on F-80's in both ground and aerial tests.

Navy Speed:

A double-barreled assault on the world's maximum speed record, probably in June, is being planned by the Navy, to take the mark away from the Air Force, which set a record of 670 mph with an F-86 last September. The Navy will probably lay out its own three-kilometer course for the speed runs. It expects to set a new record first with the Douglas D-558-2 Skyrocket research plane, and then to break that mark with a fully-equipped Chance Vought XF7U-1 Cutlass shipboard fighter. . . . Navy probably will also try for a new official helicopter speed record with the Piasecki HJP-1, which has made calibrated test runs at 131 mph. The present record of 124.315 mph is held by the British Fairey Gyrodyne.

Skyway Marking:

As U. S. Skyway No. 1, the first private plane skyway, approached its second birthday, a progress report shows that 277 CAA standard markers and 141 others, with 108 showing the Skyway shield, have been installed. There is still a long way to go. Many gaps in route and city marking must be filled in. Alabama is the only state which has every Skyway 1 community marked.

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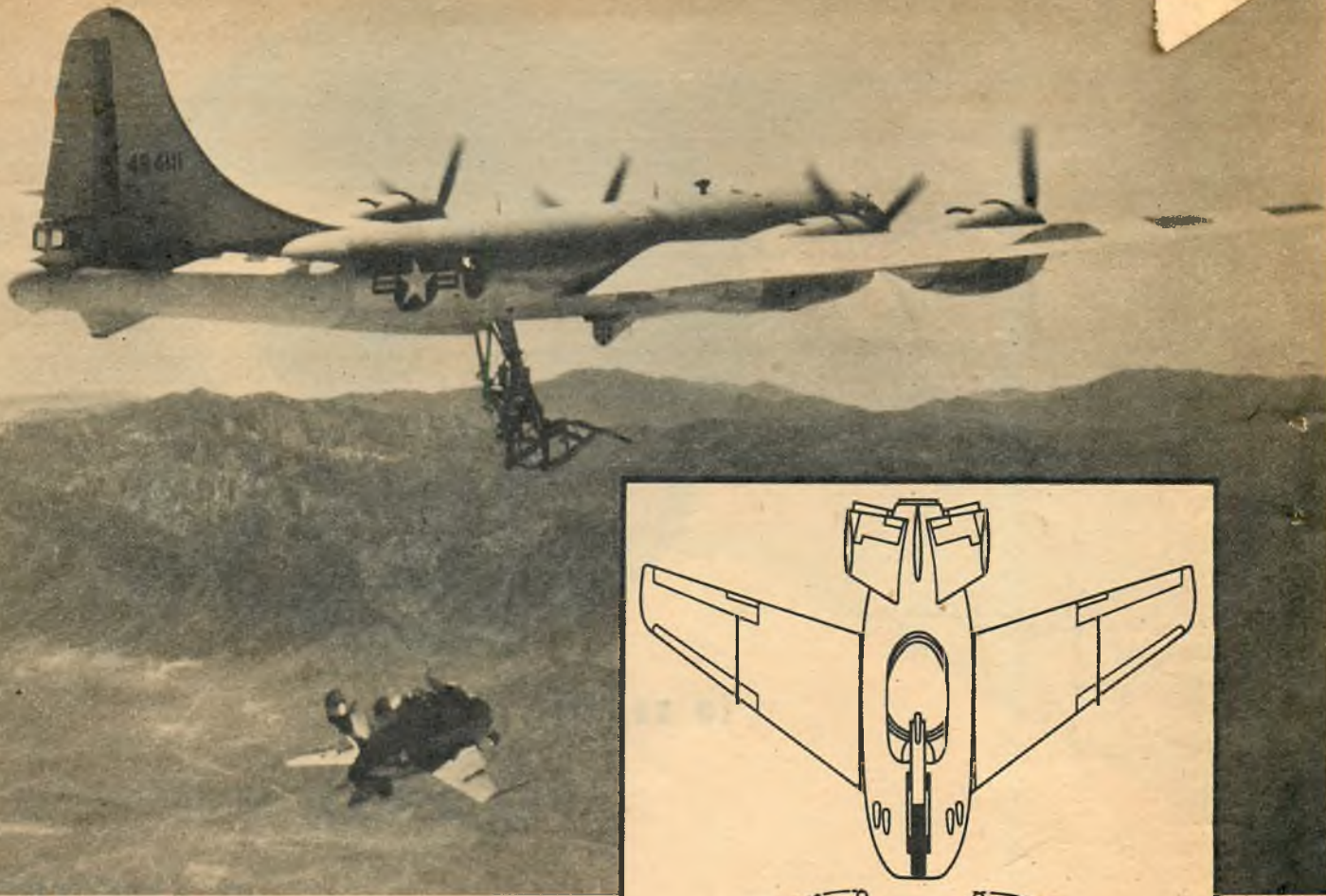
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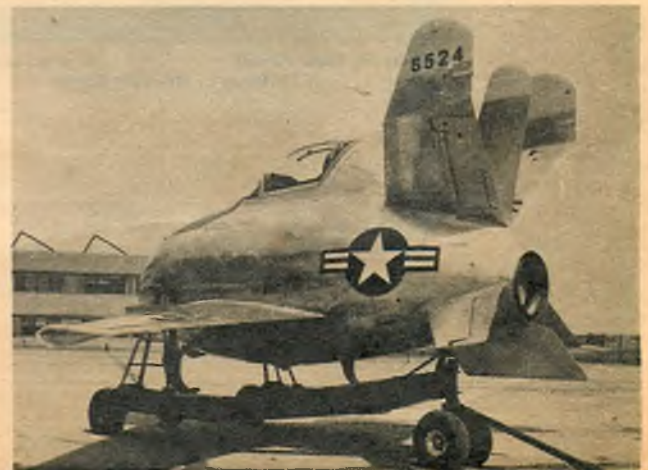
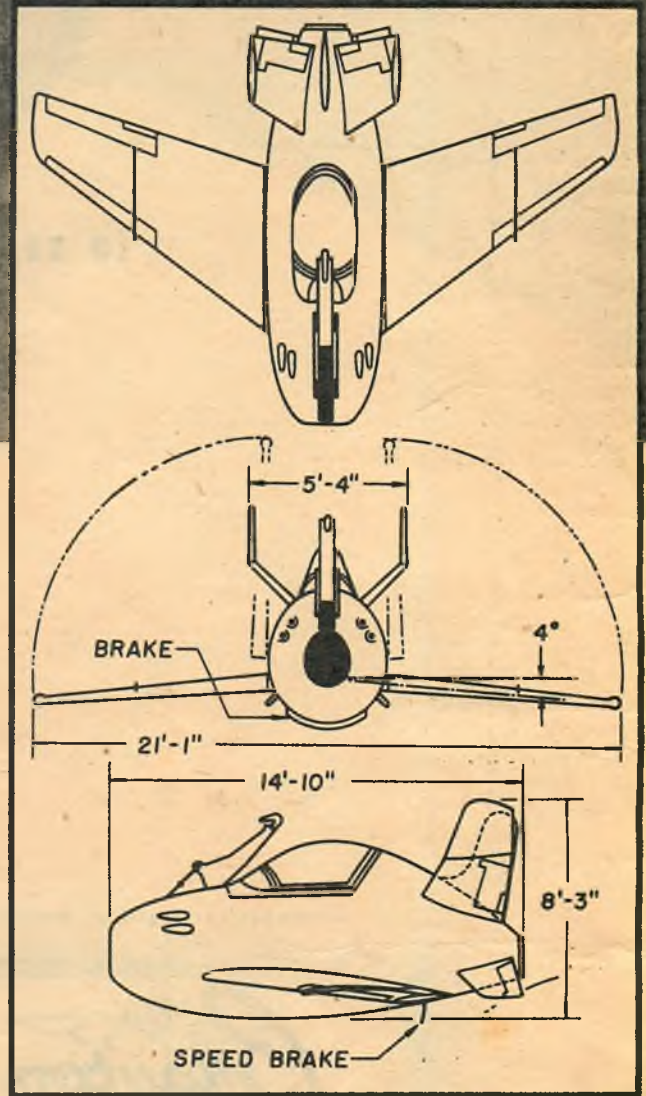
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Are you a veteran?



GOBLIN

ONE of the problems with jet fighters is their inordinate thirst for fuel, which prevents them from acting as escorts for our 10,000-mile-range bombers. But a solution for the protection of these bombers had to be found. A parasite fighter carried in the bomb bay of a bomber such as the B-36 was one possibility. When the bombers are attacked the parasites are released to fight off the enemy. Upon accomplishing the mission, they return, hook onto a special trapeze and are raised into the aerial hangar. The XF-85 "Goblin," shown here, designed and built by McDonnell Aircraft Corp., St. Louis, Mo., is the first and only one of its kind. It made its initial flight in August, 1948, flown by McDonnell's test pilot Ed Schoch. Although it suffered two slight mishaps during which it had to land on Muroc's lake bed at 170 mph, the XF-85 made a number of successful launches and hook-ons. In speed it is comparable to other jet fighters, and is powered with a J-34 (Westinghouse) jet engine with a 3,000-lb. take-off thrust.



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TRAIN IN MIAMI -- AIR CAPITAL OF THE WORLD

AIR TRAILS

JUNE, 1949

My First Flight From a Flat-top



Did you ever land an airplane on a carrier?

Read here how the U. S. Navy starts 'em off!

MIDSHIPMAN Bill Barron is neither the first nor the last aviation cadet to qualify in carrier landing, but this is probably the first time that pictorial coverage of the complete operation has been available. Carrier qualification is the last stage in the Navy's Basic Flight Training program. Each student aviator who has completed his "basic" goes aboard a light carrier (CVL) to make his first deck landings. These carriers are based at the Naval Air Station, Pensacola, Fla. Each week one goes out into the Gulf of Mexico for operations. After the students have qualified in take-offs and landings they go to the Naval Air Stations either in Jacksonville, Fla., or Corpus Christi, Tex., for advanced training in service type aircraft. Upon completion they receive their Navy Wings and commission.

Let's go aboard the aircraft carrier USS Wright, (CVL 49) and follow Midshipman Barron through his tests. He must make six take-offs and landings. He has already qualified in simulated deck landings on land and will use the same type of aircraft he started training with—an SNJ fitted with a landing hook and capable of a speed of 175 knots.

From now on it's Mr. Barron's story.

MY FIRST FLIGHT FROM A FLAT-TOP



1 "The night before the qualifying tests we mustered at the dock, with our gear, in front of the USS Wright. Time was 1830. I think I can say that we all felt pretty cocky and confident about it all."

"This is what put me on edge. Landing pattern and procedure as well as advice by the AO and the LSO made us feel, without exaggeration, as if these were coaches—talking it up before the game." 4



2 "Got up in the morning feeling fine, ate a hearty breakfast. The ship was underway plowing steadily toward operation area in the Gulf. Wonder if these deck landings are like Field Carrier landings."

"I was disappointed to find when they read the flight schedule, that I was listed as a 'Switch' in the second flight. My turn would come when all my buddies qualified. So I helped them with their gear." 5

3 "At 0700 we students were mustered in the aft ready-room for a talk by the Air Officer and last minute briefing by the Landing Signal Officer. We were quite tense but anxious to start the landings."

"Then we all went up to the flight deck and watched the first six fellows man their ships. I had brought my camera on board with me and managed to take a number of shots while awaiting my turn." 6





7 "The first landing was 'hairy.' Joe Parse was coming in high but slow. He cut too much gun and settled to deck level astern. The LSO waved him off and ducked for the net. Joe climbed into the air."



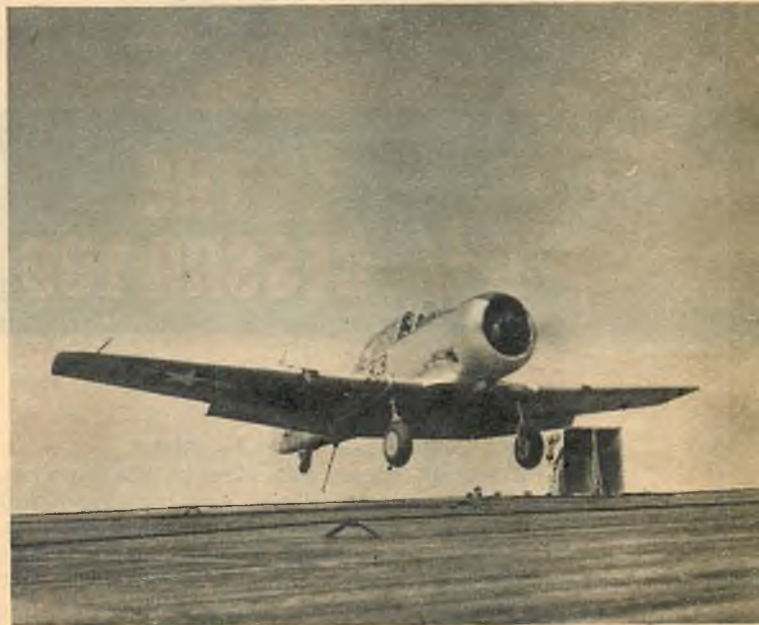
"I gave it a burst of gun and took off. After that I settled down. Coming around the pattern, I felt apprehensive after running down the check list. Had I forgotten anything? I watched for signals."

10



8 "At last my turn came. The mechs strapped me in the cockpit of the SNJ—very thoroughly in fact. I was reaching to plug in my radio cord when I realized I had been listening to static for 15 seconds."

9 "I became slightly nervous knowing that operations were being held up until I got squared away in the cockpit and airborne. At last the Flight Deck Officer wound me up (signalled for full throttle)."



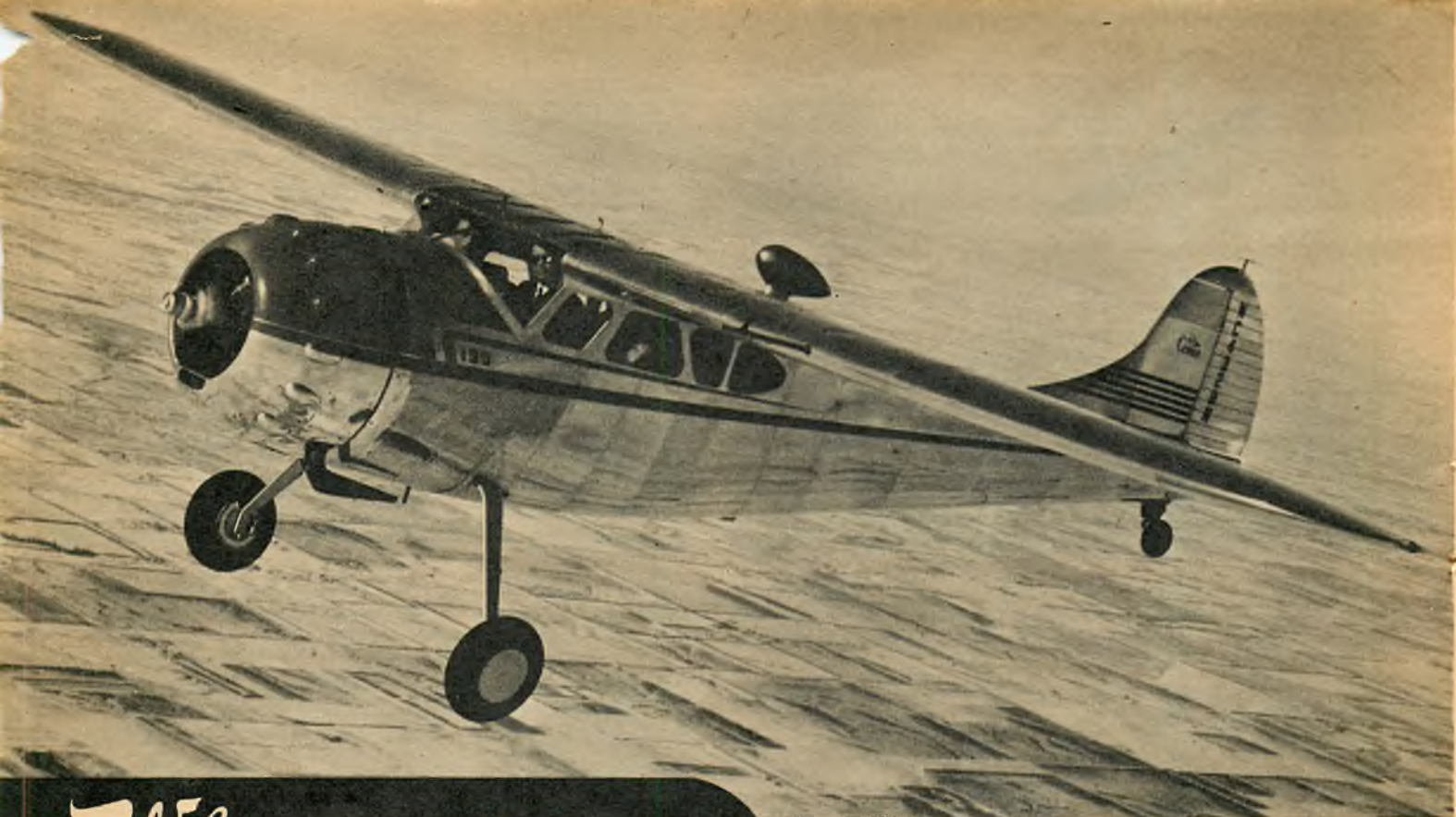
"On my first landing I was rather surprised when after flying her down to the deck my hook caught and stopped the plane so suddenly. I pulled all the usual boners, but got in my six landings."

11

"When you forget to put your hook down, you have to buy the LSO's a 'Gedunk' each (and one for their friends). One of the boys in my flight had to buy 10 cups of ice cream; I got off with three."

12





We Fly THE CESSNA 190

If you want to go cross-country fast and in comfort the big 190 will oblige

By DON DOWNIE

"LET'S get going," said Cessna's pilot. Our ground speed was already 225 mph, but that wasn't fast enough. Dust was blowing a mile high over Kansas and it was getting dark. Even the 50-mph tail wind wasn't going to be enough to keep us from making a night landing at Wichita. To make things even more interesting, we were just one jump ahead of a king-size blizzard.

Since Cessna sells the 190 and 195 for speedy cross-country trips, we arranged to fly half way across these United States to find out for Air Trails just how this big five-placer proves out in the air.

Factory representative on this flight was Erle

"Salty" Bacon, Los Angeles Cessna distributor, who quit keeping a log book when it totaled 5,000 hours. Our other passenger was Ben Hazelton, an oldtimer with 6,700 hours in the air—so there was plenty of pilot know-how going along.

Our cross-country flight was from the Monrovia Airport near Los Angeles to Wichita, Kansas. The course we flew totaled 1,260 miles and our flight time was within two minutes of seven hours: that averages out at 180 mph ground speed. We beat the scheduled airline elapsed time for this flight by 40 minutes even though we spent over an hour on the ground at Albuquerque, N. M., for fuel and lunch.

● Landing at Wichita was made just ahead of a snow squall. "Salty" Bacon removes baggage from Cessna. Note mud on landing gear.

● Downie, left, at controls of the 190 during cross-country flight. Air speed 180 mph, altitude 8,220 ft. Ship has dual wheel yoke.



Competitors call the Cessna 190 series an old-fashioned airplane because of its fixed landing gear and radial engine. Actually, it does look a lot like the old Lockheed Vega that Wiley Post flew to so many records. The 190 is big and fast. It's quiet and stable. It climbs out of short fields like an angel late for work. The performance of this ship makes it the fastest personal airplane now in production. Some models of the Wasp-powered, stagger-wing Beech had a higher cruising speed, but that biplane is no longer in production.

This 190 is at its best on a long trip. Any pilot who merely flies the big Cessna around the airport for an hour or so won't have much idea of the capabilities of this "going" piece of flying machinery.

Being both fast and heavy, 3,350 pounds gross weight, a newcomer would expect the 190 to handle like a "hot" airplane. It doesn't! If you can fly the little two-place Cessna 120, you'll feel right at home in its big sister. Naturally the 190 has more gages and switches but the only added control is for the constant-speed propeller. All the primary instruments are right where you found them in the little airplane since Cessna uses the same basic cockpit arrangement in all their planes.

take-off, visibility improves immediately and in flight the front-balcony view is grand.

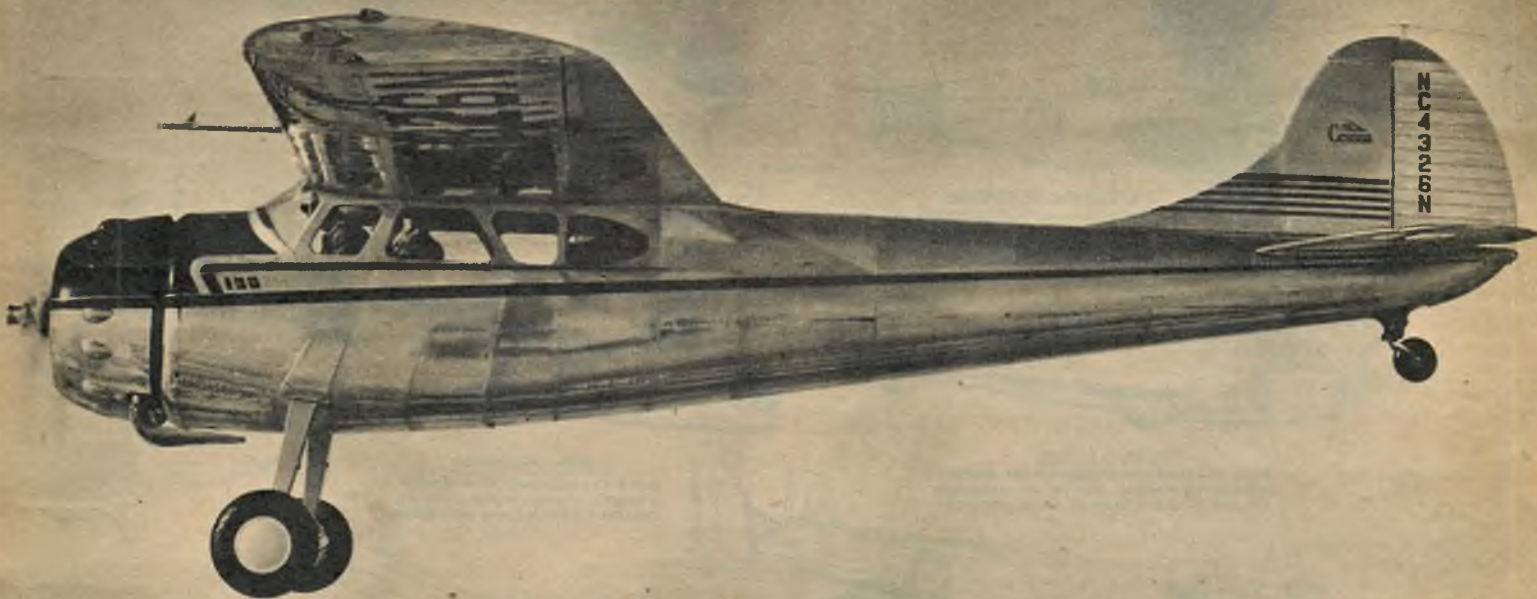
One of the items that Cessna plugs consistently is the unobstructed passenger visibility from the rear seats. In flight you can certainly see everything that rolls by beneath the airplane no matter where you sit.

Since there was a long day of flying ahead of us, we wanted to get off the ground at Monrovia with a minimum of delay. The morning sun was already well above the horizon when we climbed aboard and gave the instrument panel a very quick once-over.

"Where's the wobble pump?" we asked "Salty."

"We don't need one," replied the Cessna pilot. "There's a gravity feed for the gas supply plus an engine-driven fuel pump. Actually this ship has a spring-loaded fuel by-pass so that it will run indefinitely without a fuel pump. The CAA has licensed the 1949 Cessna 170, little sister to this airplane, without a fuel pump and there's a good chance that we may eliminate it eventually on this airplane."

The big Continental 240 started easily after a couple of shots from the primer. The mags checked out, the controls were free and the trim-tab set for take-off so we headed down the single 2,550-foot runway. Even with three passengers, their ample

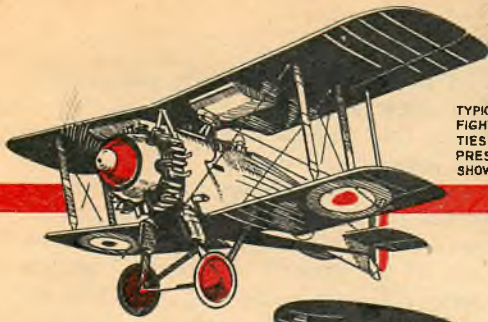


On the ground the Cessna 190 is blinder than planes with a tricycle gear. There's no getting all the way around that big radial engine, but the straight-ahead visibility is surprisingly good around the side of the power plant. The only spot invisible to the pilot with the plane in a three-point position is off to the right of the nose about 20 degrees. With two pilots in the airplane there is no reason to "S" while taxiing, but if you're up there all alone, you must occasionally swing the nose from side to side if you plan to clear that blind spot. Once the tail starts up on

baggage and nearly 400 pounds of freight, the 190 hopped off the graveled strip long before it reached mid-field. As in all Cessnas, take-offs are made from almost a three-point position. Just as soon as the tail starts up off the ground, you apply a little back pressure on the control wheel. As flying speed is reached, the plane pulls right into the air. The air speed needle was just reaching 60 when the plane broke ground.

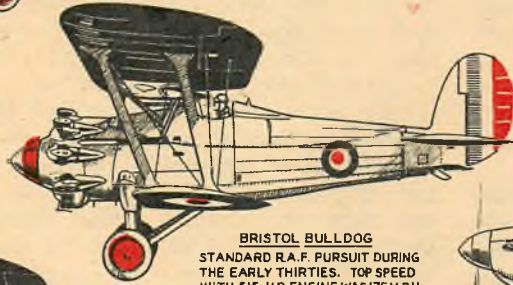
You can't go to sleep on the rudders when you make a take-off in the 190. Many a pilot, including this reporter, forgets a lot (Continued on page 77)

Air Progress

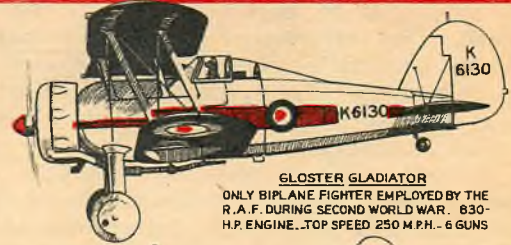


GLOSTER GREBE
TYPICAL R.A.F. SINGLE-SEAT FIGHTER OF THE EARLY TWENTIES. COMPARE IT WITH THE PRESENT-DAY GLOSTER JETS SHOWN ON THE OPPOSITE PAGE

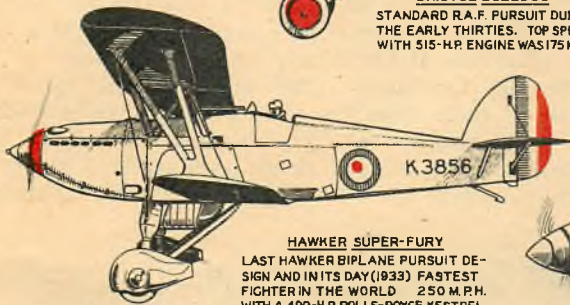
FIGHTERS



BRISTOL BULLDOG
STANDARD R.A.F. PURSUIT DURING THE EARLY THIRTIES. TOP SPEED WITH 515-H.P. ENGINE WAS 175 M.P.H.



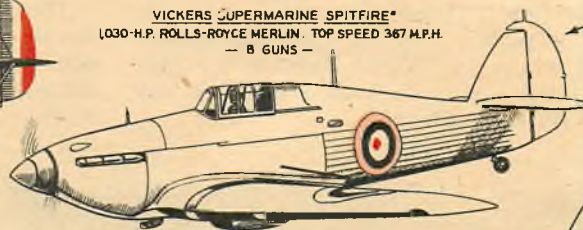
GLOSTER GLADIATOR
ONLY BIPLANE FIGHTER EMPLOYED BY THE R.A.F. DURING SECOND WORLD WAR. 630-H.P. ENGINE. TOP SPEED 250 M.P.H. - 6 GUNS



HAWKER SUPER-FURY
LAST HAWKER BIPLANE PURSUIT DESIGN AND IN ITS DAY (1933) FASTEST FIGHTER IN THE WORLD. 250 M.P.H. WITH A 490-H.P. ROLLS-ROYCE KESTREL

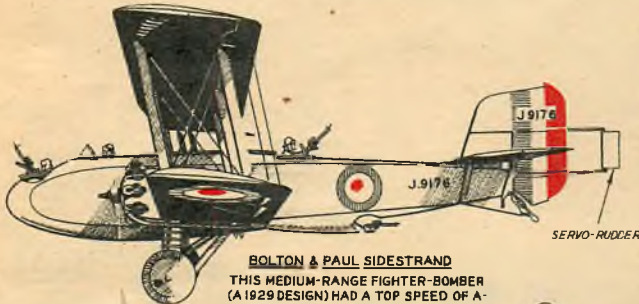


VICKERS SUPERMARINE SPITFIRE*
1030-H.P. ROLLS-ROYCE MERLIN. TOP SPEED 367 M.P.H. - 8 GUNS -

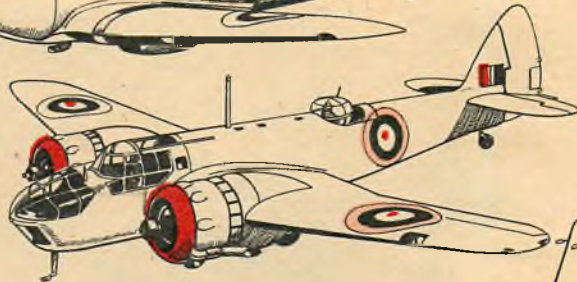


HAWKER HURRICANE*
1030-H.P. R.R. MERLIN ENGINE. TOP SPEED 335 M.P.H. 8 GUNS

*HURRICANES AND SPITFIRES BORE THE BRUNT OF THE BATTLE OF BRITAIN IN 1940 AND INFLICTED A STUNNING DEFEAT ON THE NUMERICALLY SUPERIOR GERMAN LUFTWAFFE.

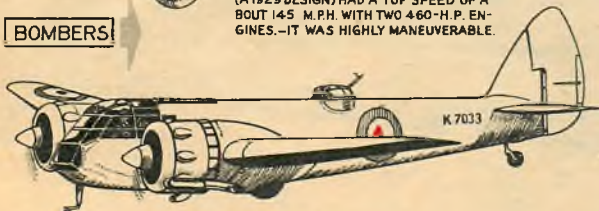


BOLTON & PAUL SIDESTRAND
THIS MEDIUM-RANGE FIGHTER-BOMBER (A 1929 DESIGN) HAD A TOP SPEED OF ABOUT 145 M.P.H. WITH TWO 460-H.P. ENGINES. - IT WAS HIGHLY MANEUVERABLE.

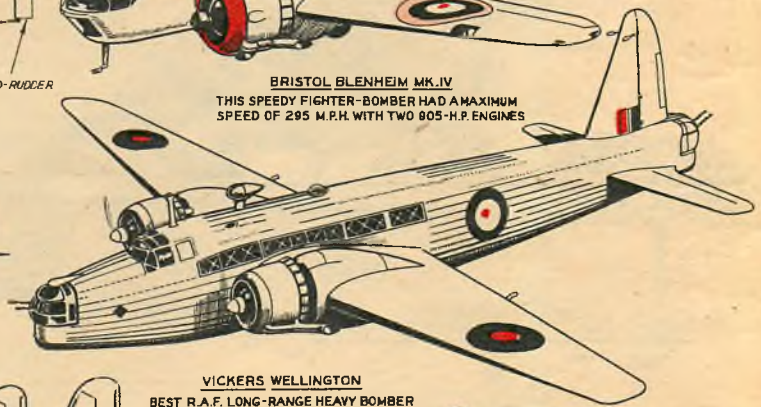


BRISTOL BLENHEIM MK. IV
THIS SPEEDY FIGHTER-BOMBER HAD A MAXIMUM SPEED OF 295 M.P.H. WITH TWO 805-H.P. ENGINES

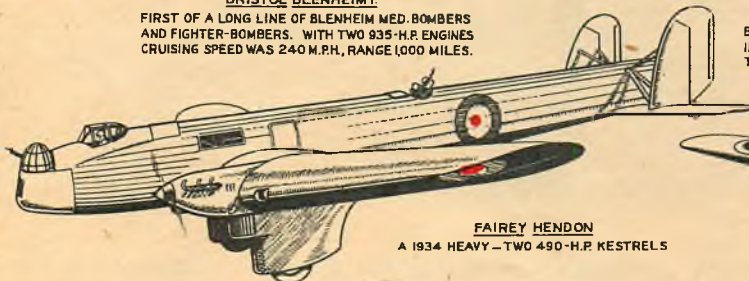
BOMBERS



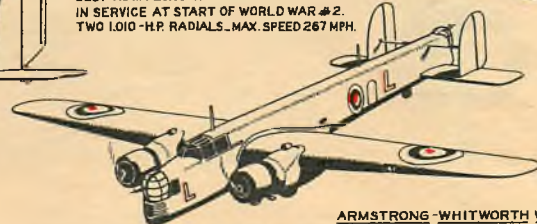
BRISTOL BLENHEIM I.
FIRST OF A LONG LINE OF BLENHEIM MED. BOMBERS AND FIGHTER-BOMBERS. WITH TWO 935-H.P. ENGINES. CRUISING SPEED WAS 240 M.P.H., RANGE 1000 MILES.



VICKERS WELLINGTON
BEST R.A.F. LONG-RANGE HEAVY BOMBER IN SERVICE AT START OF WORLD WAR #2. TWO 1010-H.P. RADIALS. MAX. SPEED 267 MPH.



FAIREY HENDON
A 1934 HEAVY - TWO 490-H.P. KESTRELS



ARMSTRONG-WHITWORTH WHITLEY
TWO 910-H.P. RADIALS - MAX. SPEED 215 M.P.H.

PRE-WAR TYPES

EARLY WORLD-WAR 2 TYPES

Immediately after the conclusion of hostilities in World War I, the Royal Air Force had its establishment sharply curtailed and for years was equipped with obsolete service types. For nearly a decade, it was equipped with such old war types as the Avro 504K, the Bristol Fighter, and the D.H. 4 - to name a few.

Thereafter new designs trickled in but it was not until 1935 that the prototypes of the fighting planes of World War II were laid

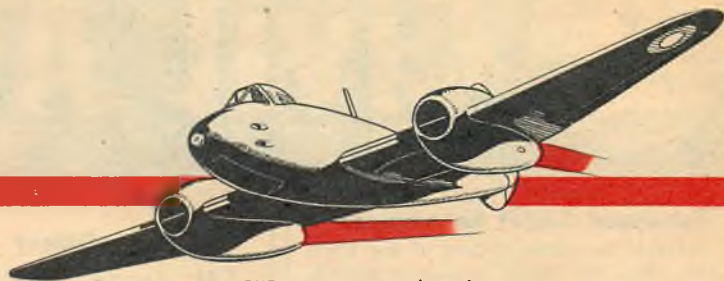
down. In that year both the Spitfire and the Hurricane fighters were flight-tested and were in production in time to meet and decide the Battle of Britain in 1940.

At the beginning of the war in 1939 the total strength of the R.A.F., all ranks, was about 118,000 men. This was steadily increased until, at the end of the war, the total strength of the R.A.F., all ranks, men and women, was 1,185,000.

The R. A. F. Story

PART TWO

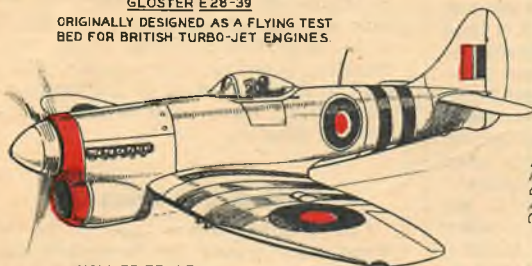
By DOUGLAS ROLFE



THE GLOSTER METEOR (ABOVE) AND THE D.H. VAMPIRE (BELOW). TODAY'S STANDARD R.A.F. JET FIGHTERS. BOTH HAVE OPERATIONAL SPEEDS OF OVER 500 M.P.H.—THE METEOR IV A TOP SPEED OF 610 M.P.H.



GLOSTER E28-39
ORIGINALLY DESIGNED AS A FLYING TEST BED FOR BRITISH TURBO-JET ENGINES.



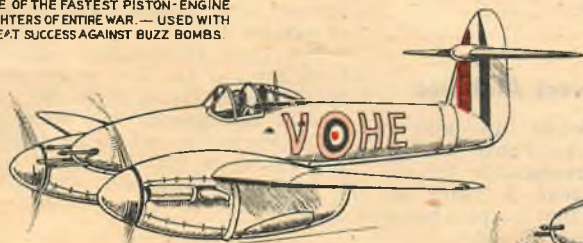
HAWKER TEMPEST
ONE OF THE FASTEST PISTON-ENGINE FIGHTERS OF ENTIRE WAR.—USED WITH GREAT SUCCESS AGAINST BUZZ BOMBS



NOTE: THE VAMPIRE WAS FIRST JET-PROPELLED AIRCRAFT TO COMPLETE AN ATLANTIC CROSSING (JULY, 1948)



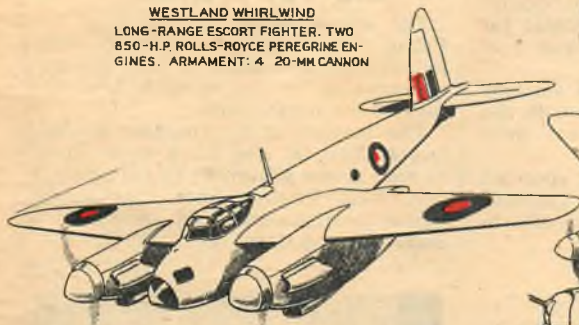
HAWKER FURY
LAST OF A LONG LINE OF PISTON ENGINE HAWKER FIGHTERS (1914-49); TOP SPEED WITH 2,025-H.P. ENGINE EXCEEDS 450 M.P.H.



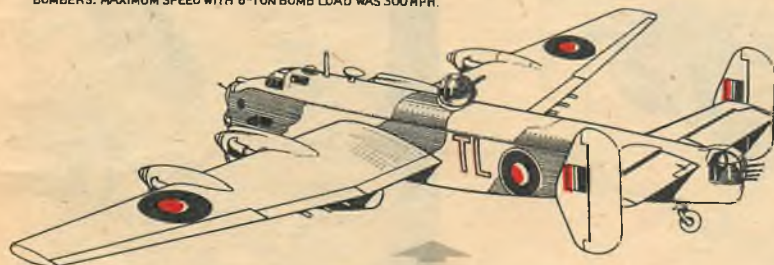
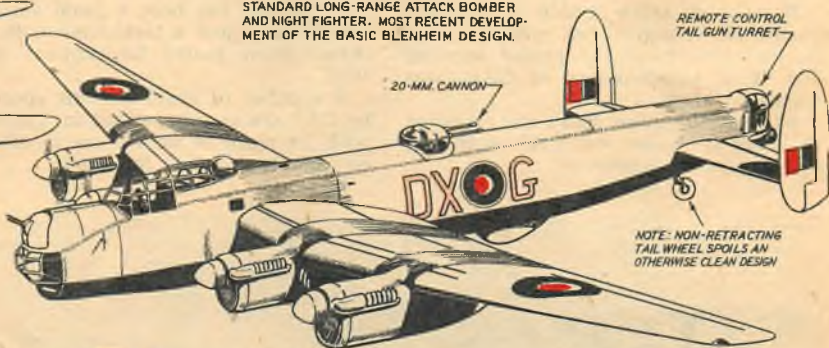
WESTLAND WHIRLWIND
LONG-RANGE ESCORT FIGHTER. TWO 850-H.P. ROLLS-ROYCE PEREGRINE ENGINES. ARMAMENT: 4 20-MM CANNON



BRISTOL BRIGAND
STANDARD LONG-RANGE ATTACK BOMBER AND NIGHT FIGHTER. MOST RECENT DEVELOPMENT OF THE BASIC BLENHEIM DESIGN.



DE HAVILLAND MOSQUITO (ABOVE) WAS BEST AND FASTEST BRITISH MEDIUM BOMBER AND BOMBER-FIGHTER OF ITS DAY. HANDLEY PAGE HALIFAX (BELOW) WAS ONE OF THE TOP R.A.F. BOMBERS. MAXIMUM SPEED WITH 6-TON BOMB LOAD WAS 300 M.P.H.



AVRO LINCOLN
STANDARD LONG-RANGE HEAVY BOMBER OF THE R.A.F. THE LINCOLN RESEMBLES THE AVRO LANCASTER OF WORLD WAR 2 FAME BUT IS LARGER, MORE POWERFUL AND MORE HEAVILY ARMED. ENGINES: FOUR 1,760-H.P. ROLLS-ROYCE MERLINS. BOMB LOAD: UP TO 11 TONS. ARMAMENT: SEVEN .5 CAL. MACHINE GUNS, TWO 20MM CANNON. CREW: 7. SPEED AND RANGE COMPARE ROUGHLY WITH THAT OF OUR OWN BOEING B-29 MED. BOMBER. THOUGH BOMB LOAD CAPACITY IS VERY MUCH LARGER.

LATER WORLD WAR-2 TYPES

PRESENT-DAY SERVICE TYPES

The R.A.F. fought in every theater of operations, including the Pacific, and suffered 112,000 casualties. For more than a year it bore the fury of the air war against the numerically superior Luftwaffe aided only by a few lend-lease aircraft from the U.S.A. Despite this it was able to build up a formidable Bomber Command and initiate the shattering mass attacks which were later to reduce the Third Reich to rubble. The first of these attacks,

the 1,000-plane attack on Cologne, set the pattern for the planned bombing of Germany which the allied air arms continued on an ever increasing scale until the end of the war.

Lack of space prevents showing more than a few representative fighting aircraft of the R.A.F. These are conveniently divided up into four main periods to cover the period from the end of World War I up to the present day.



Civil Air Patrol

Expanded Cadet Encampment

Several thousand Cadets of the Civil Air Patrol will spend two-week periods this summer at a score or more Air Force Bases, National CAP Headquarters has announced in Washington.

About 2,500 Cadets are expected to attend the summer encampments, which are proving more popular each year.

During the two-week period, Cadets put to practice the theory they have been taught in their ground schools. Separate encampments are held for girl cadets who will receive the same training that is afforded the young men.

The two week encampments held at various USAF bases June through August are a definite part of the CAP training course with credits given for satisfactory work.

Tinker Air Force Base in Oklahoma for example, offers CAP Cadets a course in the maintenance of the J-35 engine, which includes 22 hours of classroom theory and 38 hours of actual assembly and disassembly. At Kessler AF Base in Mississippi and at Maxwell AF Base in Alabama, A&E training is offered.

Cadets desirous of attending the summer encampments should apply now to the commanding officers of local units.

Congressional Dinner Set

The fourth annual Civil Air Patrol Congressional Dinner in Washington, D. C., at the Statler Hotel was scheduled for May 11.

The annual affair, which attracts top leaders of Congress as well as high ranking officers of the armed services and Wing Commanders of CAP, was started in 1946.

At the dinner, Gen. Beau was expected to make a report on CAP activities to some 400 persons.

Change in Officer Strength

CAP National Headquarters has announced a new table of organization under which each Wing is permitted the following officer set-up:

One Colonel, one Lt.-Col., 11 Majors, 10 Captains, four 1st Lts. and three 2nd Lts.

Each Squadron is permitted one Major, one Captain, 10 1st Lts. and two 2nd Lts. The appointment of Warrant Officers will continue to be purely a Wing function, subject to the will of the Wing Commander, along with noncommissioned appointments.

Time in grade requirements must be met prior to promotion as follows: Initial appointment as 2nd Lt., six months; 2nd Lt. to 1st Lt., six months; 1st Lt. to Captain, eight months; Capt. to Major, 12 months; Major to Lt.-Col., 18 months.

Radio Net Covers Alabama

A father who became interested in the Alabama Civil Air Patrol through his son is largely responsible for enabling CAP to spread a radio net throughout the state that has paid handsome dividends in recent floods.

The father, CAP Lt. Sam S. Norton, became interested in the Patrol because his son Richard has been a Cadet for the last three years in Squadron 7 of Birmingham CAP Wing.

Lt. Norton has been a radio amateur for 11 years and a technician with the Birmingham Police Department since 1942.

A number of radio stations operated by CAP are now in service in Alabama, with 14 more to be set up shortly to completely blanket the state.

Great Falls On Crate Falls

Great Falls, Montana, Squadron CAP has developed a simulated search-and-rescue mission to test a pilot's accuracy in dropping items, and the effect a fall has on articles in various types of packages.

Eggs, bottles of water, food, medical supplies and even rocks were dropped. Examination of packages after the mission was completed showed all fragiles to be in perfect condition. Capt. Philip Teakles, Squadron Commander, will be glad to furnish details of the mission to other CAP units who wish to try a similar mission.

Shift In Louisiana CO

Col. William David Haas is the new Wing Commander for Louisiana Civil Air Patrol, succeeding Col. William A. Prewitt who resigned due to pressure of private business.

Col. Haas, independent oil producer from Bunkie, La., is a veteran of both World Wars. Flying since 1922, he was one of Louisiana's early crop-dusters.

Col. Prewitt joined the Louisiana Civil Air Patrol in 1942. He will continue to lend his assistance to CAP activities in Louisiana.

CAP Day December 1

The annual observance of Civil Air Patrol Day appears to have been founded last December 1, 1948, in commemoration of the seventh anniversary of the organization.

The mayors of Huntingdon, W. Va., Des Moines, Ia., and many other cities, as well as the governors of Connecticut and West Virginia and other states, issued proclamations last December 1 designating that day as "CAP Day."



● Col. Bertrand Rhine (above) with plaque received for his efforts as Calif. Wing CO. Lt.-Col. B. S. McGlashen is now Acting Cmdr.

● Game Warden O. S. Bock (left) loads feed into L-4 flown by Lt. William Fitzgerald (in rear seat) and Capt. Russ Boegeman. Idaho planes flew 30 mercy missions a day.

Newsletter

News and highlights of Senior and Cadet activities from coast to coast. Cadet membership is open to boys and girls, 15 to 17.

New AF Regs For CAP Uniform

National Headquarters CAP has just announced new Air Force Regulations pertaining to prescribed items of uniform for CAP members.

Uniforms can be purchased from Quartermaster stocks and Army exchanges by CAP senior members, and by CAP Cadets when accompanied by Senior Members.

According to the new regulations the uniform and insignia are the same as those of the Air Force, with the following distinctive exceptions:

CAP shoulder sleeve insignia must be worn in the same manner as the regulation USAF shoulder sleeve insignia; all buttons are to be silver or other white metal as presently designed and worn by CAP; the silver letters "CAP" replace the "US" worn on the lapel of USAF uniforms.

Silver wing and propeller lapel insignia replace the gold and silver wing and propeller insignia worn on USAF uniforms; silver pilot and observer badges are as designed and worn by CAP; cap and silver winged cap insignia are as now designed.

The uniform regulations prescribe items of both men and women's clothing for both summer and winter outfits, and the USAF regulations concerning the uniforms will be distributed to all Wings and then to other units of CAP.

Squadron of the Month!

Nine months of hard work and a real membership campaign is the way a healthy, interested and worthwhile CAP Squadron can be started. For this accomplishment the Winchester, Va., Squadron receives the honorary "CAP Squadron of the Month" title.

The story of this Squadron started Mar. 23, 1948, when it was activated by the Virginia Wing as a CAP Flight. On Jan. 10, 1949, 71 were on the roster and with the required strength it was made a Squadron.

In between the dates, the Squadron Commander, Lt. Ludwig G. Sjostrom, and every member of the unit, put forth some mighty hard work.

Organizational meetings, classes in navigation, meteorology, theory of flight, radio and Link Trainer instruction, motion pictures, an air show, flight breakfasts, sending Cadets to a summer encampment and even a turkey shoot which brought in enough funds to hold a successful bean supper to celebrate and observe Pearl Harbor day—these are some of the undertakings that have welded together one of the nation's most successful CAP Squadrons.

The Winchester Squadron has its own rooms at the Municipal Airport through the cooperation of a Squadron member, George J. Scheder. It put on one of the best air shows ever seen in that area of Virginia. For those below the age requirements of Cadets it permits attendance as mascots until they reach the Cadet age.

These accomplishments make a successful CAP Squadron, and have brought commendation from Virginia Wing Commander Col. Allan C. Perkinson.

CAP FLIES MERCY MISSIONS

CAP NOTES

Maj. Robert E. Davidson is the new commander of Group 6 of the New York Wing, known in Buffalo as the Niagara Frontier. Maj. Davidson is a veteran . . . he served in both the Royal Canadian Air Force and AAF.

Missouri Wing CAP has activated a new unit at Sedalia with Harry W. Trotman as the C.O. The Wing expects to activate more units shortly. Good going, Mo.

Vermont Wing CAP has two Link Trainers in operation at Wells River and Brattleboro, needs two more for the St. Johnsbury and Bennington Squadrons. You got any extra ones kicking around?

The Birmingham, Ala., "Patroler" of the Alabama Wing CAP is moaning the blues—just can't get enough news from the Squadrons throughout the state. The AF-CAP Liaison Officer knows, says he, that Alabama's 13 Squadrons are active and doing a fine job, and he wants to tell the nation about them. C'm'on, folks, cooperate.

New Orleans units of Louisiana CAP have been organized into a Group under command of Maj. Harold deMontfort.

Idaho Squadrons are accenting Cadet activities. The Boise Squadron's most popular activity is a class in model plane building, with the first project devoted to gliders. . . . Idaho Falls Squadron reports 65 girls and boys turning out for the meetings.

Middlebury, Vt., Squadron CAP provided a generator for the Porter Hospital during a power failure. The emergency lighting was installed just in time—for a patient shortly afterward gave birth to a son. Should be a good prospect for Cadet membership one of these days.

New Hampshire Wing CAP assisted the Headmaster of Laconia High School in setting up a new CAPC training program to be offered to selected students; Wing hopes to assist other N.H. high schools in establishing similar programs.

National Capital Wing CAPers worked at nearby airports during the Presidential inauguration aiding visitors flying to the city during the affair.

Seattle, Washington, Squadron CAP reports a substantial Cadet drive on at present and boasts that its schooling facilities are unsurpassed, adding however that one character insists on flying the Link contact.

Blizzard Brings Out Patrol, Many Lives Saved in Storm

The worst blizzard in the memory of oldtimers early in the year found the Civil Air Patrol in Colorado and Nebraska performing outstanding rescue and emergency work which saved many lives and earned the gratitude of thousands.

Reports by AF-CAP Liaison Officers Maj. William C. Sullivan of Colorado and Capt. Frank M. Bowman of Nebraska read like colorful fiction.

Snowdrifts up to 30 feet deep, 60-mph winds, sub-freezing temperatures, thousands of desperate snowbound persons and hundreds of snowbound motorists contrived to make the rescue and aid job extremely difficult and dangerous.

For instance, here's a summary of the mission performed by Group 5 of Colorado Wing CAP: Nearly 100 hours flown on 51 missions, 20 emergency landings, 20 fuel drops and 10 medical drops, 55 distress signals located.

The most dramatic part of Group 5's missions was a search for ex-AF pilot William Harrison missing nearly four days on a flight from Rock Springs, Wyoming, to Grand Junction, Colorado. Harrison's plane was found after hours of search, nosed over in a snowbank on an 8,000-foot plateau. The pilot was located in a shack about two miles from the crashed plane.

The CAP J-3 Cub was fitted out with toboggan skis, effected a difficult landing, picked up the ex-AF pilot and returned him to Grand Junction for medical attention.

The Nebraska Wing CAP, with both Seniors and Cadets working long hours under frequently impossible and hazardous conditions, located and removed persons requiring medical aid, dropped food, medicine and fuel, located two stranded tourists who for nearly two days had been isolated in their car living on potato chips and snow, toiled endless hours keeping aircraft in operation and maintaining emergency CAP radio service.

Great credit goes to Capt. Matt Brennan of the Mitchell, Neb., Squadron who, after many successful rescue missions, cracked up in landing on a highway in snow while on a mercy flight. Seriously hurt, he is now recovering.

CAP Cadet Jack Nerud of Bayard, Neb., also was given high praise for the outstanding job he performed in accompanying and assisting Capt. Jack Lewis, Bayard Flight Commanding Officer, on many missions during the storm.

Rescue Operations Coordinated

Fifteen northeastern state CAP Wing Commanders and Operations Officers as well as U. S. Air Force-CAP Liaison Officers met recently at Westover Field Air Force Base, Massachusetts, to coordinate rescue activities between CAP
(Continued on page 96)

AERIAL HIGH

By ED FRANCIS

When flight and mechanics courses are a part of the high school program, it's easy to see why students stay interested in their studies

THERE'S nothing boring about high school studies for the boys and girls enrolled in the aviation training program of the Marion County Vocational School at Ocala, Florida.

Yet it's a sad commentary on the alleged air age that this should be one of the few secondary vocational schools in the United States to give academic credit for time spent studying aircraft mechanics and flying.

The County School is the only one in the Southeast to include flying in its curriculum, according to William McLean, who is in charge of aviation training at Ocala.

Located in two hangars at Taylor Field, the aviation school operates its courses on an integrated schedule with the Ocala High School. Students enrolled in the mechanics course spend about 4 hours a day at the airport for three years and earn about half their graduation credits there.

Students in the flight courses train in two Cubs and a Fairchild PT-19. At the end of three years they are qualified for a Commercial certificate. Eighteen-year-old Gil Townsend, the first to complete his flight



● The two Piper Cubs and the Fairchild PT-19 used for flight

courses at Marion County, is believed to be the first high school student in the U. S. to qualify for his Commercial rating in a secondary school aviation vocation program.

The mechanics school, which is CAA-approved, is one of 12 in the country which give high school credits for the engine, aircraft and combined A&E course.

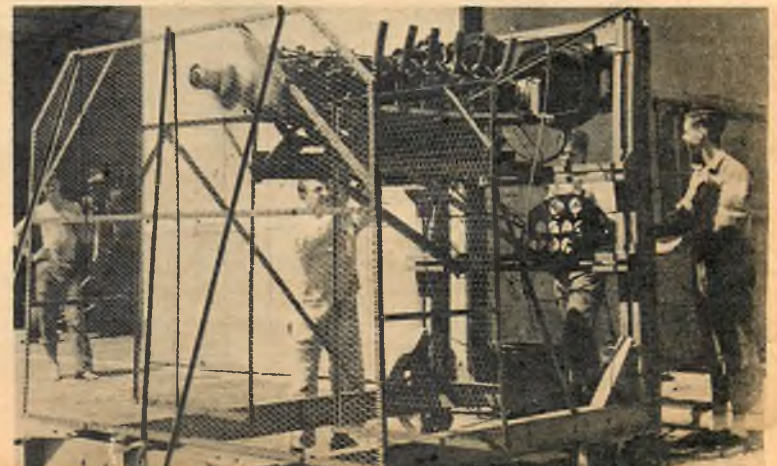
Bill Tankersley, the school's flight instructor, reports that its flying activities are self-supporting. Students pay for gasoline and oil (\$2.50 per hour for the Cubs and \$3.50 for the PT-19) and maintenance is done in the school shops as part of the mechanic training. An interesting note is that Tankersley claims to have the fastest standard J3 (65-hp) Cubs in the country. They cruise at 85 mph because of first class fabric covering and 22 coats of dope—each coat hand-rubbed.

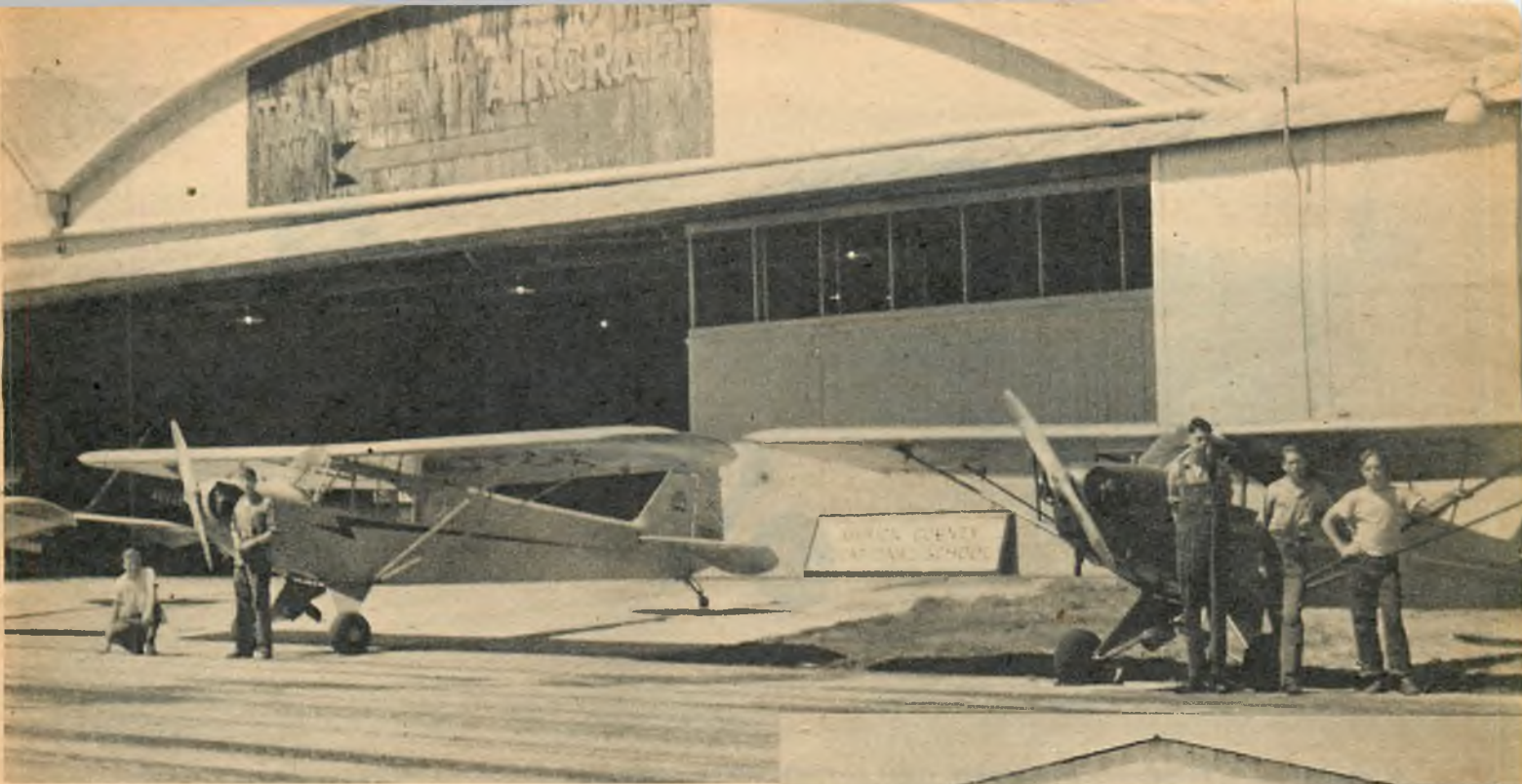
The school boasts a Link trainer, airport classrooms, a fabric and supply room, and a film projection room. A small metal hangar erected by the students is used as the dope shop. The outfit was organized in 1941 and has had many ups and downs, but the en-

● Students doing fabric work on one of the Cubs. Twenty-two coats of dope and hand rubbed finish increased speed of plane.



● A 12-cylinder Franklin engine gets a run-in on test stand constructed by students. The school's engine course is thorough.





training by students, lined up in front of the school's hangar.

thusiasm of its students and instructors have helped carry it over the lean periods to the point where it is solidly established.

CAA's aviation education division has completed a survey of the school's setup and has offered it as a working plan to other communities interested in similar schooling. Student interest is maintained at high pitch in many ways. Come All-American Air Maneuvers time and a group goes to Miami; others will fly in the school ships to the Southeastern Air Show at Jacksonville. The school sponsors the Ocala Model Airplane Club and permits model builders to use the school shops one night a week.

Plans now under way call for a glider pilot training program. Under it students will build a glider in the school shops. Then students for glider flight courses can be accepted at 14. After instruction in gliders, these boys and girls will be ready for power plane training at 15½ and should solo at 16.

Before students enroll in the flight program they must secure the written consent of their parents and purchase a special insurance policy which costs \$10 a year. Since the school started eight years ago as a

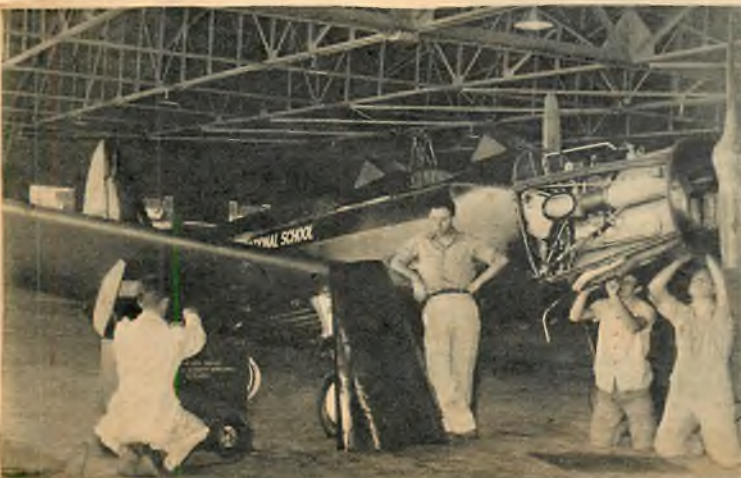


● This hangar used as dope shed was built by the boys. Everybody pitched in to furnish and equip field shop, as cash was short.

part of the National Defense Training Program using federal funds there have been no fatalities, nor any accidents involving more than a broken prop.

Great effort is made to acquaint students of lower grades with aviation and incorporate aviation education in their curriculum. This is done by offering the teachers from nearby schools free rides and furnishing them with instructional material. They are then encouraged to bring their classes for a three-hour tour of the airport. Each class elects a boy or girl who has never flown and who is given a flight over his school and town. Each student who rides is asked to make a report to the class describing the flight. In one two-month period, over 400 students in the 5th, 6th and 7th grades visited the airport.

● Checking and inspecting Fairchild PT-19 training plane. Bill McLean who leans against wing is responsible for school's success.



● Pride of Marion County's Vocational School is Gil Townsend who acquired his commercial pilot rating there. He is also A&E mechanic.





● Ryan Navion for '49 features a more powerful engine developing 205 hp, roomier and quieter cabin, landing gear doors and fairings.

AIR TRAILS

Solo Club

THEY say that if you want to fly badly enough nothing will stop you. So, to start off this month's meeting on an inspirational note, we are going to invite Mrs. J. R. Bredesen, Des Moines, Iowa, to take the floor.

"I would like very much to be a Solo Club member," says Mrs. B. "I am one of those persons who can't remember the day that I wasn't crazy about airplanes. When I married I got a man that could

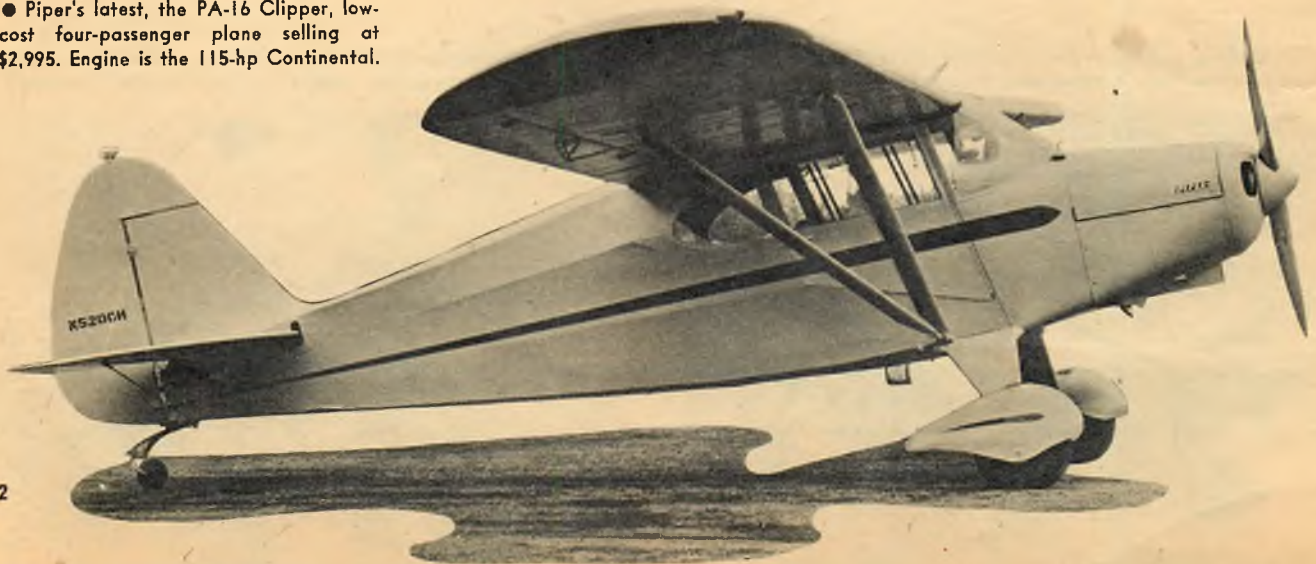
take them or leave them alone, so I converted him.

"When he was wondering what to do with his G.I. training, I talked him into taking flying lessons. He is now well on his way to getting a Commercial license. Unfortunately, my lessons haven't come so easily because of lack of funds. But I have logged 21 hours—six of which are solo. Flying has been the greatest thrill of my life. Our two boys, aged one and a half and three, are right at home in the air."

About six months ago, as many members may recall, the Solo Club explained to a member complaining about the "truck driver" courtesy of airliner pilots, that the crews of modern transports frequently are not able to see nearby lightplanes. A ship like the DC-6, for example, is totally blind to anything out front when it is climbing. Lending point to this discussion, the complaint had to do with an area close to the city of New York. With this preparation we should like to introduce John E. Forbes, Bordentown, N. J. Your ship, John.

"I read all Solo Club news in Air Trails," begins John. "The club is okay, as is the dope you give on flying. As I read in the paper (*Continued on page 91*)

● Piper's latest, the PA-16 Clipper, low-cost four-passenger plane selling at \$2,995. Engine is the 115-hp Continental.





LOCKHEED SHOOTING STARS

By ALFRED OWLES
An Air Trails Air-Pix

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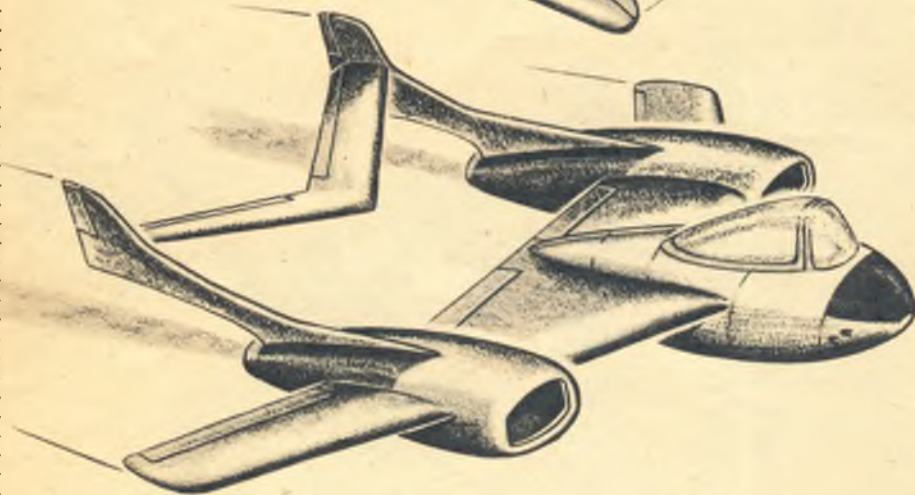
Airmen of Vision

DESIGN COMPETITION

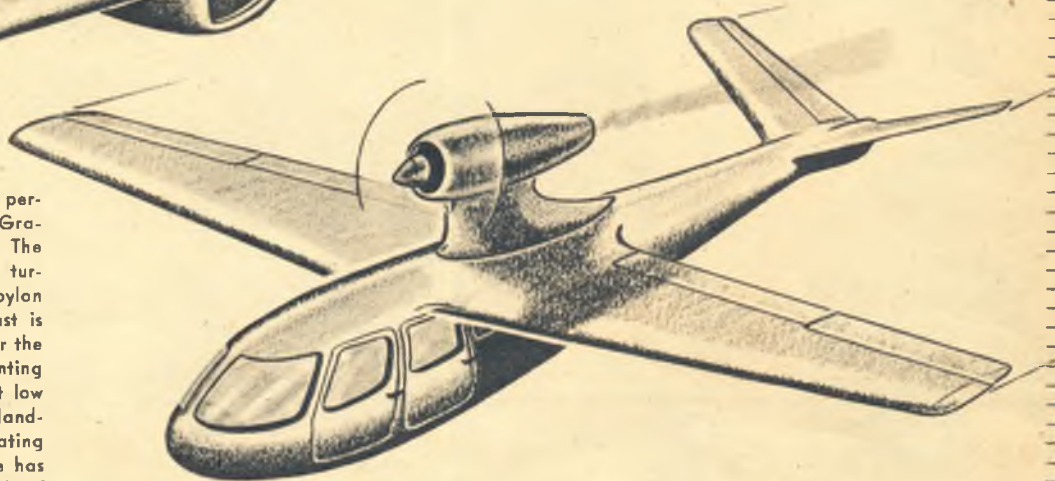
● First prize winner, a four-place canard by Erkki K. K. Bohm of Sao Paulo, Brazil, former pilot of Finnish Air Force. Craft is powered by two 160-hp engines driving a single propeller through an over-riding clutch permitting single-engine operation in case of failure of one of the power plants. Wings have slotted tandem flaps, rear portion moving through a greater angle than the front, thus increasing camber of wing. Top speed, 210 mph; stalling speed, 55 mph.



● Second prize by Sven Eriksson of Sundwall, Sweden, an 18-year-old engineering student. Mr. Eriksson's entry is a twin-jet fighter with an estimated maximum speed of 800 mph, a figure that seems a little optimistic. Wing span is 30 feet. The upswept rear section of fuselage keeps the horizontal tail well out of the jet efflux and the wing wake. Both wings and horizontal tail have a sweepback to alleviate compressibility effects at maximum speeds.



● Third prize, a four-place personal plane by Thaddeus F. Grabowski of Hawthorne, Calif. The plane is designed around a turbine engine located on a pylon above the wing. The jet blast is therefore high enough to clear the bystanders. The pylon mounting permits the cabin to be built low to the ground thus reducing landing gear weight and facilitating entrance to the cabin. Plane has a wing span of 30 ft., length of 30 ft. Maximum speed, 210 mph.



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Air Trails has opened its columns to those who are interested in presenting plans for aircraft of the future.

Rules governing the competition are:

1. Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views.

2. Sketches of the complete airplane in three-quarter front and rear position should be included.

3. Photos of a model of proposed design may be included.

4. Information on power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling is welcome.

5. Entries will not be returned and for that reason those participating should retain copies of all material submitted.

6. The editors regret they cannot enter into correspondence concerning designs submitted.

7. Designs may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-place sporting craft.

8. Mail entries to Airmen of Vision, c/o Air Trails, P. O. Box 489, Elizabeth, N. J.

9. The entry each month judged by the editors as the most practical or of the greatest significance will receive an award of \$25. Awards of \$5 will go to runners-up.



AIR TRAILS
Air Pix
PHOTO COMPETITION



● Piper Cub over Galveston Bay, Tex. Photo by Robert L. Browning of Texas City, Tex., using a Fairchild K-20 aerial camera on Kodak XX aerographic film, f.16, 1/500th sec., minus blue filter. Moonlight effect on water is obtained by back-lighting and overprinting.

● North American F-51 Mustang, shot by solid modeler H. A. Thomas of Little Rock, Ark. Photo taken evidently prior to January, 1947, as white rectangles do not have red stripe through middle. Taken with 4x5 Speed Graphic at f.8 and 1/200th sec. Light yellow filter.

CONTEST RULES

This competition is open to all photographers—amateur or professional. Payment of \$10 will be made on or before publication to those whose photographs appear.

Entries may be concerned with any phase of aviation, and should be glossy prints *not less than* 5 x 7 inches in size. Prints should be well wrapped and protected in the mails by stiff cardboard. Entries must be accompanied by name

and address of photographer. Mail to Air Pix, c/o Air Trails, Box 489, Elizabeth, N. J. Because of the large number of participants, entries will not be returned.

Include full data on subject, camera and film used, exposure, lens setting, and conditions under which picture was made. List equipment for enlargement, printing paper, and all other pertinent information. Air Trails does not assume responsibility for entries. The editors regret they cannot enter into correspondence concerning contributions.

DRAWING BY FRANK ZAIC

RECORD REVIEW

Frank Hirleman set a new mark of 12:37 with this contest ship

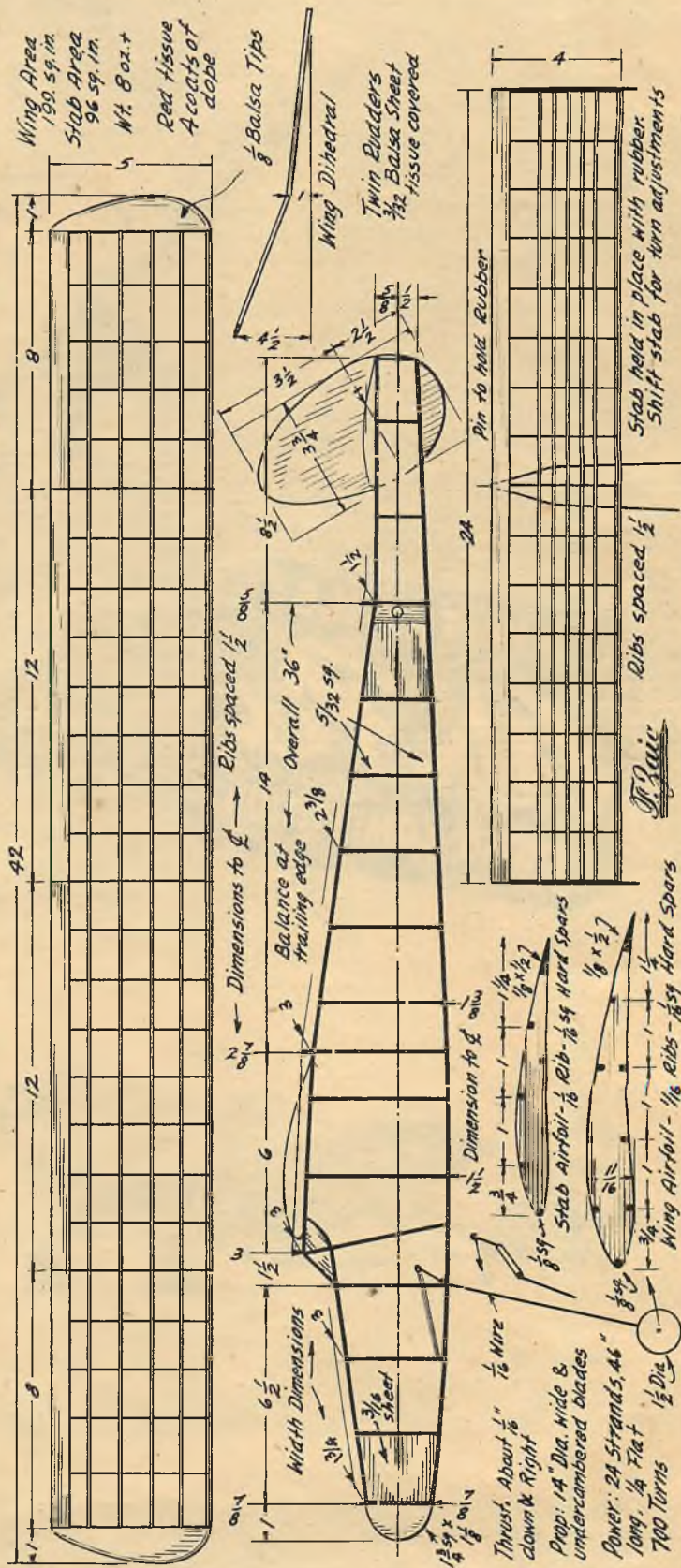
IT was a warm, sunny day when the Lakewood, Calif., Model Association ran off one of the biggest rubber-powered contests ever held on the West Coast. Mr. Hirleman established a Senior Class D outdoor rubber cabin record (average of three flights) with this model noted for its fine gliding characteristics.

"The model," reports the designer, "is adjusted for turn by shifting the stabilizer and rudder unit as a whole. This method is very satisfactory for twin rudder ships because you need not worry about keeping both rudders the same.

"On the record flight, the model climbed straight up with no turn and when power was running out, went over the top for a perfect glide. The glide was to the left and was about the flattest thing I saw at the field, including towline gliders.

"On the last flight, since I had no winder, I borrowed friend Bob Holland's little jewel. This particular winder was fine for $\frac{1}{8}$ " (rubber) but for the wad in this craft—uh! Next I looked for some hapless soul to hold the model. The poor guy looked scared to death when I was winding, so I quit at 500 turns and heaved the ship. The rudder was pretty well shot so it didn't get up more than 200 feet."

"In the space of time it takes to turn around and turn back again, the ship hooked a honey of a thermal. I followed it for about a mile and finally gave up. I sat on someone's lawn and watched it head straight up and into a cumulus cloud. Time—22 minutes, plus."





AN

Announcement

OF IMPORTANCE TO MODEL PLANE BUILDERS

As the result of widespread interest in Air Trails' Full Size Plan Service, starting with this issue a new series of full size working drawings will be offered. The aim of this expanded service will be to bring to readers full size working drawings of all the models presented in each issue of Air Trails for an "at cost" price.

In those instances when designs for extremely large model craft are presented, all parts will be offered in full size form on the monthly plan sheet.

Through this system modelers will be able to secure the working drawings as soon as they receive their copy of Air Trails and dispatch the official coupon order-form with the *new, low fee of 25¢ per plan*. Full size plans will be shipped as soon as orders are received.

Notice the new price of plans. While general costs are rising, Air Trails lowers the price of its working drawings! However, it should be noted that the new plans can be obtained only by using the special order form which will be found in each issue and that the new plans must be ordered within 90 days of the publication date of each issue. Air Trails cannot guarantee to fill orders for the new type plans if remittances and order forms are not mailed in an envelope post-marked before the expiration dates which will be found on the coupons.

From time to time, Air Trails may issue special plans apart from the designs which appear in one particular issue. If so, special announcement will be made—but the important thing to remember is that if you expect to build a model which appears—for example—in this issue and you want full size working drawings, you must send in the order form and 25¢ fee to Air Trails by August 30, 1949.

The reason for this is that it is a costly proposition to retain a supply of plans for many, many months. In order to pass on to the readers a savings in plans, it is necessary to set up a time limit during which orders can be honored. So by availing yourself of this new service, you receive plans at a new low price, and have them while the instructions found in each article are still in your possession.

On page 88 appears the order coupon for Plan #649. This plan includes full size working drawings for building the Bonanza, the Smith Special and Slim Jim. You will also note that some of the previous plans are still available on a first-come-first-served basis.

Please do not write requesting plans already out of stock. Air Trails has only those plans which are listed. If you've been thinking of ordering Plans 101, 103, 105, 106, 107, 108 and 109, now's the time to act.





BONANZA

By LEE SCOTT

**Ever want to build a really detailed flying scale model?
Here's your chance—try this swift, eye-appealing beauty**

IN the past decade numerous small, single-engine airplanes have been designed to meet the desires of the private pilot. Of all these, the Beechcraft Bonanza 35 has been most outstanding in the elimination of drag elements. With the exception of flight instrument fittings and the radio antenna, nothing of consequence interrupts the smooth, eye-appealing lines of this popular, fast airplane. The result has been a gain of speed with the same power rating used in other designs of similar useful load.

It is interesting to note that the same sleek beauty of the full scale airplane can be reflected in a carefully constructed, flyable model.

Read the instructions and study the plans to familiarize yourself with the various details of construction. Start by tracing all bulkheads, wing ribs, stabilizer, gear doors, and the like, labeling each as it is traced. By tracing all of these items first, it is possible to work alternately on some parts while the cement on others is drying. Fold each bulkhead pattern on the vertical center line; this will insure duplication of the opposite side.

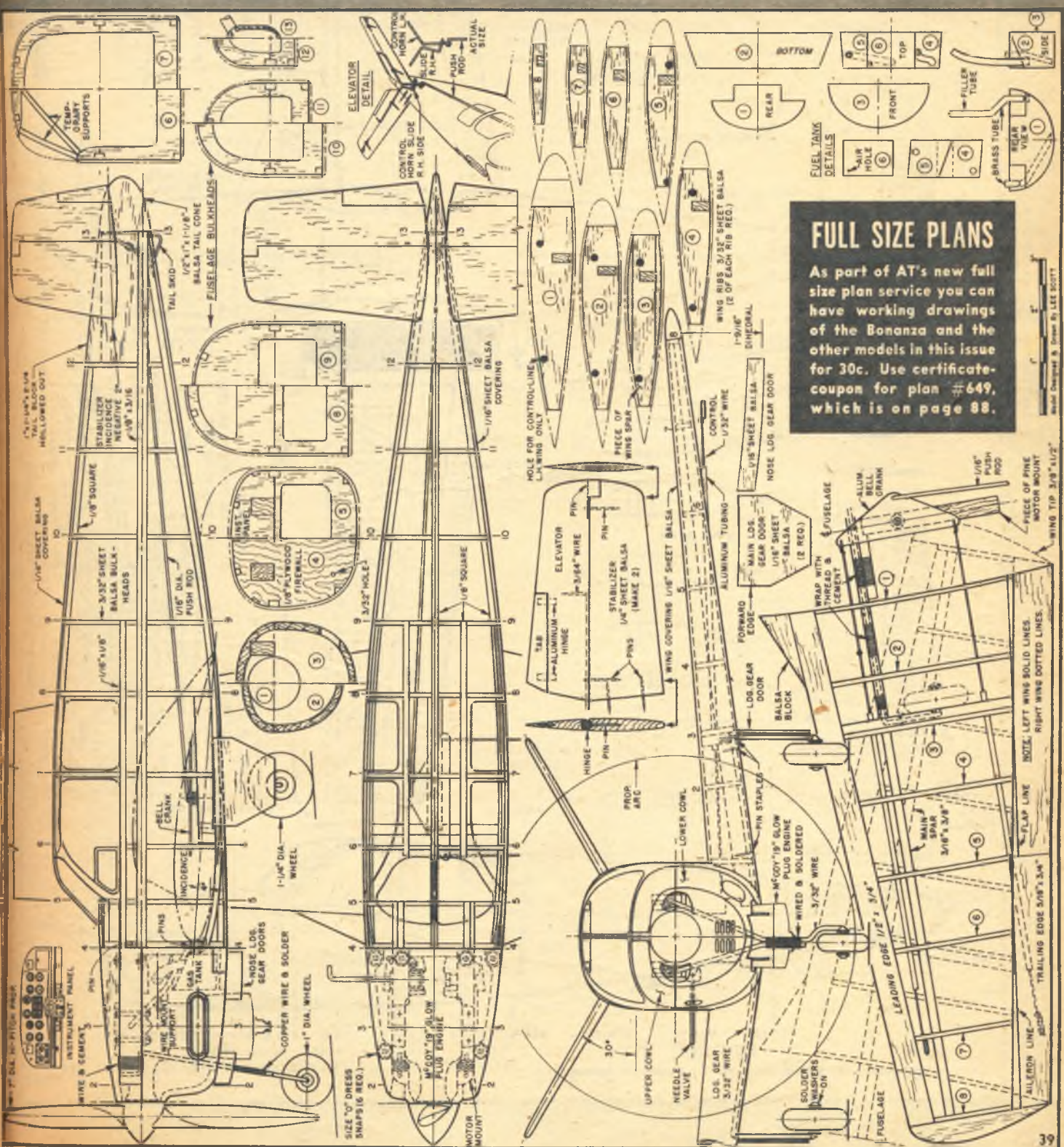
Lay a piece of waxed kitchen paper over the construction plans to prevent cement from sticking to them. Bulkheads #4 through #13 should be cut from a sheet of medium-hard balsa. A coat of clear dope painted on bulkheads, before cutting out the center and the longeron notches, helps to prevent small edges from splitting. Making sure the wood grain (see drawing) runs the right direction in bulkheads and ribs, not only prevents them from splitting but adds to the strength of the model.

Pin the $\frac{1}{8}$ " x $\frac{3}{16}$ " center longerons on the top

view, cut the bulkheads on the horizontal center line, and cement the bottom portion in position. Cement $\frac{1}{8}$ " longerons in place, and allow to dry. Turn the bottom half over and pin down between bulkheads #5 and #8 with a one-inch block under bulkhead #13. Cement upper half of each bulkhead in position, along with the cabin stringers and top longeron. Temporary supports should be cemented in, as shown on bulkhead #6; this supports the cabin while covering the fuselage.

Put a wad of cotton in the exhaust and intake tube of the motor to keep out wood dust, and attach it, inverted, to two pine mounts. Drill two $\frac{3}{32}$ " holes in the $\frac{1}{8}$ " plywood firewall (bulkhead #4) for the $\frac{3}{32}$ " wire, motor mount supports, and slide the pine motor mounts through the holes provided in the firewall. To make sure you have the bends in the right location, it is a good idea to form a sample motor mount support, landing gear and control horn, of soft wire before bending one of hard piano wire. Make sure the motor mount supports do not interfere with the fuel inlet or needle valve. Nail four pin staples over the wire mount supports, through the firewall, bend ends back, and cement. Nail a pin through each side of the firewall into the pine motor mount. The firewall may now be cemented to the rest of the fuselage and the instrument panel-to-firewall stringers added.

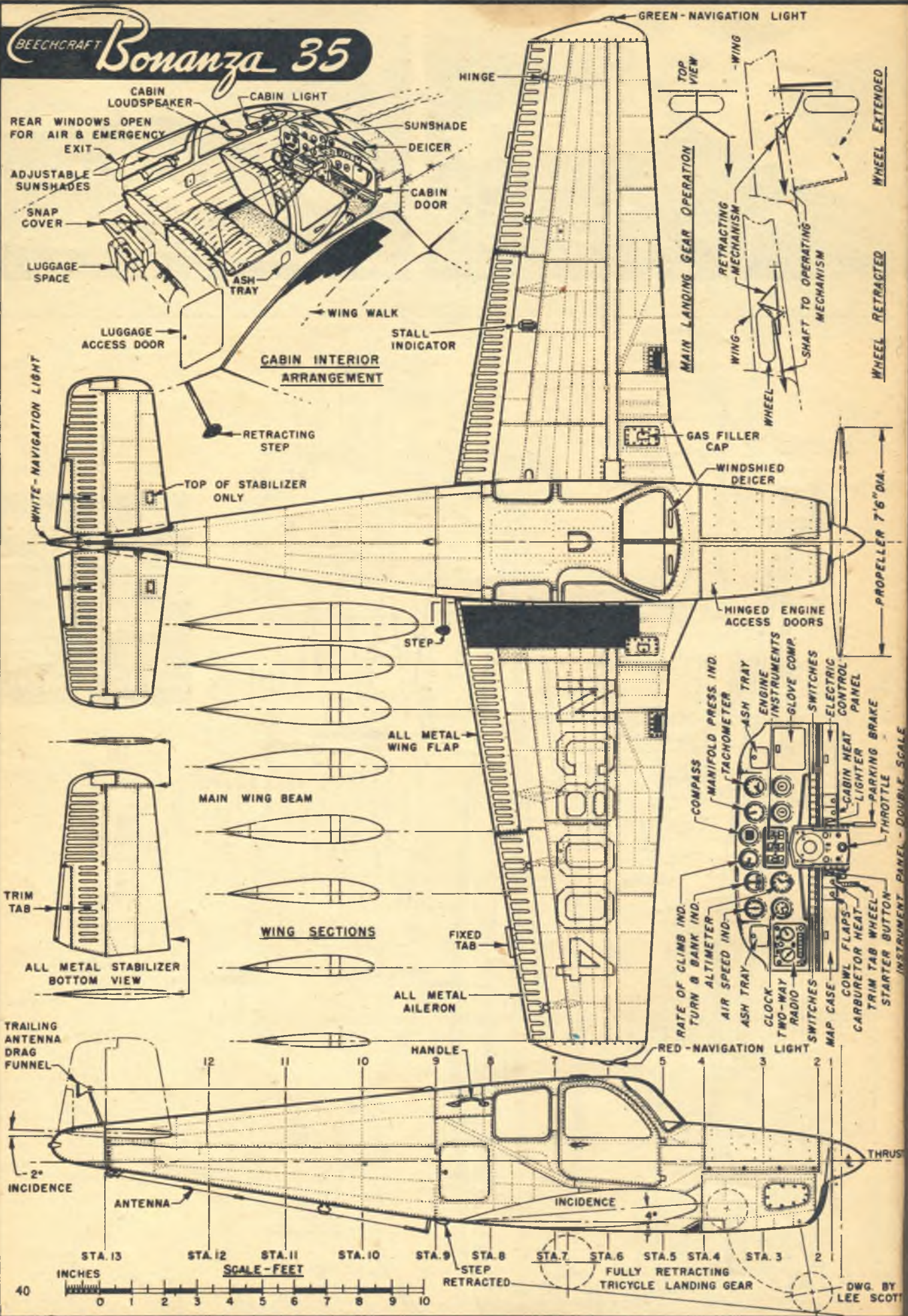
A soft $\frac{1}{16}$ " sheet balsa is used to cover the fuselage. When dampened on the *outside only*, and heated, it will bend over the fuselage top easily. Push pins, at an angle, through the skin and into the bulkheads, where necessary, to hold (Continued on page 62)



FULL SIZE PLANS
 As part of AT's new full size plan service you can have working drawings of the Bonanza and the other models in this issue for 30c. Use certificate-coupon for plan #649, which is on page 88.

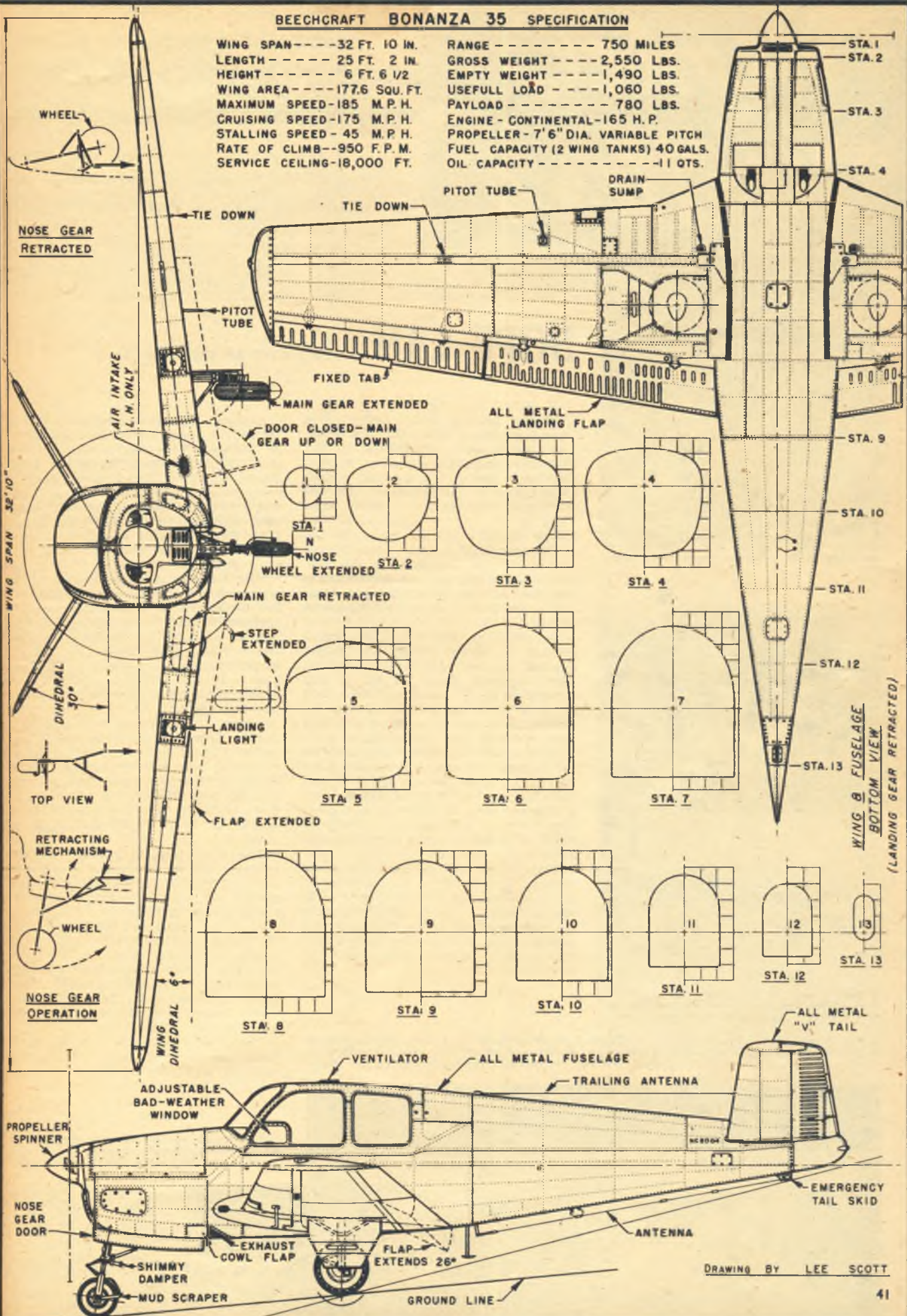
Model Designed & Drawn by LEE SCOTT

BEECHCRAFT *Bonanza 35*



BEECHCRAFT BONANZA 35 SPECIFICATION

WING SPAN-----32 FT. 10 IN.
 LENGTH-----25 FT. 2 IN.
 HEIGHT-----6 FT. 6 1/2
 WING AREA-----177.6 SQ. FT.
 MAXIMUM SPEED-185 M.P.H.
 CRUISING SPEED-175 M.P.H.
 STALLING SPEED-45 M.P.H.
 RATE OF CLIMB--950 F.P.M.
 SERVICE CEILING-18,000 FT.
 RANGE-----750 MILES
 GROSS WEIGHT-----2,550 LBS.
 EMPTY WEIGHT-----1,490 LBS.
 USEFULL LOAD-----1,060 LBS.
 PAYLOAD-----780 LBS.
 ENGINE-CONTINENTAL-165 H.P.
 PROPELLER-7'6" DIA. VARIABLE PITCH
 FUEL CAPACITY (2 WING TANKS) 40 GALS.
 OIL CAPACITY-----11 QTS.



WHEEL EXTENDED

WHEEL RETRACTED

PROPELLER 7'6" DIA.

COWL FLAPS
 CARBURETOR HEAT
 TRIM TAB WHEEL
 STARTER BUTTON
 INSTRUMENT PANEL - DOUBLE SCALE

THRUST

DWG. BY LEE SCOTT

WING & FUSELAGE
 BOTTOM VIEW
 (LANDING GEAR RETRACTED)

DRAWING BY LEE SCOTT

Model Matters

NEWS, VIEWS, COMMENTS, PHOTOS
FROM MODEL CLUBS AND BUILDERS
IN NORTH AMERICA AND OVERSEAS

● Payment of \$2 to \$5 is made on or before publication for photos of unusual interest sent exclusively to AT. No photos can be returned.



● Virgil Clark of Huntington Park, Calif., and Vee-Gee fame, with his Arden .199 powered radio-control De Havilland. Many flights made.



● Sunday flyers at Longview, Wash., airport. Jaycees got together with Molt Taylor, designer of "Aerocar," to provide control-line circles.

● One of the most beautiful models ever brought to the attention of Air Trails is this magnificent Knight Twister built from AT plans by Maxwell C. Roberson, Ashland, Ore. Front of fuselage is planked, wings and aft section are paper-covered. Has exhaust extension, castoring tail wheel.



DOPE CAN

CONDUCTED BY VAL A. LUCE

FOR the past several months we've given you news of the National meet. Now here's some information on the Plymouth International meet. As you may have heard, it's the 3rd annual affair put on by the automobile concern and is scheduled for Detroit, Mich., August 22-29.

New flying sites for many of the events have been chosen. More details on this will be announced in the next issue. Right now the important news is that you can secure entry blanks and rule books from your nearest Plymouth dealer.

Sanctioned by the A.M.A., the international Plymouth contest has several unusual features. Among these are the age categories: those not yet 14 will compete in the Novice class; Juniors will be 14 to 16; Seniors, 16 to 21; and the Open class is from 21 to 26. For a long time sponsors and leaders have been talking about placing the emphasis on the younger contestant; it remained for Plymouth to take the first step. We feel that the vast majority of older flyers will agree with us that this is a great step forward and one most likely to build up model aviation and encourage more model builders.

The contest will be composed of 50 events. There will be 167 trophies up for competition, as well as \$8,750 in U. S. savings bonds. Looks like something for everybody—even the towline glider crowd, since an event has been added for that very interesting but long neglected category.

Another big annual competition, the 4th Mirror Model Flying Fair sponsored by the New York Mirror will be held at Grumman airfield, Bethpage, Long Island, N. Y., on June 5. Last year this competition attracted 1,000 contestants and between 150,000 and 200,000 spectators, making it the largest ever held from the standpoint of onlookers, and one of the largest from the standpoint of contestants.

Tom Herbert of White Plains, N. Y., is contest director again this year and has a number of innovations for the contestants. For one thing, the air show will go on after the model flying, instead of during an intermission in the model activity. The model show will run from 6 a.m. to 3:30 p.m., the air show from 3:30 p.m. to 5 p.m. At 5 the prizes will be awarded.

All speed flying will be timed electrically as well as manually. New type pylons will be used in the speed circles. A special "One-half A" class (A/2) will be run off for both free-flight and control-line fans. The A/2 in speed will be flown on 15-ft. lines; the category takes engines up to .080 cubic inch displacement.

The contest is again limited to the first 1,000 contestants to register. At 8 a.m. those of the first 1,000 who have not showed up will be replaced by post-entrants. In addition to the standard control-line speed and stunt flying, and the free-flight classes, radio-control, jet speed and beauty events will be run off. The beauty competition is broken down into scale and non-scale. All beauty entries must make qualifying flights before they will be judged for scale and/or appearance.

The 1949 version of the Wakefield Rules has just reached us, through the courtesy of C. S. Rushbrooke. There

● Fleet biplane by Norris Maltby, Buffalo, N. Y. Powered by horizontally mounted RB .30. Dummy in rear cockpit parachutes from port wing.





• Bob Linn of Los Angeles Flight Masters and his Mills diesel powered Jasco Floater. Climbs slow and steady, reaches 150-200 ft. altitude.



• "The Snorting Bull" is 55" scale B-25 powered by two K&B Torpedoes. Does about 75 mph. Built by Harry O. Porter, Jr., Birmingham, Ala., from modified Cleveland kit. From insignia, the prototype flew 14 missions, sank three Jap warships. Model looks fully planked. Note pilot in front office.

have been a number of changes made, mainly for the purpose of keeping in step with late developments. Basic requirements for the models themselves, however, remain the same, so there's no need to scrap all of your previous work and start out fresh.

Probably the most significant change is that calling for a five-minute limit on individual flights. In his comments, "Rushy" tells us that this step was taken in order to favor the consistent flyer, rather than the contestant who hooks a lucky thermal. Since the S.M.A.E.—the English AMA—who write the Wakefield Rules have not been able to find anyone capable of getting five minutes in still air with a Wakefield ship, the reason for specifying that particular maximum time is obvious. When it is found that some flyers are able to perform this feat with any degree of consistency it is probable that the limit will be raised.

Coincident with the enactment of the five-minute limit rule was the addition of specific permission to use commercial timers. This will mean that the flyer who hesitates to use the fuse type of dethermalizer for fear of burning up his ship need not worry about having to chase it for miles when it grabs a thermal. This will also do much to speed up the running of Wakefield competition and will give more of the contestants an opportunity to fly during that part of the day when conditions are at their best.

Ties are to be broken by having those who clocked a fifteen-minute total for the first three flights make a fourth flight, with the entire duration of the extra flight being counted. All of the regular flights must be made with the same model, as formerly. However, if the ship has been lost or damaged beyond repair during the third flight, the tie-breaking flight may be made with

a second model which, of course, must comply with regulations.

Flights of five seconds or more will be official flights, as before, with three consecutive flights of under five seconds displacing one official flight. Should this occur, the highest of these "no flight" times is to be used for scoring. By this clarification a sore spot has been removed, since it is possible for a few seconds to be the difference between first and second places.

A flyer plagued with bad luck in the form of not-so-good rubber need not spend his time tying knots from now on; he may replace the entire motor if he so chooses, and the prop as well. It is assumed, of course, that the model will be reweighed after such changes to make sure it tips the scales at the required eight ounces. Since such replacements are left to the choice of the flyer, he'll then be able to select a motor and propeller combination best suited to the weather conditions, provided the ship is of such design that it can be flown both with a zippy motor and low pitch for high climb and thermal grabbing as well as long motor run and high pitch when the air is dead.

In reading over the rule covering scoring, a question came to mind. It was noticed that the "highest average duration of flights" will determine the winner, rather than the "highest average duration of three flights," as specified in the old rules. Of course, the reason for removal of the word "three" is that with the five-minute limit, a fourth flight might be necessary. We all know the intent of the rules, but in this case a further clarification appears necessary, since it's possible, through a literal interpretation, for a flyer to win with just one flight! Also, we wonder if those with fourth flights will have their total

(Continued on page 84)



• Laird Super Solution turned out by Robert J. Klubertanz, Milwaukee, Wis., won state U-control, 2d in state Plymouth meet. Has McCoy .29.



• Tailless sailplane of 8 1/2' span made by A. J. Cockle of Northampton (England) MAC. RAF 32 wing section; weight 5 1/2 lbs.; movable elevons.



• Now this is what you can call a really different ship! Tommy Counter, Los Angeles, built it. The V-tail biplane is powered by g.p. Ohlsson .60.

• From Holland comes this fine tailless glider by P. Koorn of Arnhem. Typical example of the new school of Swiss, French, Dutch glider design.

• Remember that tough winter? Arthur J. May, Bismarck, N. D., says it was 23 below the day he was flying this Blue Streak powered job off snow.

• Another snow bird from Bismarck! Bob Warming (apt name for N. D.), state champ, readies his Cyclone-powered S.E.5 for winter flight.





● Author Oldershaw and his C1, B or C pylon model.

SLIM *Jim*

By VERNON OLDERSHAW

"GIVE us something new!" cry the free-fighters. Here is my answer to that plea! We don't claim that this model will do everything, but it does have a lot of ideas and theories incorporated into it—ideas and theories that have been proven by those who know the thrill of modeling—designing your own ship.

The fuselage is long and slender like a pencil bomber but for the sake of appearance it is a little larger in diameter than a true pencil bomber. It is equipped with a spinner, retracting landing gear, and a narrow pylon giving a fast sleek look to the ship.

We are using a Glo-Torp which eliminates the necessity of trap doors for batteries and the inconvenience of coils, wire or protruding timer arms. The Glo-Torp is very easy to start with the proper fuel, and shows a good output of power. Any glow plug engine of comparable displacement may be used, such as Ohlsson .29, McCoy .29 Sportsman, OK .29, and the like.

The wing has an aspect ratio of 8.4 to 1 with 500 square inches of wing area. A taper was used to obtain greater strength and more efficient performance. The square tips make construction simple. The airfoil is a hybrid of the Davis foil used on a number of ships by the author. The high point is located about 33% back and has a maximum thickness of a little over 15%. This percentage thickness runs from the center to the start of the polyhedral, from there to the tip it decreases to a thickness of 11% of the chord length. This decrease in thickness of the tip gives the same effect as an elliptical tip with much simpler construction. The author has done a great deal of experimenting with various airfoils and has found the thick foil the most satisfactory. The thicker foils give a definite increase in stability besides making room for deeper spars.

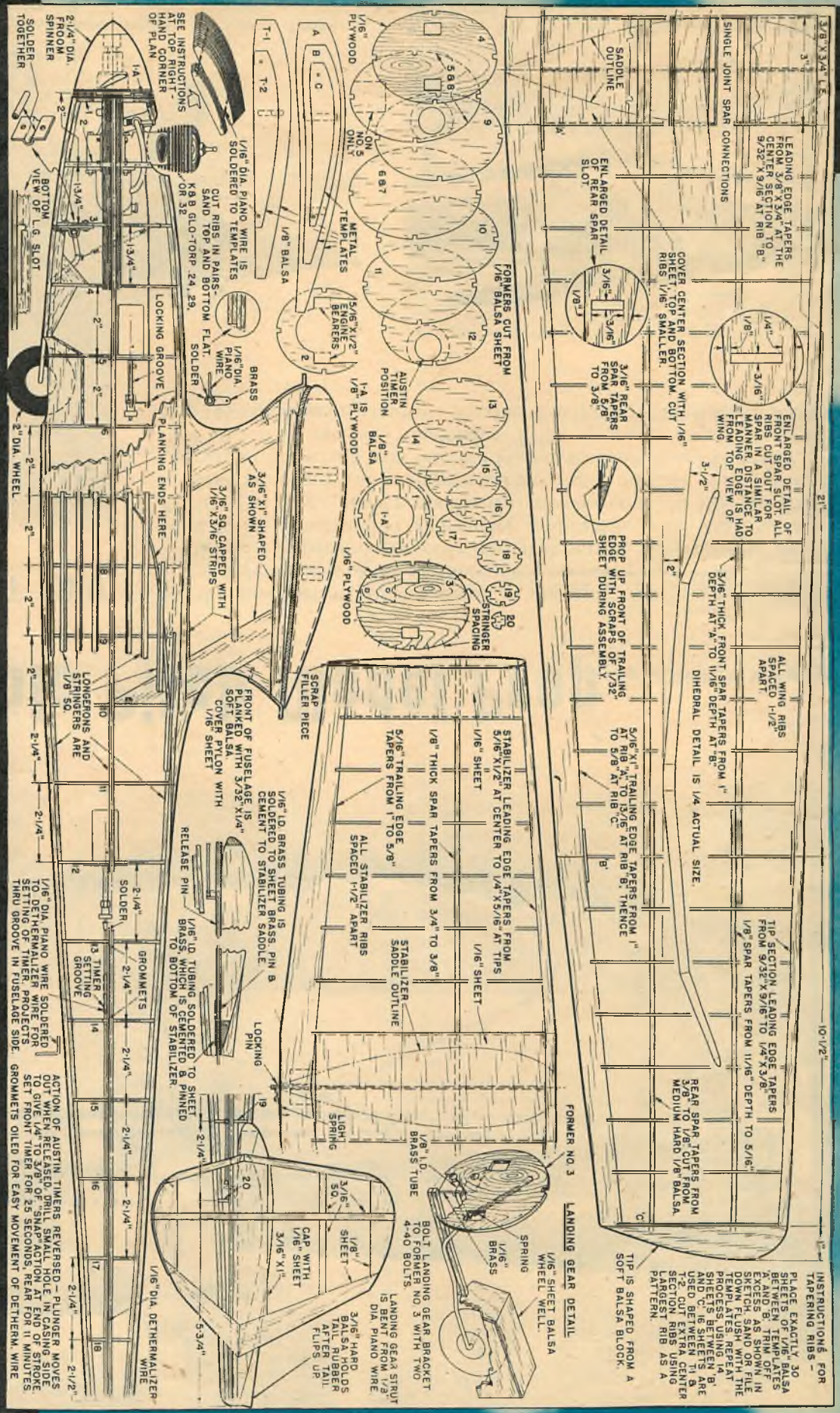
The stabilizer has an area equal to about 30% of the wing and uses a Clark-Y airfoil. The twin rudders give a distinctive look to the model and result in improved performance especially in a quick recovery from a very fast climb. The area of the rudders is 11½% of the wing and there is no indication that they are too large. Of course, with twin rudders an increase in area of about 25 to 30 percent over a single rudder is necessary because of loss of efficiency due to tip vortices. On previous models using these airfoils it was discovered that rudder area must be about 9% for good stable flight so allowing for the proper increase for twin rudders, the 11½% area was used on Slim Jim. The original (lost on an 8-second engine test hop at the Nationals) certainly proved that the design will give top contest performance. The second one confirmed all our hopes.

The model is not difficult to build and even the novice should have no trouble with its construction. The fuselage is built by the crutch method with the bottom half being built first. The four front bulkheads may be assembled whole on the hardwood engine mounts and then allowed to protrude over the end of the board where the crutch for the rest of the fuselage is being built. Be sure that the engine mounts are drilled and the hold-down plates are in place before all the planking (Continued on page 95)

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Free-flight models can have lots of eye appeal as this fine example indicates



● Full size working plans for *Sim Jim* are available from Air Trails Full Size Plan Department. See page 88 this issue for complete details of Plan #649.

INSTRUCTIONS FOR TAPERING RIBS

PLACE EXACTLY 20 PILES OF Balsa BEHIND TEMPLATES A AND B. TRIM OFF EXCESS AS SHOWN IN DETAIL. SAND WITH THE TEMPLATES. REPEAT PROCESS USING 14" SHEETS. BETWEEN ARE USED BETWEEN T1 & T2 - CUT EXTRA CENTER SECTION RIB AS A PATTERN.

TIP IS SHAPED FROM A SOFT BALSA BLOCK.

FORMER NO. 3

LANDING GEAR DETAIL

1/16" SHEET BALSA WHEEL WELL.
 SPRING
 1/16" BRASS
 BOLT LANDING GEAR BRACKET TO FORMER NO. 3 WITH TWO 4-40 BOLTS.
 LANDING GEAR STRUT IS 3/16" DIA. PLANO WIRE.
 3/16" HARD BALSA HOLDS AFTER TAIL FLAPS UP.

1/8" DIA. DETHERMALIZER WIRE
 5-3/4"
 3/16" CAP WITH 1/16" SHEET 3/16" X 1"
 1/8" BRASS PIN B
 LOCKING PIN
 1/8" DIA. BRASS TUBING IS SOLDERED TO SHEET BRASS PIN B AND TO BOTTOM OF STABILIZER.

ACTION OF AUSTIN TIMERS REVERSED - PLUNGER MOVES OUT WHEN RELEASED. DRILL SMALL HOLE IN CASING SIDE TO SETTING OF TIMER. PROJECTS SET FRONT TIMER FOR 25 SECONDS. REAR FOR 11 MINUTES. GROWMETS OILED FOR EASY MOVEMENT OF DETHERM. WIRE

ALL WING RIBS SPACED 1-1/2" APART

3/16" THICK FRONT SPAR TAPERS FROM 1" DEPTH AT A TO 1/16" DEPTH AT B.

DIPHERAL DETAIL IS 1/4" ACTUAL SIZE

REAR SPAR TAPERS FROM 3/8" TO 1/8" CUT FROM MEDIUM HARD 1/8" BALSA

5/16" X 1" TRAILING EDGE TAPERS FROM 1" AT RIB A TO 13/16" AT RIB B. THENCE TO 5/8" AT RIB C.

STABILIZER LEADING EDGE TAPERS FROM 5/16" X 1/2" AT CENTER TO 1/4" X 5/16" AT TIPS

1/8" THICK SPAR TAPERS FROM 3/4" TO 5/8"

1/16" SHEET

1/8" TRAILING EDGE TAPERS FROM 1" TO 5/8"

ALL STABILIZER RIBS SPACED 1-1/2" APART

STABILIZER SADDLE OUTLINE

1/8" DIA. BRASS TUBING IS SOLDERED TO SHEET BRASS PIN B AND TO BOTTOM OF STABILIZER.

FRONT OF FUSELAGE IS 1 3/4" SOFT BALSA COVER PLYON WITH 1/16" SHEET

3/16" X 1/16" SHAPED AS SHOWN

3/16" SQ. CAPPED WITH 1/16" X 5/16" STRIPS

1/8" DIA. BRASS WIRE IS SOLDERED TO TOP RIGHT HAND CORNER OF PLAN

SEE INSTRUCTIONS AT TOP RIGHT HAND CORNER OF PLAN

1/8" DIA. PLANO WIRE IS SOLDERED TO TEMPLATES CUT RIBS IN PAIRS - SAND TOP AND BOTTOM FLAT.

1/8" DIA. PLANO WIRE IS SOLDERED TO TEMPLATES CUT RIBS IN PAIRS - SAND TOP AND BOTTOM FLAT.

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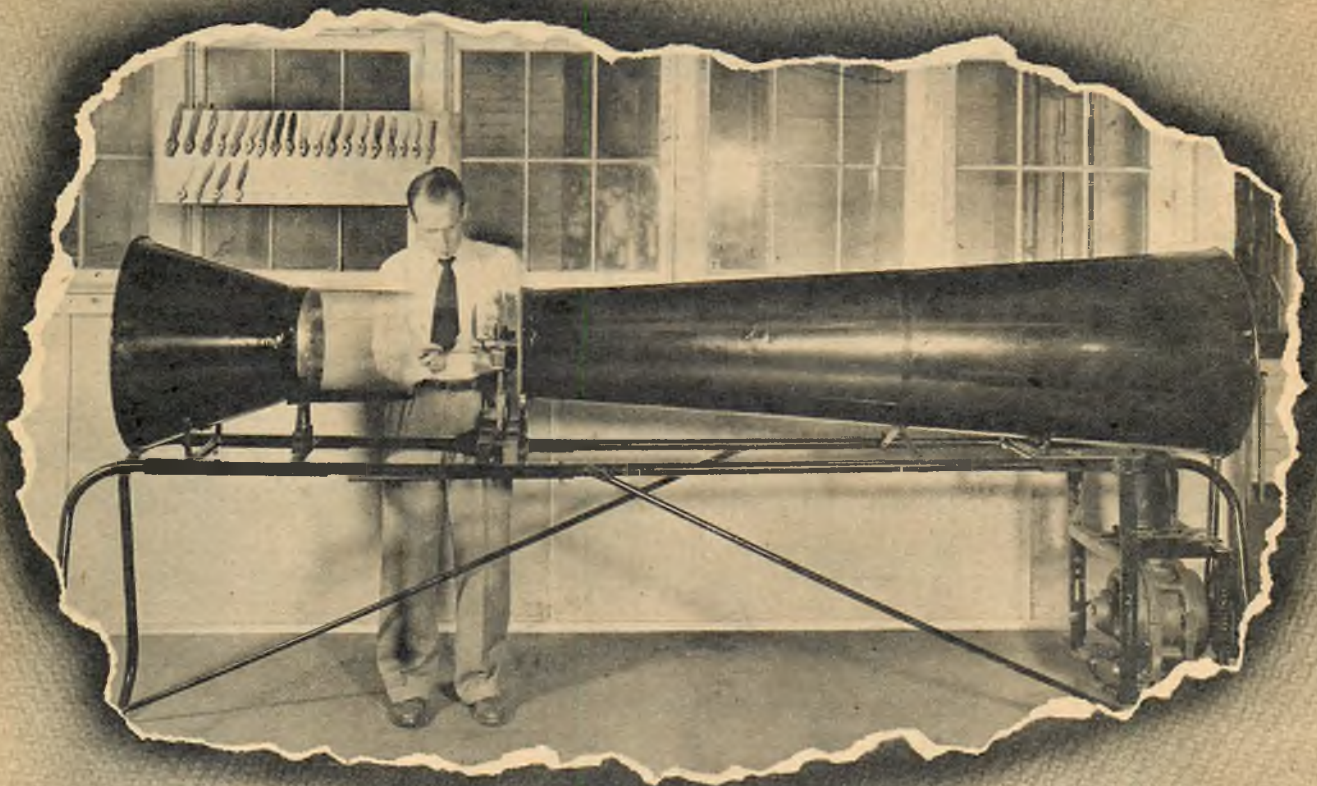
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Variable Pitch Model Prop By JOHN D. WAUGH

PART TWO

IN the first part of this discussion in the April Air Trails, we traced the development of the variable-pitch propeller up to 1937.

The most important propeller design, from the standpoint of use of basic forces, construction, and model application, is the Everel Single Blade. The single-blade propeller was introduced at the 1937 Air Show in New York and was promptly adopted on a number of 65-hp light aircraft, one of which won the 1939 Miami Air Maneuvers Race and the 1939 Legion air race at Philadelphia. Photo A shows the single-blader on a 145-hp Cessna Airmaster. Produced in quantity until the outbreak



● Photo A—single-bladed propeller on Cessna Airmaster. The single-blader was first successful automatic v.-p. prop.



● Photo B—Swift equipped with Aeromatic prop. Note lag angle formed by hub's center line and center line of blades.

Control-line speed records could be substantially increased through the use of a variable pitch prop such as the one tested and described here.

of war, the single-blader was the first fully automatic variable-pitch propeller to be successful and leave the experimental stage for production and application. Figure E illustrates the principle of operation of the single-blader. The working blade is counterbalanced by a stub weight and the whole propeller is pivotally mounted on the engine shaft, the pivot being inclined a number of degrees to the left of the blade center line. With thrust high at static, the blade is forced forward of the plane of rotation, describing an arc of a cone and reducing the blade pitch. As thrust subsides with forward speed, centrifugal force acting on the blade and counterbalancing stub, both of which were displaced from the plane of rotation, causes the blade to come back to the plane of rotation and assume the high-pitch position. This arrangement did not provide a constant speed or a great range of pitch change although it did materially reduce the rpm spread from static to full speed.

It remained for the Aeromatic principle to demonstrate the necessity for a variable force which would increase as thrust, the regulating force, decreased. In all the previous cases, springs and blade centrifugal force would decrease as thrust decreased so that a wide range of pitch change and constant engine control was not obtainable.

The Aeromatic propeller, which has become the predominant personal plane variable-pitch propeller and has been adopted more widely (over 9,000 in use) than all other light variable-pitch propellers, owes its success to the combination of forces which maintain a state of equilibrium that controls engine speed and power constantly at any stage of flight. The arrangement which makes this possible is shown in Figures B and D, a view of how the blade is mounted in the hub with its gravity axis, or center line, inclined rearward in the plane of rotation to its pivot axis. Illustration D shows how thrust acting at the center of pressure of the blade displaces it forward of the plane of rotation to low pitch. Illustration B shows the action of the counterweight, with the net centrifugal force of (Continued on page 56)

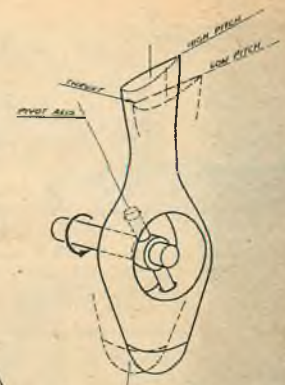


Fig. E

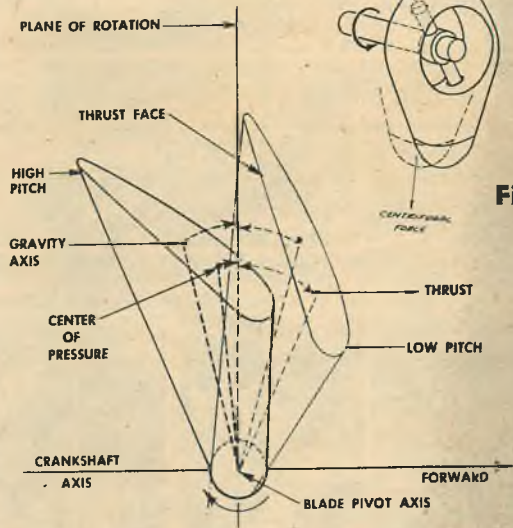


Fig. D

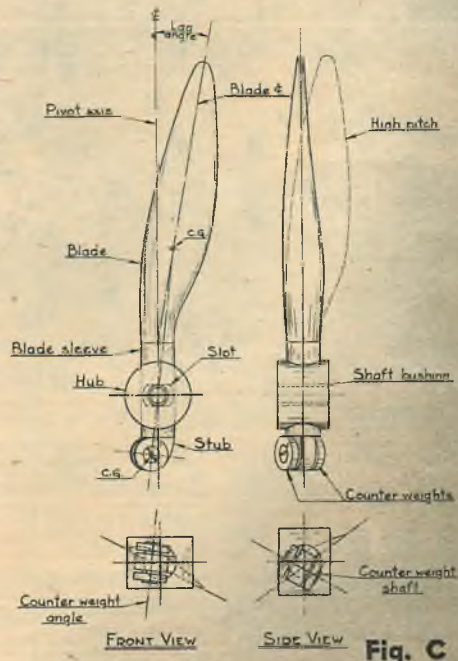


Fig. C

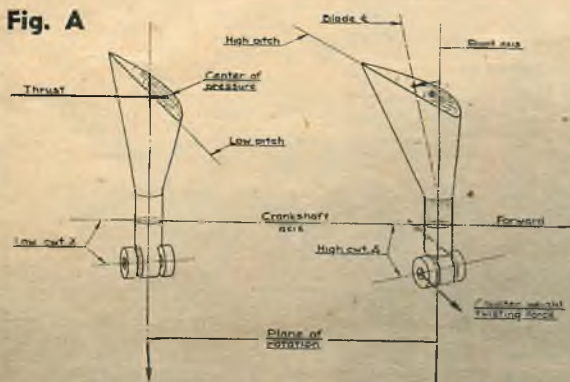


Fig. A

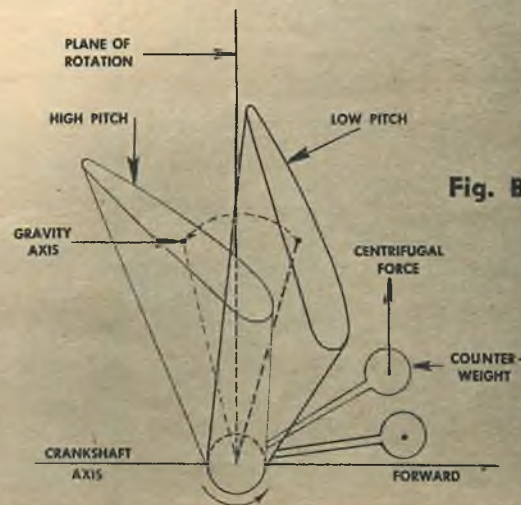
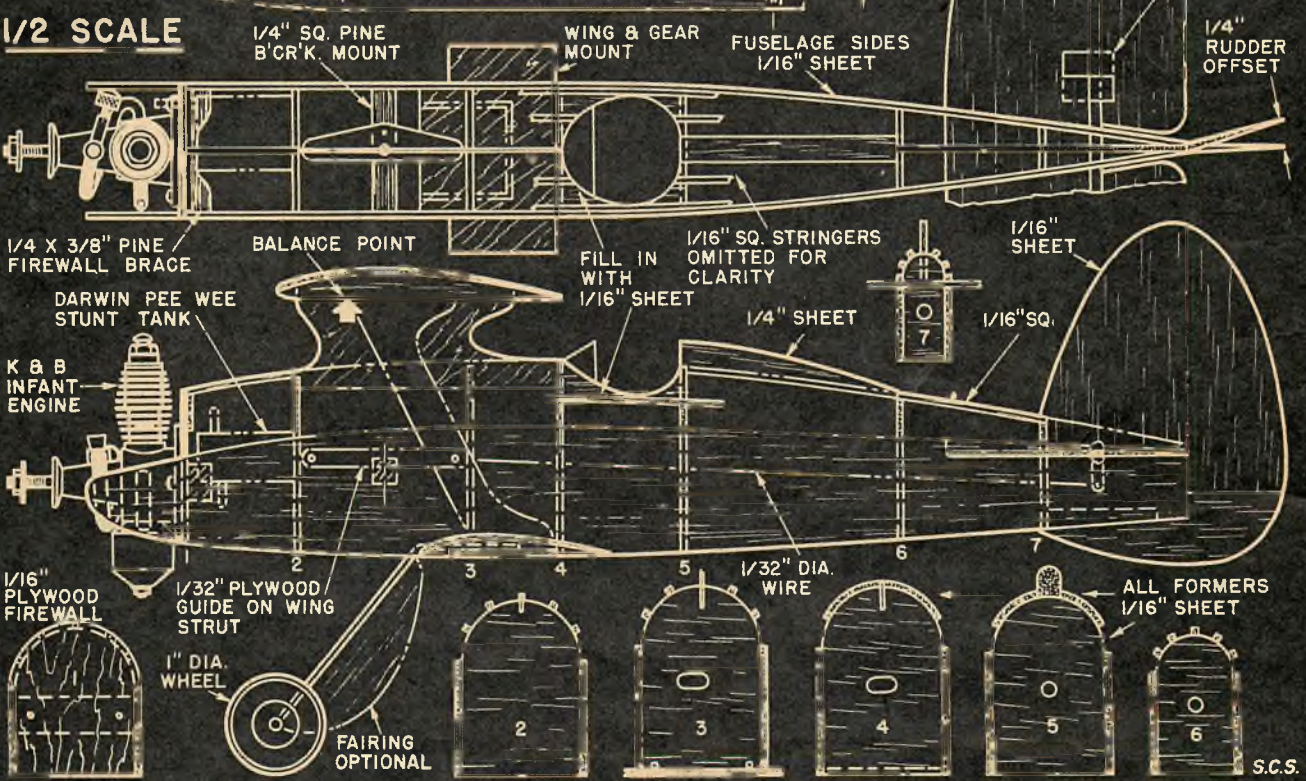
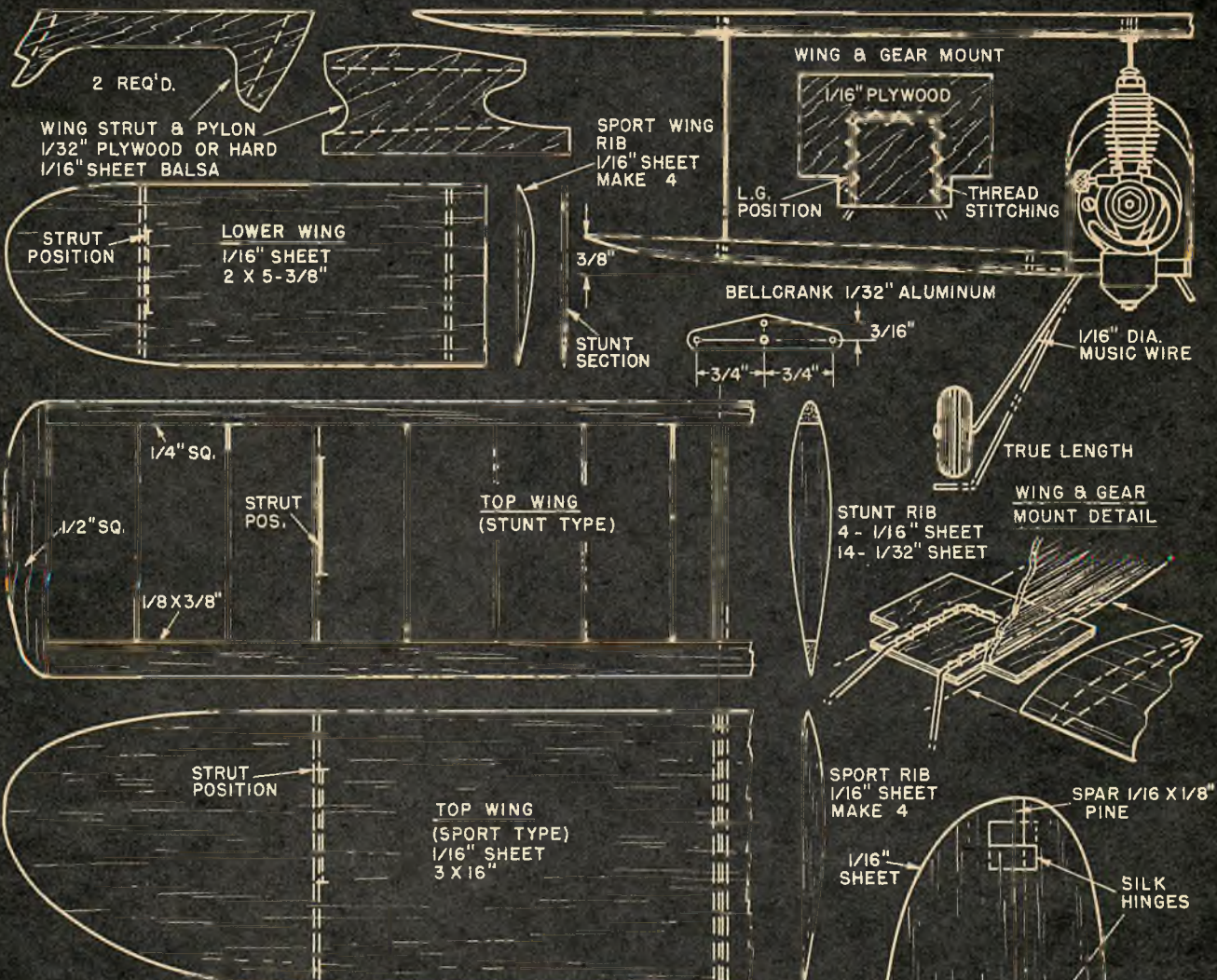
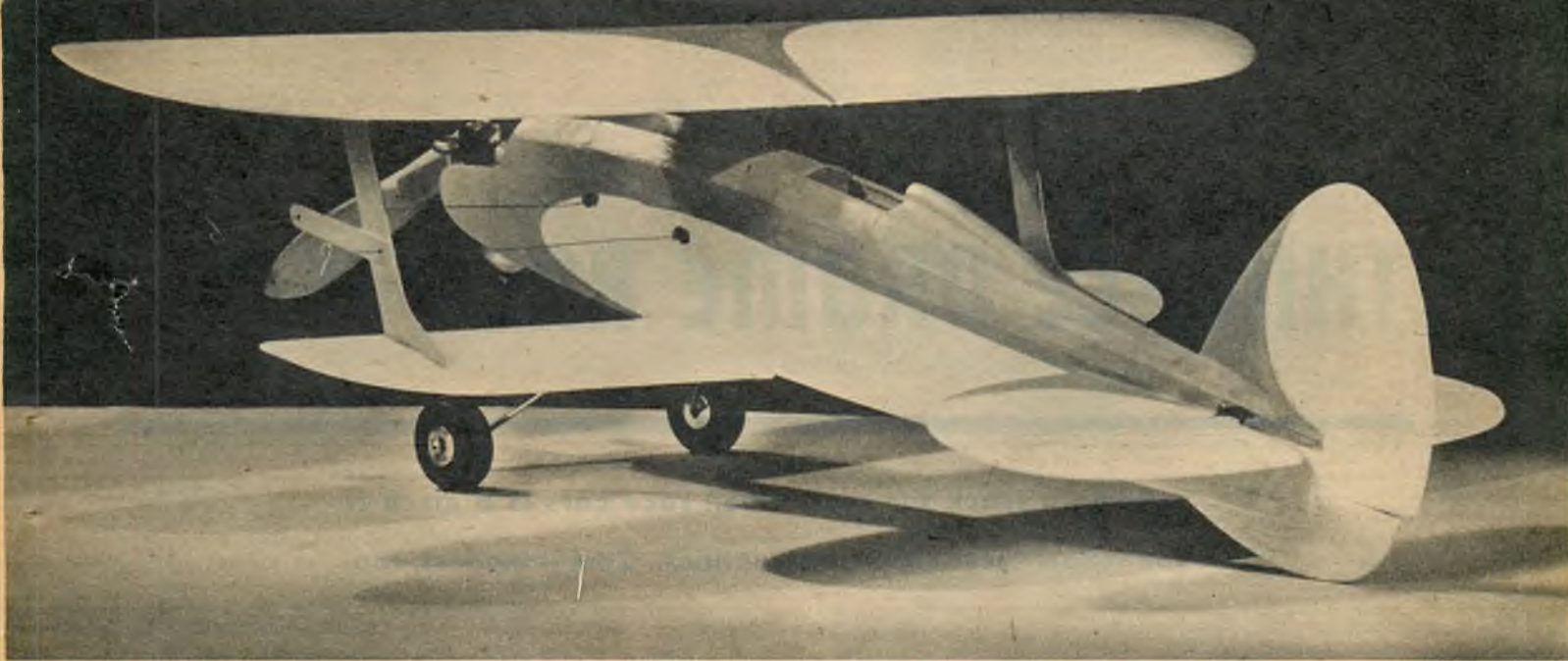


Fig. B



S.C.S.



THE SMITH SPECIAL[®]

Indoor sport or stunt flying is possible now with the new small engines. Try this tiny, trim semi-scale biplane

By S. CALHOUN SMITH

INDOORS or out this K&B-Infant-powered biplane is real flying fun. Oldtimers can trace the ancestry of the Special way back to the biplanes so popular with model builders during the '30s. How many of us wished then for a power plant such as the Infant to hang in the nose.

The Special was designed as a one-evening project and should prove simple enough for the young builder. The Infant pulls the model along at a good clip. Initial flights were made in a two-car garage with about 9 feet of thread out. We had to give that up when we wandered from the center of the circle and banged the ship against the walls. Outdoors we flew on 15 feet of line and the Special handled well. Because of its light weight (3 oz.), calm air is almost a "must" for flying, although the more experienced flyer can make good flights in a wind—but you'll be a busy boy, believe us.

Two types of wings are shown in the plans, stunt and sport. The first test model was built with the regular lifting sport wing and performed loops and eights easily. We managed a few inverted laps, but this is not recommended for beginners. If you wish to build a true stunt job, use the symmetrical airfoil stunt wing and a stunt fuel tank such as the Darwin Pee-Wee.

Interested? If so, grab a couple of sheets of 1/16" x 3" and two strips of 1/16" square. The rest of the odds and ends such as wire and plywood should be

down in the bottom of the scrap box. Plans are drawn exactly half scale, so if you can't wait for the Air Trails Full Size Plans simply double everything shown.

Construction can be started with the fuselage. Cut out the sides and formers from 1/16" sheet balsa. The formers themselves have parallel sides and simple half circles on the top. (Continued on page 72)

● The Smith Special looks itself over in the mirror before going out to fly. Full size plans available from Air Trails Plan Department.



THIMBLE DROME RACE TRACK

Building a track for those small race cars is a cinch if you follow these simple instructions. Cost is modest, too.

WITH the coming of the "finished" race cars, the small jobs that can be purchased with engine mounted or ready for mounting, there has been a need for an inexpensive, small track. Because in many instances the small car fans have received the cold shoulder from some big car clubs, many enthusiasts have constructed their own miniature tracks.

It's not hard. Here's how you can build a 1/80-mile track.

If the ground you select is uneven or has a little slope, it should be leveled. Best results can be obtained if you can borrow a transit level. Knock off the high spots, put the dirt in the low places.

Pick the center of the track area and drive a good stake (a broom handle is ideal) twelve inches into the ground; then drive a nail in the top of the stick. Fasten a mason's line to the nail and measure out 9' 1" and fasten a sharp stick at this point. Mark on the ground all the way around the center stake, keeping your line drawn tight, and you have a circle 18' 2" in diameter. This is the line on which you drive the stakes for the inside form of the track.

Go around the circle again with your marking stick, measuring out 11' 1" from the center. This is the line for the outside form. This will leave a track width of approximately 20" after the forms are fin-

ished. While we are marking things, we might just as well line out the center post base—so repeat as above, measuring out 1' 6" from the center.

Dig out to a depth of 4" between the track lines and 6" for the center post base; do not disturb your center stake.

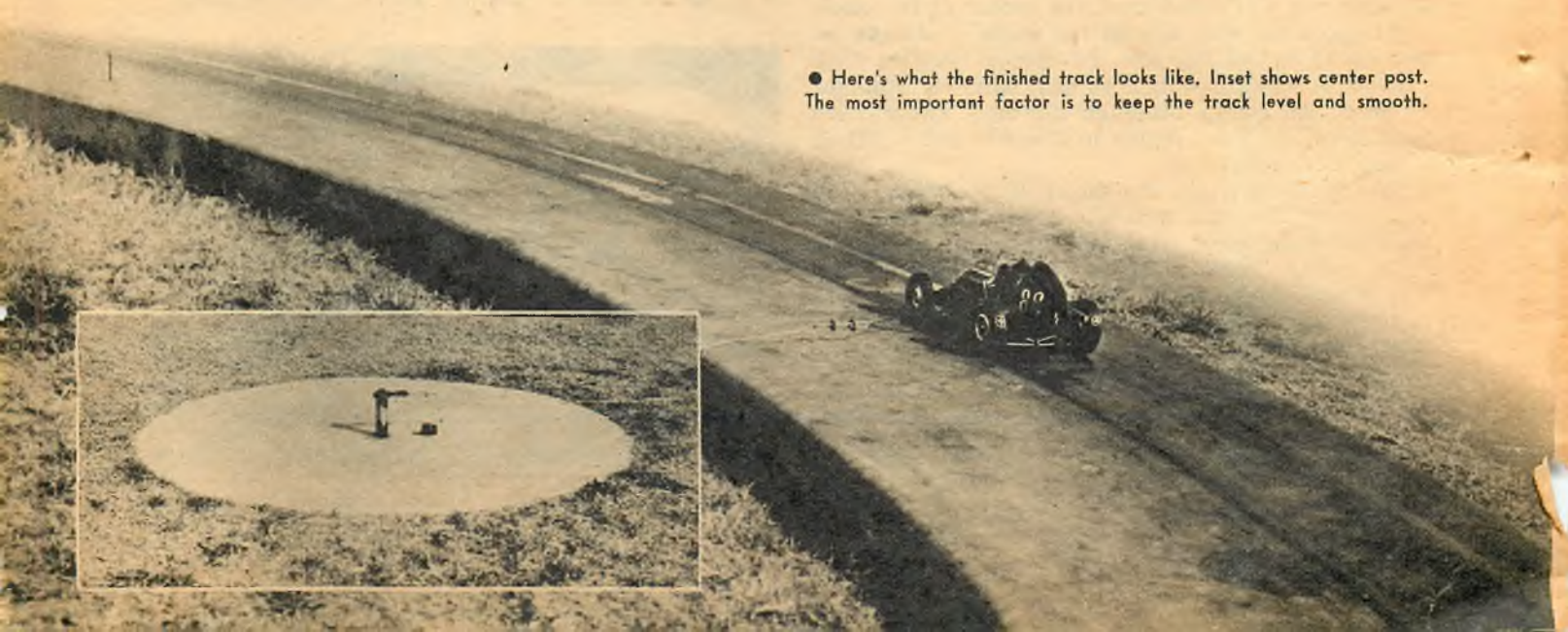
It is easier if you get the form lumber ready before you start, so make 30 stakes of 1" x 2" x 10" long, and keep in mind that the forms must be good and solid to produce a good concrete job.

Every portion of the track must be above the level of the ground, so pick the highest point in your track lines and level all of the track to this point.

You are starting the most important process in track building—that is, getting the forms built solid and level—so proceed very carefully.

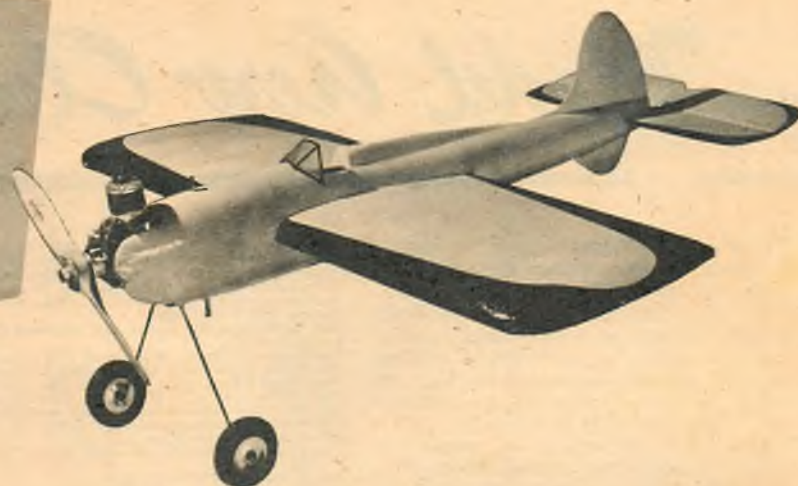
Measure out 10' 11" from the center post and place your first piece of batting. Drive a stake behind it and nail the stake to the batting. (Do not drive these nails all the way in at this stage because we must get the form exactly level first; then nail things up.) Start on around driving a stake every 4' and tacking it to the batting. Next, go around again driving another stake between each of these first ones, but don't nail or even tack these. This is the outside form for your track. *(Continued on page 74)*

● Here's what the finished track looks like. Inset shows center post. The most important factor is to keep the track level and smooth.



Model of the Month

DYNAMIC



Starting with \$100, Scientific has grown into a concern producing a varied line of models

MOST model builders know what they want in kits. Price must be right; so must the design. Quality ranks with price, and today this means not only quality in material selection but quality in the ingenuity and degree of prefabrication. These things add up to satisfied customers. They also add up to a gargantuan headache for the manufacturer for whom every new kit becomes a kind of do-or-die project.

"Prefabrication—a postwar term in model airplane kit manufacturing—today dictates the terms of survival to the manufacturing industry," John Frisoli, Scientific Model Airplane Co., Newark, N. J., tells you in speaking of the firm's Dynamic control-liner. "The demand is for more and more finished parts in kits. The Dynamic is prefabrication personified. It is our contention that its many completely finished parts give the control-line flyer the maximum prefabricated parts any manufacturer could possibly offer and still leave himself a slim margin of profit."

That Frisoli is not talking through his hat is indicated by the price of the Dynamic. At \$3.50 the Dynamic is one of the bargains being offered by the trying-to-please industry. The ship is a looker. The plan is good. And, as John claims, it is highly prefabricated from materials properly selected for their particular uses. The saw and carving work is neat and precise. Like any good modern kit, you can darn near stick it together without glue, at least for a quick look-see.

The fuselage comes in two hollow, carved shells, one upper and one lower. The top shell has the cockpit opening and the "head rest" finished while both shells are cut out where the one-piece wing runs through. Firm balsa is used in the fuselage. The nose pieces and tail surfaces are profile-cut. Wing ribs are completely finished and fit snugly into notches sawed in the shaped leading and trailing edges. The trailing edge is properly hard and the leading edge soft, but not too soft. Wing tip blocks are very soft, light wood, and are partially cut to shape. Formed landing gear, printed celluloid windshield, plywood firewall and motor bearers round out the kit.

Featuring the lines and proportions of proved stunt models, the Dynamic design is the handiwork

of Al Spampani. The simple, boldly lined, air brushed plans by magazine contributor Walter A. Musciano are easy on the eye and one doesn't have to try to spot good points. Its span of 26 inches and eight-inch chord net 208 square inches of wing area, qualifying it for engines of from .099 to .29 cubic inches displacement. Original tests were made on an O & R glow plug installation but the airplane works equally well with diesels and spark ignition.

Closely following trends like prefabrication is a familiar business to Scientific, a veteran concern that has seen many developments come and go in its twenty-one years of supplying kits to meet current demands. It all began in 1928 when John was still in high school. At the age of 16, John induced his Dad, Dan Frisoli, to let him start a model airplane business in the basement of their music store. With \$100 worth of supplies the Scientific Model Airplane Company was born. A year later the budding firm had graduated to a ground level location in a small store adjacent to the music shop. A few simple machines and Scientific began to make its own balsa wood parts.

Before another year had gone by, Dad decided junior was on the right track and sold out the music shop to provide funds for Scientific's expansion program. A small factory was located and the manufacturing of kits begun. Free-flight flying scale models were the rage at the time so model planes of World War I were rolling off the production line along with ships then in the news, like *(Continued on page 82)*

● Here are the parts that make up Scientific's Dynamic kit. Model is latest in concern's series of prefabricated control-line aircraft.



More events,
more prizes
than ever!



DETROIT

AUGUST 22nd THROUGH 29th

Fifty-one events—167 trophies—\$8750 in U. S. Savings Bonds! That's the line-up for the Third International Model Plane Contest, sponsored by the Plymouth Motor Corporation in conjunction with the Aero Club of Michigan.

The big show—sanctioned by the Academy of Model Aeronautics—opens in Detroit next August 22nd, with these events:

INDOOR (7 events)

Indoor stick for Novice, Junior, Senior and Open classifications. Indoor cabin for Junior, Senior and Open.

OUTDOOR RUBBER (7 events)

Outdoor stick, outdoor cabin for Junior, Senior and Open. Outdoor stick-cabin for Novice class.

OUTDOOR GLIDER (1 event)

Towline for Novice class only.

OUTDOOR GAS — FREE FLIGHT (14 events)

Classes A, B, C and D for Junior, Senior and Open. Class A, B for Novice.

CONTROL LINE — SPEED (14 events)

Classes A and B for Novice. Classes A, B, C and D for Junior, Senior and Open.

CONTROL LINE — FLYING SCALE (Stinson) (2 events)

Senior and Open classes only.

CONTROL LINE — JET (2 events)

Senior and Open classes only.

CONTROL LINE — STUNT (4 events)

For Novice, Junior, Senior and Open.

The new Novice class includes contestants 13 years and under, but not yet 14. Junior—14 to 15, but not yet 16. Senior—16 to 20, but not yet 21. Open—21 to 25, but not yet 26. All ages as of start of contest August 22nd.

LOOK AT THE WONDERFUL PRIZES!

Each event winner will get a \$100 Savings Bond and a permanent trophy.

Second place winners get a \$50 bond and trophy. Third place winners get a \$25 bond and trophy.

In addition, special awards will be: High Point—4 perpetual trophies; Jet, Stunt and Flying Scale—3 perpetual trophies; High Point Girl—1 perpetual trophy; individual winners will receive miniatures of the perpetual trophies to remain in the winner's possession.

GET ENTRY BLANKS NOW!

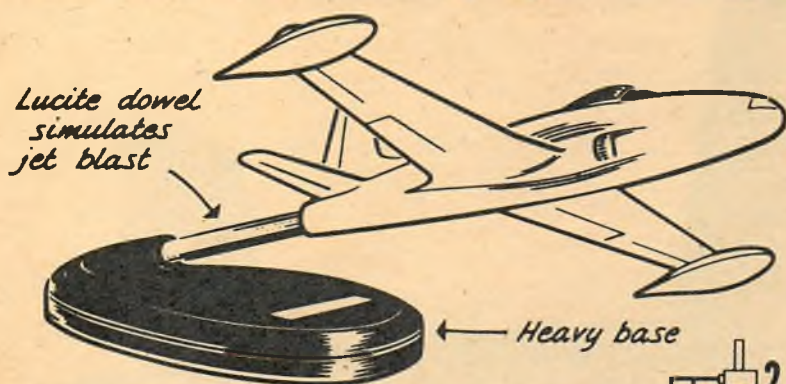
If you can qualify, there's still time to enter this year's bigger and better model plane contest. For entry blanks, rule books and complete details—see your Plymouth dealer—now! Entries close July 24, 1949.

PLYMOUTH MOTOR CORPORATION

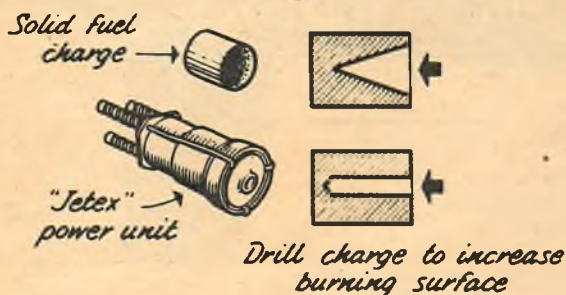
SUBSIDIARY OF CHRYSLER CORPORATION

Sketch Book

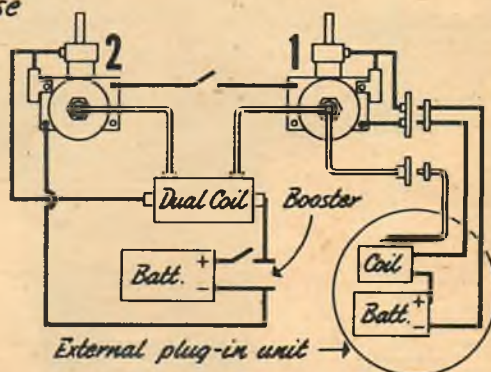
HAVE YOU DEVELOPED SOMETHING NEW IN CONSTRUCTION, CONTROL, OR FLYING THAT MIGHT INTEREST OTHER MODELERS? SEND A ROUGH SKETCH—WE'LL REDRAW IT AND PAY \$2 FOR EACH ONE ACCEPTED



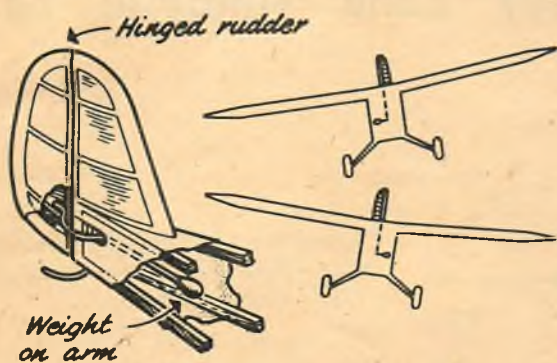
● Here's an attractive mounting, simulating full flight, for solid scale jet models. Joseph Soubrada, Long Island, N. Y., fixes model in zooming attitude by a lucite dowel which holds it firmly in tail pipe and mounting base and suggests a jet blast. Base can be of hard wood.



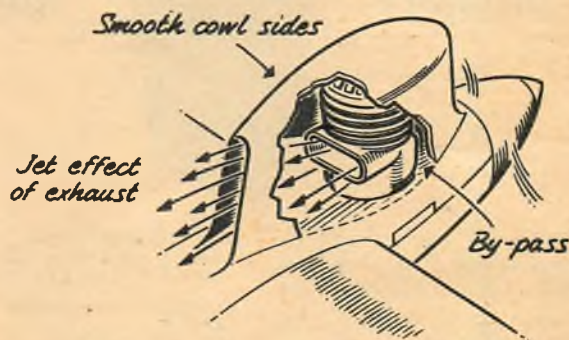
● Greater thrust, though shorter duration, is possible from Jetex power units if solid charge is drilled carefully. Drill slowly, or charge will crumble. Paul Marino, Brooklyn, N. Y.



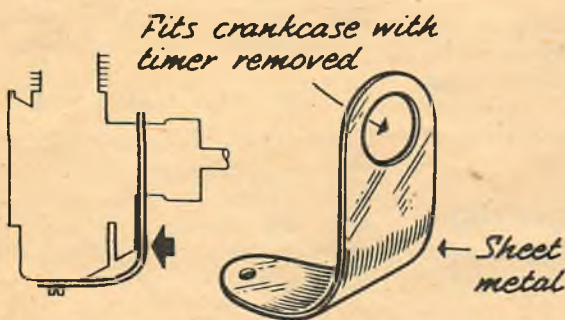
● Twin-engine hook-up by D. C. May, Jr., Raleigh, N. C. Start #1 on external unit with common ground switch open; start #2 on plane's ignition; tune, then switch over #1.



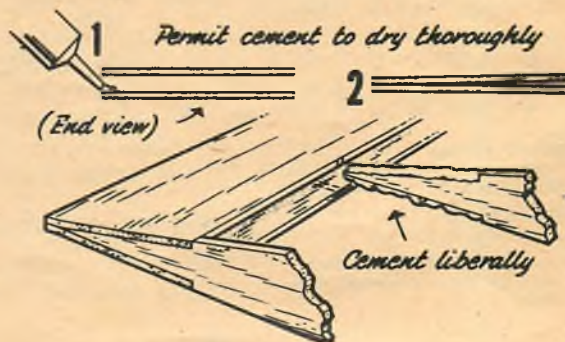
● Grant Hildebrand, Petoskey, Mich., passes along an idea used by Britishers. Weight turns rudder to counteract slip when wing dips. Interesting experiment in pendulum control.



● Speed fiends' dream echoed by Franklin Crevier, Worcester, Mass., who asks for rear exhausts on racing engines. R. W. Anderson, Memphis, Tenn., has built motors like this.



● Free-flight gassie belonging to William Cox, Bryn Mawr, Pa., made belly landings, got dirt in intake. He devised metal shield which is adaptable to many makes of engines.



● Large, straight stunt wings can be quickly turned out with this trailing edge assembly trick. Ribs slipped into V-edge. From J. A. Summerfield, Jr., Huntington, W. Va.



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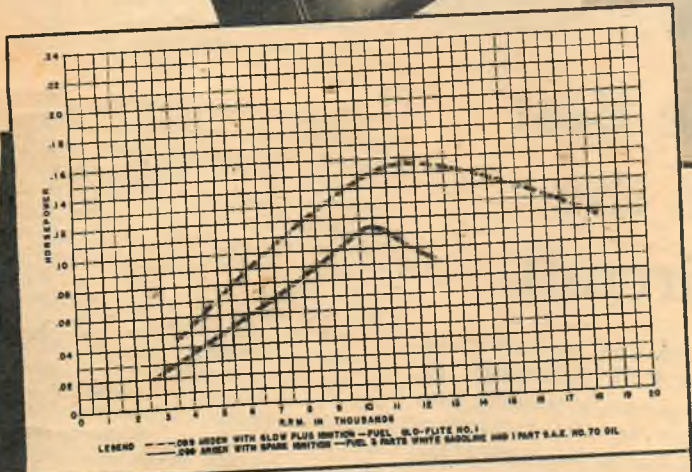
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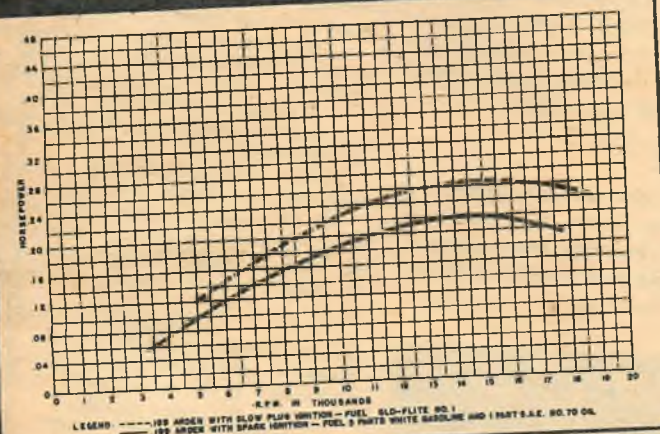
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1-B-099 .099 engine with ball bearing crankshaft..... \$12.50

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Compare these power curves demonstrating the AVERAGE horsepower output of the many Arden .099 engines tested.



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Variable Pitch Model Prop

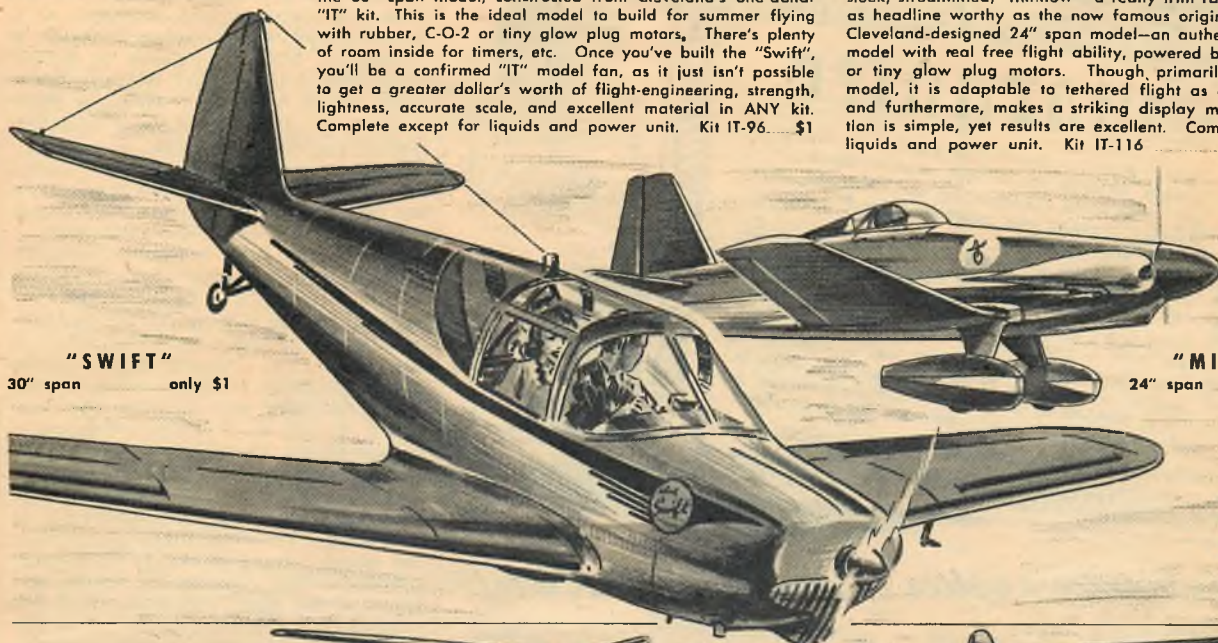
(Continued from page 47)

the blade, as it moves the blade to the rear of the plane of rotation and high pitch. The inclination of the blades and the positions of the counterweights are shown in Photo B, a Swift equipped with an Aeromatic. At static, with thrust high, the blade is rotated to low pitch and the counterweight's angle to the crankshaft axis is reduced. This reduces the twisting effect of the counterweight to high pitch. As forward flight is attained and thrust decreases, counterweight centrifugal force increases blade pitch, maintaining a virtually constant rpm. The clue to how the pitch-increasing force of the counterweight increases even though there is no rpm increase lies in the fact that counterweight force increases as the angle between the crankshaft axis and counterweight increases. This relationship between pitch-decreasing thrust and pitch-increasing counterweights, in addition to minor complementary forces, establishes an equilibrium for any given forward and rotational speed so that any change in the controlling forces effects a pitch change immediately and positively.

To design the automatic variable-pitch model, now christened Varimatic, knowledge of the preceding background proved to be invaluable from the standpoint of theory development but virtually worthless as a guide to construction. The success of thrust as a controlling force, easily obtained by incorporating a lag angle in the blade, was adopted and the value of counterweights determined their selection. In conceiving a hub mechanism, it was quickly determined that a highly accurate, hardened hub, blade retaining sleeves, expensive bearings, blade coordinating devices, and many small parts would be required if a conventional two-bladed unit were constructed. Weight and expense ruled this concept out and indicated that a single-bladed unit would be the only economically feasible design. The following specific details decided the single-bladed design:

1. No bearings would be required because the counterbalancing stub cancelled the centrifugal force of the blade.
2. A single blade is the lightest design possible because all hub mechanism is dispensed with.
3. Only one moving part, the blade and counterbalance assembly.
4. The balancing stub could be made in the form of adjustable counterweights so that it would provide the control to high pitch in addition to balancing the blade.
5. The adjustable counterweight would permit easy regulation of the propeller for pitch change at any desired rate and permit application to a variety of different engines.
6. Lacking bearings or other critical items, the hub parts could be straightforward machinings of the most inexpensive type.
7. The single blade does not have airstream interference losses and has been proved to have a greater aerodynamic efficiency than a multi-bladed prop. This would add even better per-

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MINNOW Flashing past in the background is the winner of the 1948 Goodyear race. It's the sleek, streamlined, "Minnow"—a really trim racing plane. Just as headline worthy as the now famous original plane, is the Cleveland-designed 24" span model—an authentic scale flying model with real free flight ability, powered by rubber, C-O-2 or tiny glow plug motors. Though primarily a lightweight model, it is adaptable to tethered flight as a "proto" racer, and furthermore, makes a striking display model. Construction is simple, yet results are excellent. Complete except for liquids and power unit. Kit IT-116. \$1

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These one-dollar kits have won deserved popularity everywhere, as they build true scale, flight engineered models. They are made especially for the modeler who will not compromise on quality and realism, but who wants simple construction, low price, and contest performance. Almost all "IT" models are of 30" wingspan, a convenient and efficient size. They may be powered with a variety of rubber: CO2, glow plug, and jet motors (depending on the design chosen). More airplane for less money just cannot be found.



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 Smartest looking profile job out today! Actually flies itself with elevator control disconnected! Practically leaps together! No carving at all!
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formance in addition to the variable-pitch feature.

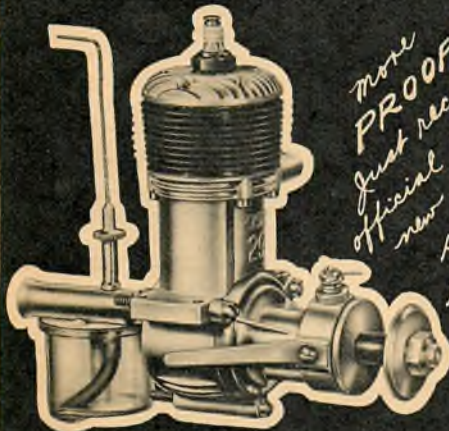
How these features were translated into a practical design is shown in Figure C, a layout of the Varimatic. The single blade is inclined rearward in the plane of rotation and retained in a blade sleeve which passes through a cylindrical hub. The sleeve is slotted inside the hub so that it may rotate from low to high pitch when the shaft bushing is fitted through it and the hub. Opposite the blade, a counterbalancing stub is fitted into the sleeve and inclined in a direction opposite to the inclination of the blade for balance reasons. The stub carries a screwdriver slotted, right and left-hand threaded screw, or shaft, on which threaded counterweights are fitted. When the screw is turned to the right, the counterweights are drawn toward the center of the stub. This adjustment decreases the centrifugal twisting effect of the counterweights and permits the propeller to go to a lower pitch when in operation. Conversely, turns to the left will extend the counterweights so that they exert a greater high pitch turning force when the propeller is operating. The steel blade sleeve does not require bearings for its fit through the dural hub because the centrifugal forces of the blade and stub cancel one another, and vibration from engine impulses prevents any journal friction. The slot in the blade sleeve determines the limits of low and high pitch and its ends stop when they contact the shaft bushing which extends through the hub. Blade and stub retaining pins, concealed below the edges of the hub sleeve bore, are exposed when the bushing is removed and the sleeve is pushed one way or the other. Total disassembly is only a matter of seconds.

The scheme of operation of the Varimatic is illustrated by Figure A. In the static condition thrust acts against the center of pressure of the blade and, due to the lag angle, rotates the blade to low pitch. At low pitch the counterweights are at a low angle relative to the axis of propeller rotation, the position of least pitch-increasing force. As thrust decreases with forward speed, the counterweights progressively rotate the blade to high pitch as they try to get away from the axis of rotation and in line with the plane of rotation. The force of their effort, hence the extent of high pitch movement, is determined by the distance of the counterweights from the center of the counterbalancing stub. The balance between pitch-decreasing thrust and pitch-increasing centrifugal force at any given rpm and air speed changes only when a change in either of the two controlling variables occurs.

The photo in Part I is a graphic representation of the spiral path of advance described by the Varimatic when it is increasing pitch at every revolution, such as during acceleration. It clearly shows the clean aerodynamic path of advance described by a single blade. Interference present in two, three, and especially four-bladed propellers does not occur with the Varimatic because the blade bites into undisturbed air at each revolution. In actual practice the Varimatic has increased the speed of clean design models as much as 12 miles per hour. Since variable-pitch operation benefits the upper speed range to the greatest extent, it can be ex-

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pected that many major upsets in the top speed records could come with variable-pitch.

The experimental work which produced the Variomatic consumed two years' time and was initiated in the University of Maryland wind tunnel through the kindness of Aeronautics Professor A. W. Sherwood. After a facsimile of pitch change was secured in the University tunnel with its array of testing apparatus, an Aerolab wind tunnel was secured. This venturi type tunnel, shown on page 46, is powered with a 5-hp electric motor which has a double V-belt drive to an impeller mounted in the exhaust end of the tunnel. When the motor turns the high-pitch impeller at 3,600 rpm, an air speed of over 100 mph rushes through the test section. By means of stroboscopic light, the behavior of the propeller in the windstream is studied and the rpm control or overspeed is recorded. In the course of study and experimentation to develop the most practical design, over 60 different hub, blade and counterweight combinations were constructed and some 200 specific experiments were conducted. All of this work centered around the five theoretically possible applications of physical forces to automatic propeller operation.

The two extremes of blade position being demonstrated by the writer in the small photo on page 46 will occur from the wide open to fully closed positions of the wind tunnel intake cone. Variations in rpm due to "tunnel effect" are generally not over 100 rpm with a 10-inch diameter propeller. Constant speed of engines is maintained by the Variomatic to within 100 rpm of the absolute on engines which gain over 2,500 rpm in the wind stream with a fixed-pitch propeller. During flight only an audible check and speed count can be taken. The pitch increase in this instance is detected by engine sound in addition to the stop watch. Only during aerobatics does the engine sound reveal that the propeller is correcting itself.

Although the emergence of the Variomatic from its bell jar, laboratory status occurred only quite recently, experimental field behavior has confirmed laboratory work and startled even some radical modellers. Of wider general interest and promise is the fact that model variable-pitch operation has been proved theoretically possible and mechanically practical. As full scale airplane design progress was paced by development of constant speed variable-pitch propellers only 15 years ago, it is possible that model engine and airplane designs will make their greatest performance advance with the propulsive efficiency obtainable only with variable-pitch propellers.

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Now Poppa's nerves are all upset
For Junior's flying in a jet.

Bet Junior, 'though, will try to block it
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No use. She's in her helicopter.

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10-10

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11-8

Bonanza

(Continued from page 38)

until the cement dries. It may be necessary to make a very slight "V" cut at bulkhead #8 to bend the covering over the forward part of the cabin. Cover the sides and top of the instrument panel in the same manner. *Do not cover the fuselage bottom until the wing, controls, and windshield have been installed.*

Taper the wing spar, as shown in the front view, and pin down to the wing drawing. The 3/32" sheet balsa wing ribs are then cemented in place. Slide a 1/16" square strip under the leading and trailing edges of the ribs to allow for skin thickness; then cement leading and trailing edges. Cement a piece of wing spar to support the landing gear, on the inside of wing rib #3 as shown. Cut a groove in the underside of the wing spar out to rib #3, for the landing gear wire. Cover top of wing with 1/16" sheet balsa and construct other wing likewise. For dihedral, butt the two spars together with a 1 9/16" block under each wing tip; cement a piece of spar behind the main spar between ribs Nos. 1. While this is drying bend the landing gear wire and solder the wheels on with washers. Insert the landing gear into the slot provided in the wing spar, push in the pin staples, wrap the spar with heavy thread, where shown, and cement. Attach the bellcrank to a piece of pine with a bolt, nut and washers; cement to rear of wing spar at the fuselage center line. Cement two aluminum tubes on the left wing only as shown.

Cement the 1/16" sheet balsa wing covering to the wing with the grain running parallel to the leading edge. Cut the leading and trailing edges to shape, and sand smooth. Hollow out the right wing tip and fill with about 3/4 ounce of melted lead or solder. Cement wing tips in place.

It is necessary to cut out the bottom part of bulkhead #7, and to cut a slot in the fuselage skin for the wing spar behind bulkhead #6, to cement the wing and bellcrank in place.

Cut the tail block to shape, hollow out and cement in place. Cut and shape the stabilizers, elevators, and tabs. Constructed as shown, the elevator hinges will be almost invisible.

It is important, in bending and assembling the elevator control horn wire, that the slide horn is *on the left elevator* and the push rod attaches to the horn on the right elevator. It must operate easily with as little play as possible between the slide and control horn. It was designed, in this manner, so as to give a travel gain in the right elevator. The tabs are attached to the elevators with four thin sheet-aluminum hinges. The stabilizer is then pinned and cemented to the tail block (note the 2° negative incidence).

While the elevators and bellcrank are in a neutral position, bend the push rod to go through the hole in the bellcrank, and prepare to solder a washer to the wire on the underside of the bellcrank by placing a fairly heavy piece of punctured wrapping paper on the push rod between the bellcrank and the washer. This will prevent solder from running through and binding on the bellcrank. Let the solder harden, remove the paper and the connection will pivot easily.

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Now you can build models that are professional in appearance and performance in only a fraction of the time it used to take by older methods! Models seem to just put themselves together with "stop-watch" speed! And we can't emphasize this too strongly: this model really WILL FLY!

FEATURES: Wingspan—15" • All Balsa Construction—No Tissue Covering • Die-Cut Wing, Fuselage Sides, Formers and Tail Pieces • Formed Music Wire Landing Gear & Prop Shaft • Propeller • Wheels • Rubber Motor • Simple Easy-to-Follow Plan.

Also } F2 TAYLORCRAFT
at 25¢ } F3 AERONCA



New!

\$2.95



The PIPER CUB Control Model

So completely prefabricated it reduces building time to the absolute minimum! Completely finished 1-piece balsa wing; ready-cut balsa fuselage sides and formers; 1-piece formed shockproof landing gear; shaped balsa tail pieces and plywood firewall. Biggest value in the field at only \$2.95! Kit No. T-15; Wingspan 35½"; suitable for Class "A," "B" and small "C" engines including the new Ohlsson "29."

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ROOKIE TRAINER

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The NEW ZIPPER

Comet's famous free flight gas model, with many features never duplicated by others! Redesigned for the latest Glo Plug engines. Wingspan 54"; for "B" and "C" engines. Kit No. T-10.....

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Another great free flight gas model, modeled after the Zipper—and a consistent contest winner! Many "Zipper" features. Wingspan 32"; Kit No. T-12.....

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NOW—a big 60 cc. size that's a whale of a value! Dries fast—holds tight—simplifies model building. Also available in 5c and 10c sizes, but everybody is going to want that big tube with a full 60 cc's at only.....

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An all-around protective coating for your models that really protects against hot fuel! One clear color covers all coatings; no thinner is needed. Won't disturb any dope finish. Bottled in containers holding over 2 oz. and value-priced.....

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at only..... Comet Nu-Dope—better 7 ways, 10c



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1949 "Nationals"

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A damp cloth placed around the edges and down into the top of the cabin will prevent the hot soldering iron from igniting the plane. It will also catch any solder that drops down into the cabin. Run the control lead wires through the aluminum tubes in the left wing, and bend through the holes in the end of the bellcrank. The lower part of bulkhead #7 can now be cemented back in place.

Cut out the windows and cement a 1/4" square block on either side and in the middle between the instrument panel and the cabin top. Allow to dry, then cut to shape shown on the plans. Paint the interior with black dope, cut out the instrument panel drawing, and cement in place.

Cut the celluloid windows very slightly oversize and with a very sharp-pointed knife cut a slit around the edge of the window, being very careful not to split the fuselage covering. Place the rear windows in first, the windshield last. Do not use cement, but paint several coats of clear dope just around the very edge of the windows. This will seal the windows neatly and be less noticeable than cement.

Before cementing the 1/16" sheet balsa fuselage under-covering in place, paint the forward part black to match the rest of the cabin interior.

Bend and attach the wire tail skid. Bend wire, solder and attach nose landing gear to the motor mounts as shown on the plans.

Cut parts for fuel tank from tin or brass and solder together.

Carve cowl from two blocks of medium-hard balsa and hollow out to accommodate motor, fuel tank and mounts. Dress snags, counter-sunk, pinned down and cemented, are used to hold cowling on.

A 7" diameter, 5" or 6" pitch propeller should be used for flying. The plane should balance at the leading edge of the wing at the tip. It was necessary to hollow out the tail cone

so it would hold some lead before cementing it in place.

Since the control lines should be taut at all times, it may be necessary to bend slightly the left elevator tab down and the right tab up. This, plus the added weight in the right wing tip, will tend to throw the plane to the outside of the circle.

The detail drawings shown on pages 40 and 41 will enable you to add even more to the beauty of your own personal Bonanza replica.

BILL OF MATERIAL

Landing Gear

1"-dia. nose wheel
Two 1 1/4"-dia. wheels
3/32"-dia. wire
Copper wire
Six brass washers
Solder

Stabilizer

3/16" sheet balsa
1/16" wire control horn
Pin hinges
Aluminum hinges

Cowling

7/8" x 2 3/4" x 3" balsa block
1 3/4" x 2 3/4" x 3" balsa block
Size "O" dress snags

Fuel Tank

Tin or brass sheet
Brass tubing
Rubber tubing

Power

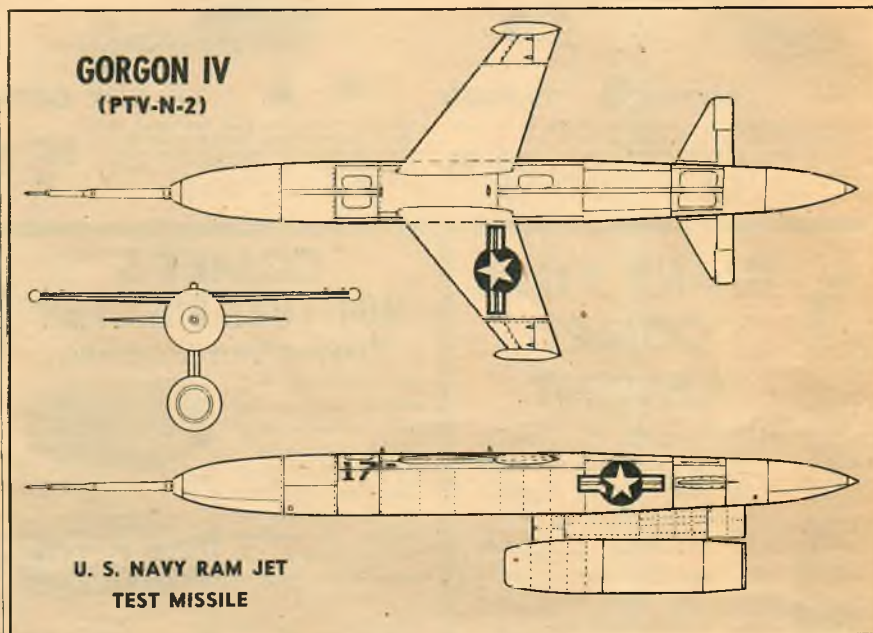
McCoy 19 motor or equivalent
7"-dia. 5"-pitch prop
Balsa prop spinner

Fuselage

2 pine motor mounts
4 nuts, bolts, and washers
3/32" wire mount supports
1/4" plywood firewall
3/32" sheet balsa bulkheads
1/8"-sq. balsa
1/16" x 1/8" balsa
1/8" x 3/16" balsa
1/16" sheet balsa covering
1" x 1 1/4" x 2 1/2" balsa tail block
1/2" x 1" x 1 1/4" balsa tail cone
Pine bellcrank support
Aluminum bellcrank
Nut bolt and washers
1/16" wire push rod
Tail skid
Celluloid windows
Cement

Wing

3/32" sheet balsa wing ribs
1/2" x 3/4" balsa leading edge
5/16" x 3/4" balsa trailing edge
3/16" x 3/4" balsa wing spar
1/16" sheet balsa wing covering
3/8" x 1/2" balsa wing tip
Staples and thread
1/4" aluminum tubing
1/32" wire control leads



● Gorgon, a frightful monster inhabiting the ocean, came out of the pages of Greek mythology and is now inhabiting the Navy Air Missile Test Center at Point Mugu, Calif. The Gorgon IV, built by the Glenn L. Martin Co., is not a flying bomb but a test missile guided by radio and equipped with telemetering apparatus for the evaluation of its ram-jet power plant. Almost daily it is launched from an F-61 Black Widow over the ocean. Its telemetering equipment sends out a wealth of information to the ground station below. Powered flight lasts only ten minutes, after which the Gorgon IV zooms up, a parachute pops out of its fuselage, and the "bird" comes down to a gentle water landing. It is recovered by a Navy PT boat.

Model Aero Club Directory

(Continued from page 52)

INDIANA

Anderson Johnnies—Olenna Williamson 2637 Meridian
 Angela Tri State MAC—C H Harry 206 S Darling
 Aurora Spark-Plugs—Don Rust 409 Park Av
 Brazil Winged Modelers—L R Weaver 1205 N Meridian
 Clinton MAC—W L Marietta 759 Elm
 Columbus Prop Busters—James Poulton 1704 Central
 Crown Point MC—W C Rothermel 482 S Court
 Elkhart Balsa Termites—Carl Rich 3412 Polo Av
 Elwood Prop Busters—Marvin Wells 808 SB
 Evansville Thermal Thumbs—F Scott 1717 Hollywood
 Ft Wayne Mad Modelers—Kenneth Kimmel 2210 Lawndale Dr
 Gary Balsa Butchers—W McDermott 626 E 7th Av
 Hammond Aero-Hawks—Eugene Mills 438 Spruce
 Indianapolis Capitolliners—Wilbur Portteus Sr 51 S Hawthorn
 Indianapolis GMA—L V Brown 5506 N Illinois
 Indianapolis RPM MAC—A L Caldwell Jr 949 E 86th Rt 14 Bx 271
 Indianapolis Strato Strenks—Richard Wisewhart Rt 9 Bx 594
 Kokomo Flying Wildcats—Edward Scott YMCA
 Lafayette Aeromodelers—F M Crosby School of Aeronautics Purdue Univ
 La Porte Thermal Chasers—O L Payne 212 John
 Mishawaka Buzz Bugs—Fred Flagle 713 N Main
 Muncie Controliners—Forrest Richardson 601 W Jackson
 Muncie Gas Hawks—Jack Long 405 N Pershing Dr
 Noblesville Model Maniacs—Bob Goodwin 1152 Evans Av
 New Albany MAC—L I Mayfield 1269 E Main
 Portland Jay Birds—Leo Garringer 711 W High
 Purdue Aeromodelers—c/o Purdue Univ Mem Bldg Lafayette
 Richmond Prop Nuts—H N Willoughby 123 S 10th
 South Bend Michiana MAC—C B Keller 930 26th
 Terre Haute Pylon Busters—Pat McGahan 1211 S 20th
 Terre Haute Balsa Benders—Hubert Cleveland 2212 Putnam

IOWA

Ames Crankcase Crunchers—C E Quade 1403 Kellogg Av
 Ames Two Cyclers—J E Brunk Bx 670 Friley Hall Iowa State College
 Cedar Rapids Aeroneers—M Camlzzl 1312 Burch Av NW
 Davenport Prop Busters—J H Whitaker 2415 Bridge Av
 Decorah Skymasters—Dick Kulaas 409 Eriksson Dr
 Dubuque GMA—Ted Jellison 665 1/2 Central Av
 Ft Dodge HC—Laurence Waterlick Bx 79
 Iowa City Gas Hawks—R R Palik 628 N Lucas
 La Mars MC—F S Jenkins
 Marshalltown Flying Tigers—J C Walker 114 1/2 E Main
 Monticello Modelers—Geo Blair Country Club
 Ottumwa Rocketers—Dick Blomgren 731 N Green
 Ottumwa Hornets—Claude McCullough Rt 5
 Red Oak Cloud Chasers—B E Graham 1201 8th
 Sioux City Helldivers—Bob Hoffman 4434 Polk
 Waterloo Prop Twisters—E H Fletcher Bx 2456

KANSAS

Emporia Prop Spinners—601 1/2 Commercial
 Garden City Prairie Eagles—L R Downing 126 Grant Av
 Great Bend Flying Maniacs—J H Louthan 800 Holland
 Kansas City Piston Pushers—Bob Alduk 3122 Stewart Av
 Lawrence Sundusters—M Mitchell 1008 New Hampshire
 Manhattan Circle Burners—Ralph Moll Bx 681
 Parsons Sky Champions—Vernon Cates 2214 Corning
 Salina MAC—Mrs A Goedde 408 W South
 Topeka MC—Val Sherrard 1021 W 6th
 Wichita Planesmen—835 Porter Av
 Wichita Hy Flyers—A J Hummel 4007 E Kellogg

KENTUCKY

Louisville ABC MC—Courier Journal
 Louisville MC—J A Strobl 1808 Norris Pl
 Paducah MC—R A Bearden 2702 Jones

LOUISIANA

Baton Rouge MA—C G Leonard 151 Bedford Dr
 Lafayette MAC—James Starr 1021 Lafayette
 Lake Charles Aeromodelers—H J Zempier 816 Ryan
 New Orleans AC—W J Norman 840 Union
 Shreveport Modelers—T O Philyaw Bx 3292 QB Sta

MAINE

Augusta Flying Maniacs—H E Smith 93 Bangor
 Bangor Hedgehoppers 26 Central
 Houlton Knuckle Busters—E W Barker 22 Bowdoin
 Rockland Model Hawks—William Pease 224 Limerock
 Portland Propnappers—M G Kennedy 457 1/2 Congress

MARYLAND

Annapolis Ritchie Model Speedway Rt 2 Bx 594
 Baltimore Air O Ites—H R Jex 3508 Rosedale Rd
 Baltimore Aero Craftsmen—R Stevens 1210 Northview Rd
 Baltimore Controliners—E E Reing 4004 Southern Av
 Baltimore Martin Modelers—H W Cassidy 45 Blister
 Baltimore Sky Jockeys—T Williams 3521 Meadowsdale Rd
 East Riverdale Sky-Devils—Jim Gray 5602 54th Av
 Hagerstown MBA—J K Baker 516 Reynolds Av
 Middle River Spiral Divers—Ford Hannigan 16 Blister Aero Acres
 Silver Springs Aeronuts—Ronald McDevitt 1320 Dale Dr
 Westminster MC—Morris Koontz Hollow Rock Av

MASSACHUSETTS

Adams Blackhawks—E J Savitski 18 Reeves
 Aliston Boston Balsa Bees—Geo McGuinness 12 Gullford
 Amesbury Flying Shmoos—Wm George 104 Elm
 Lawrence GMC—J W Ramsden Jr 65 Beverly N Andover

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Size: 3/4" x 1" x 2"
 Weight: .5 ounces.
 SELF-NEUTRALIZING
 RUBBER POWERED
 plus 2 to 4 1/2 volts.



RECEIVER

Size: 1-7/16" x 1 3/4" x
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 (complete with relay).
 Tube: RK-61, in new im-
 proved circuit. Power:
 1 1/2 volts (one pencil)
 45 volts (two hearing
 aid batteries). Flying
 weight: 4 1/2 ounces.

TRANSMITTER

Size: 1 1/2" x 2" x 4 1/4" Weight:
 5 oz. Frequency: 50—54 MC (6
 meter band). Range: Over 2.5
 miles (max. on field tests over 6.7
 miles). Power: 1 1/2 volts and 135
 volts. (Batteries easily carried in
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Battery.



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Braintree MFA—A F Muldoon 23 Miller
Brockton Cloud Chasers—John Ross 70 High
Brookline AC—Arthur Riva 1236 Beacon
Charlestown MAC—W D Headle 4 N Mead St Ct
Cheshire Black Hawks—Harry Schwarzer
Dorchester Speed Demons—Robert Clark 66 Clarkson
Fall River MAE—Julian Deschene 800 Charles
Gardner MAC—Paul Safstrom 29 Crawford
Greenfield GMAC—Joe Johnson 194 Federal
Lawrence GC—John O'Rourke 828 Bay State Bldg
Leominster Prop Blasters—Alfred Bergeron Bx 364
Lowell Christian Hill MAC—A J Garmon 575 Beacon
Lowell GMC—C E Watt Jr YWCA Bldg
Lynn Speed Lions—Richard Harding 6 Bay View Av
Malden Rubber Demos—Bud Rosenberg 164 Belmont
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S Water
N Quincy Cloud Busters—W S Sterling 19 Belmont
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Royalston Gasoleers—John Wells Bx 49
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field
Springfield Snafoo C—E B Cleveland 170 Parkview
Taunton Mod-Aeros—A P Correlia 38 Purchase
Uxbridge Blackstone Valley GM—D J Wessan 17 Oak
Westfield Aeronauts—T W Gilligan 6 Lozier Av
Whitman Model Maniacs—Edward McSweeney 63
Temple
Worcester Jinx Inc—A S Clemence 30A Holden
Worcester MAA—F R Mosiello Jr 359 Shrewsbury
Worcester MPC—H J Chicoine 61 Cutler
Worcester Piston Pushers—H D Weiss 37 Trumbull

MICHIGAN

Ann Arbor Airfoilers—H C Varnum 607 Hill
Battle Creek Gasoleers—K A Vincent 25 Haskell Av
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Boyer City Modelers—Jack Carman 707 Earl
Breedsville Balsa Bugs—Frank Hartman
Fordson GMC—H S Lewis 411 N Rosevere Dearborn
Detroit Balsa Bugs—Recreation Dept 9800 E Jeffer-
son
Detroit HC—R J Potteray 8126 Hildale Av
Detroit Propnuts—Al Langenbacher 19131 Hickory
Detroit Sky Guys—Joe Dallaire 9830 Wyoming
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enne
Detroit Strathmoor MC—H P Foucher 14515 Grand
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E Detroit Prop Busters—Albert Kerner 21855 Gratiot
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Dougal
Jackson MAC—C E Greene 502 McNeal
Kalamazoo Aero Nuts—Allan Rowe 341 Lovell
E Lansing Buzzards—W J Werback 900 Wildwood Dr
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Muskegon MAC—W J Gagnon 143 Western Av
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Pontiac Torque Twisters—J W Sandberg 7 Prall
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Romulus MAC—R W Reimschuessel 27630 Goddard Rd
Royal Oak Cloudbusters—John Kates 604 S Edison
Av
Saginaw MC—M F Schmidt 1726 Monroe
Shepherd Goofy Gremlins—A M Stellwagen Bx 55
Wyandotte Gremlins—Charles Pyrone 849 6th

MINNESOTA

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Minneapolis MAC—R M Thor 2633 Garfield Av S
Minneapolis Piston Pals—Gayle Olson 5645 14th Av
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Av
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MISSISSIPPI

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Jackson MAC—Charles Hudspeth Rt 7
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MISSOURI

Aurora Boy Scouts MC—Lewis McNutt Bx 211
Houston Model Aeronauts—Max Burkhead Bx 267
Independence Spark Sharks—Bill Meadon 631 S
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Joplin MC—Carl Lowerance 1627 Main.
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MONTANA

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 Billings Balsa Butchers—Vic Redinger 616 N 24th
 Bozemen GMC—R L Bradford 135 W Mendenhall

NEBRASKA

Bassett Aero-Loops—Bob McCullough Bx 403
 Boys Town Hell Cats—E Henkel
 Omaha Model Pilots Assoc—Fred Keep 111 1/2 N 40th
 Omaha Model Gremlins—Edward Corbin 6120 Grant
 Omaha Thermal Chasers—Jack Fluehr 6223 Pierce
 Potter Aero Nuts—Darryl Dedic
 Scottsbluff Torque C—1322 8th Av
 Sidney NEFU C—John Foster 1124 5th Av
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NEVADA

Las Vegas Avelites—Ralph Wilson 520 N 11th
 Reno Sagehoppers—R A Singleton U of N Sta

NEW YORK CITY

Astoria LI Queens Aero Assn—J Kiernan 37-18 31st Av
 Bellaire LI Thermal Thumbers—Nicholas Haschak 63-59 Francis Louis Blvd
 Bronx Balsa Hackers—M Potosky 1841 Marmion Av
 Bronx AC—August Thode 2702 Bailey Av
 Bronx Aeroneers—H O James 967 Trinity Av
 Bronx Metcalf—Tully Adler 1435 Edw L Grant Hwy
 Bronx Model Knights—A Hasselback 3087 3rd Av
 Bronxville Flying Maniacs—Hal Jennings 6 Millison Close

Brooklyn Airfoilers—Steve Carner 585 E 16th
 Bro. klyn Avions—L Blumenkranz 2332 E 22nd
 Brooklyn Bay Ridge AC—J R Majell 260 91 st
 Brooklyn MA—Arthur Aronstein 1924 Homecrest Av
 Brooklyn Playboys—R Bartholomew 33 Norwood Av
 Brooklyn Prop Busters—Raymond Miller 663 New Jersey Av

Brooklyn Pylon Pilots—Thomas Hampton 2828 Fulton
 Brooklyn Record Wreckers—William Templin 680 E 49th

Brooklyn Sky Lancers—Edward Luca 199 Bay 17th
 Brooklyn Skyscrapers—Tobias Feuer 915 43rd
 Brooklyn Cloudbreakers—Bernard Asher 5052 62nd
 Brooklyn Aero Bats—Alex Ostapshuk 92 Boerum
 Brooklyn Hot Heads—Bill Dunwoody 130-85 St
 Brooklyn Aero Bats—Alex Ostapshuk 92 Boerum
 Brooklyn Highland Pk Unit CAP—H H Rice 2975 Fulton

Brooklyn Mercury Mites—A C Cacaro 1692 Lincoln Pl
 Brooklyn Riser Riders—J F Smith 89-19-84 St Woodhaven

Brooklyn Thermaleers—M Josephson 220 Highland Blvd
 Brooklyn Model Craftsmen—S November 593 Lenox Rd

Corona Vanguard AC—Paul Katerges 99-20 41st Av
 Elmhurst Prop Spinners—W H Fletcher 8708 Grand Av

Flushing Cloud Hoppers—45-77 160th
 Flushing Cloudhoppers MAC—W C Kimbell 36-14 165th

Glendale LI Gashoppers—J J Eden 65-23 80th Av
 Jackson Hts Cloud Chasers—R Laderman 80-38 Baxter Av

Jamaica Idlewild GMAC—H B Nelson 144-30 159th
 Jamaica Thermalites—Don Edmonds 172-10 111th Av
 Long Island City Air Screws—D Mass 2512 Steinway
 Long Island Bonac Buzzards—J R Riley East Hampton

N Y Aeroneers—H O James 967 Trinity Av Bx 56
 N Y Gas Birds—George Kern 210 E 85th
 N Y Haze Hackers—J Strabella 3989 White Plains Rd
 N Y Piston Pushers—Irving Wolk 803 E 182 Bronx
 N Y Aeronuts—S S November 593 Lenox Rd
 N Y Plane Nuts—L L Rosen 66-08-102 Forest Hills
 N Y City Star Chasers—W C Burlingame 1006 Columbus Av

N Y Modelers—M E Libby 122-03 142nd Pl South Ozone Pk
 S Ozone Pk LI Mallards—G W Meserole 132-45 142nd
 Queens Village Thermal Thumbers—G F Harkins 88-21 208th

Richmond Hill Z-ZMC—Tex Foster 105-14 Jamaica Av
 Rockaway Beach Model Mashers—B H Waag 430 Beach 130th

Far Rockaway Modelairs—F Babbit 143 Beach 32nd
 Staten Island Eaclets—W R Anderson 106 Mersereau Av

Whitestone Cloud Hunters—Mary Lutz 146-37 22nd Av

NEW YORK STATE

Albany Flying Squadron—Anthony Chiboucas 40 High
 Albany Modelairs—E F Hyde 11 Central Av
 Belleville Model Craftsmen—P M Chewey 178 Malone Av

Bemus Point Model Aeronauts—Clayton Thomas Rt 1
 Binghamton Aeros—John Kavulich 98 Front
 Buffalo Miniature AE—Norris Maltby 95 Marimont Av

Buffalo Prop Twisters—D A Goodwin 150 Jewett Pky
 Clyde Planesmen—B E Graham Rose Rd
 Corning Aero C—H M Nixon 42 Ontario
 Dunkirk Center Flyers—33 Wright

E Hampton Bonac Buzzards—Chas Smith Sherill Rd
 Freeport MA—Ralph Hirschberg 37 S Grove
 Freeport Sky Chiefs—B K Bull 41 Church
 Garden City LIPGC—Harry Moore 134 Newmarket Rd

Glen Head North Shore Controliners—F A Rother 48 Sylvia
 Gloversville Control Bats—R E Hathaway 47 Pearl
 Great Neck Buzz Bums—Fred Vander Schmidt 79 Berkshire Rd

Hempstead Sky Lancers—D Yulke Mildred & Stanton
 Hempstead LI Screamin Demons—T R Tourt 14 Frazier
 Hudson Blue Anchor MC—C L Wollsover 521 State
 Islip Flying Lions—J A Wilson 33 Maddox Av
 Islip Flying Kiwies—J A Wilson 33 Maddox Av

Johnson City Aeroneers—F E Rowe 21 Main
 Kenmore Flying Bisons—Michael Jordan 21 Grosvenor Rd
 Lindenhurst Flying Kiwies—Chas Del Signore 435 S 3rd

Lockport MAC—N E Hare 34 Park Pl
 Long Beach MAC—A B Landau 42 Pennsylvania Av
 Mineola LI Sky Kings—Harvey Knopf 120 Washington Av

Mt Vernon Aeronuts—A A Tiso 123 4th Av
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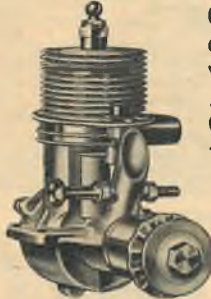
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Rome Wings MAC—E P McGahey 723 N James
Rosendale Gas Monkeys—Danny Logue 241-20 145th Saratoga Springs Flyoneers—John Morrissey 81 Nelson Av
Schenectady Aeroneers—Raymond Voigt 202 Jackson Av
Syracuse Controliners—Ellen Caring 104 Robineau Rd
Syracuse MAC—Jim Matthews 227 Norwood Av
N Tarrytown Gas M—John Flanagan 161 Beekman Av
Victor Contrallers—L G Searle Jr
Watertown AM—J D Morrow 418 Holcomb
Wayne County Red Creek C—L W Caster
West Point MAC—Don Kangan Co A-1
White Plains MA—T A Herbert 259 Mamaronock Av
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Portsmouth M Maniacs—D M Knicker 149 Deer

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Atlantic City Cloud Chasers—J Slegfried 220 N Maine Av
Avon Stratosphere Roamers—R Stier 141 Summit Av
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Bloomfield HC—A A Marden 72 Washington
Bloomfield MC—C A Fink 17 Plerson
Bordentown MC—J E Forbes Rt 1
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Burlington Falcon MAC—Ray Balon 427 Wood
Butler Cloud Clippers—Charles Whritenauer George St
Cape May Prop Busters—112 Perry Rudy Von Collin
Garfield Jersey MC—S G Evans 600 Beech Av
Hillside Aero Nuts—R I Mullican 209 Hillside Av
Irvington Flying Gremlins—524 Stuyvesant Av
Irvington Prop Busters—H A Schumacher 36 Elm Pl
Jersey City Air Wheels—95 Franklin
Linden MAC—R E Tucker Recreation Comm
Maywood N Jersey ME—Robert Cartwright 742 Oak Av
Millstone Somerville MAC—G W Dickenson Amwell Rd
New Brunswick Aeronauts—Robert Sivak 158 Louis
Newark Flying Cardinals—W J Stanton 141 Vermont Av
Newark Controliners—G C Gebhard 105 N Mumm Av
Newark MAC—W A Van Buren 437 S 10th
Newark Sky Bugs—I J Schneider 497 Jelliff Av
E Orange Prop Nuts—R J Buragas 311 Elmwood Av
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Ocean City Sky Riders—C W McCorkle 5715 Asbury Av
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N Plainfield Queen City Flyers—H Bueschel 168 Grove
Princeton MA—R E Hamer 117 Jefferson Rd
Ridgewood MAA—Anthony Maclag 196 E Ridgewood Av
Ridgewood MC—R B Evans 848 Hillcrest Rd
Roselle MAC—Samuel Plafsky 913 St. George Av
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Summit Sky Busters—L V Badley 446 Springfield Av
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Union MAC—Ronald Denk 1081 Overlook Tr
Union City Prop Busters—Anthony Fellini 508 11th
W Orange FC—A H Maurer 32 Kirk
W Orange Spanduals—Edw Rozewski 6 Tremont Av
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Hobbs MC—Bob Bishop 414 W Park
Roswell Aeronauts—c/o Browning 1415 W 2nd

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Charlotte AC—N A Lewis 1834 Lombardy Circle
Charlotte MAC—Wyatt Rogers Jr Bx 2022 Rt 7
Cherry Point MAA—Pfc W H Schmitt AES 41 Eng Div
Concord Modelaires—D T Howell 88 E Depot
Concord MAC—Dr H P Sapp DDS
Gastonia MAC—James Hollinger
Greensboro Prop Twisters—W H Bunting 334 S Elm
Hickory Contralliners—H H Page Bx 574 Valdeese
Kernesville Model Masters—Howard Payne Rt 1
Leaksville MAC—Willford Redmon Bx 266 Blvd Branch
Raleigh U-Liners—H P Cherry 3 S Person
Salisbury MAC—R N Corelle Bx 49
Semora Piston Pushers—Bobby Taylor
Thomasville MAC—R T Swaim
Wilmington MAC—D E McElven 161 Lake Forest Pky
Winston-Salem Sky Writers—J G Stratton 1230 W 1st

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Grand Forks Modelaires—A R Brasted 121 1/2 S 3rd
Minot Aeromodelers—M E Schnase 822 6th Av NW
McClusky Ceiling Unlimited—Dewey Wahl
Valley City Aero Mites—Francis Dahl 104 Elmwood Av

OHIO

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Bellfontaine Quad Hoppers—R L Parker 536 Hamilton
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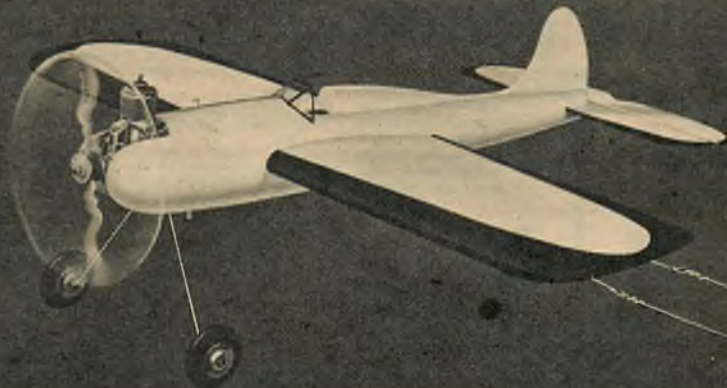
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 Cleveland Airport
 American Airlines GMC—H D McCall 9609 Lorain
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 Balsa Butchers—J W Hillegass 1960 E 105th
 Columbus MAA—Denver Devore 20 E Lincoln
 Dayton Buzzin Bombers—A R Modler 1721 Kensing-
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 Dayton Model Aces—H E Beard TSVMP Wright Field
 Dayton MA—Patricia Boomer 341 W 2nd
 Delaware Model Maulers—T H Marten 66 W Foun-
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 Findlay MAC—W R Reissig 409 Howard
 Gallipolis MA—F A Shane 513 1st Av
 Garfield Hts Controliners—M E Lutz 10407 Granger
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 Greenfield American Legion MC—Tildon Hike 339
 Jefferson
 Hamilton Prop Twisters—Vincent Donatiello Jr 1337
 Dayton
 Lakewood Aeroneers—R G Bowden 12989 Lake Av
 Lakewood Gas Guzzlers—James Mondak 1452 Olive-
 wood
 Lakewood Prop Twisters—Hal Roth 1562 Wyandotte
 Av
 Lancaster Thermal Teasers—A R Feigley 405 E Mul-
 berry
 Lewisburg Thermal Chasers—N E Hammel Rt 1
 Oxford Flving "5"—James Peterson 420 W Vine
 Marletta Balsa Busters—E S Miller 108 Front
 Marion Prop Busters—R D Blank Rt 6
 Piqua Flying Indians—Lloyd Hubbard Echo Lake Dr
 Portsmouth Thermallers—R W Carson 2915 Brant Av
 Shelby Balso Buzzards—H L Robinson 16 W Madison
 Av
 Springfield Petrol Airs—C Greetham 358 E Madison
 Av
 Springfield Fair Flyers—Ted Teach RR 2
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 Springfield Strato Hawks—A Stickney 1123 S. Lime-
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 Toledo Model Manglers—R C Rhein 608 Nevada
 Warren MA—W Hill 635 Porter NE
 Wauson Cloud Chasers—Harold Lewis 205 N-Fulton
 Wooster MC—M J Long 515 Saybolt Av
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 Youngstown Mahoning MC—H L Kirchner 2700
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 Blackwell Thermal Chasers—Elmer Cline 901 E
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 Brackenridge Allegheny Kiski MC—1508 Union Av
 Bradford AMC—C F Barber 50 Bedford
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 Brookville Aero Club—William Preston 72 Mahon
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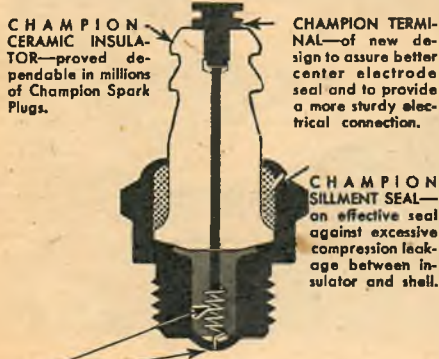
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THREAD LENGTH	7/16"	7/16"	3/4"
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SOUTH CAROLINA

Charleston Prop Busters—J J Francese 23 Saratoga Rd Waylin Naval Base Florence Airheads—G C Avent 415 Franklin Av Greenville Torque Flyers—204 N Laurens Franklin

SOUTH DAKOTA

Aberdeen AMC—Carroll Gibson 1095 Jay Huron Prop Busters—J W Keller Jr High School Mitchell Air Explorers—R N Franklin Westborne Ct Apt 206 Rapid City Cactus Patch—D F Clarke Bx 62 Sioux Falls GMC—R F Felzer 507 S Menlo Av Spearfish Prop Busters—B A Fassbinder Vermillion Thermites—Carl Harris

TENNESSEE

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TEXAS

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UTAH

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VERMONT

Burlington Green Mt Modelers—T A Dietrich Bx 505 Rutland Prop Busters—Leonard Korzun RFD 1 Cut-tingsville St. Johnsbury Aeronuts—John Threlle 1 Main

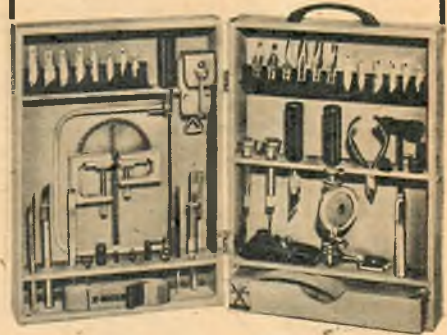
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 Rd SW Bx 318
 Suffolk Prop Twisters—B C Traylor Bx 6

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 Bryn Mawr Renton MC—S Muri Bx 345
 Bremerton Modelers—G F Henry Bx 3002 Sheridan
 Rd
 Bremerton MAA—A B Cullins 3086 Cherry Sheridan
 Pk
 Everett Cloud Dusters—A Thostenson 1818 Hewitt Av
 Everson MC—Andy Beaudry Rt 1
 Hoquiam Sky Kings—C W Martin 2739 Pacific Av
 Olympia Macs—A Johnson Glenwood Park
 Port Angeles Cloud Chasers—Edgar Burns 125 W 1st
 Pullman Bird Brains—Gordon Frouthy 322 Shirley
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 Seattle Guideliners—W S Willemto 311 W Smith
 Seattle Wingdingers—Dwight Holloway 11718 87th
 Av S
 Sedro-Woolley Flying Brats—Dick Glad 609 Central
 Av
 Spokane Island Empire MA—D J Longly N 4507
 Maple

Tacoma Aeromodlers—C A Sims 1614 N Union
 Vancouver Skyliners—A L Frazier 107 E 12th
 Walla Walla Gas Bugs—Ed Mitchell 434 N 5th
 Wenatchee Flightliners—Geo Kenoyer 340 N Wenat-
 chee Av
 Wenatchee Cloud Chasers—G Straley Mission &
 Orondo
 E Wenatchee Modelers—Johnny Gruenewald
 Yakima Gashawks—F A Greenough Rt 7 Bx 7

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 Beckley Raleigh Co MAC—L P Keatley 217 Prince
 Bluefield Balsa Bats—J D Wingfield Jr 217 4th
 Bluefield VFW MC—R W Burr
 Clarksburg VFW MAC—C A Hopkins Bx 1985
 Fairmont MAC—E L Carpenter 604 1/2 Potomac Av
 Fairmont Sky Sharks—Don Lindley Rt 3
 Huntington Prop Busters—J A Summerfield 802 6th
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 Short Creek Aeromodlers—T T Husuar Bx 713
 Wevaco Young Cadets—Charles Crowder
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The Smith Special

(Continued from page 49)

Remember to punch out holes for the push rod travel in the formers. The firewall is cut from 1/16" plywood. A 1/4" x 3/8" pine brace is cemented to the rear of the firewall. This block acts as a seat for the wood screws that hold the engine in place, and squares up the sides when assembling.

The fuselage can be built "in-the-hand," laying it over the top view as work progresses to check alignment. Begin by cementing the sides to the firewall and brace. Pin in place, check alignment from side and top, then add former 4. These two formers should be aligned carefully before proceeding. Next add formers 2 and 3 and the bellcrank mount. Formers 5, 6 and 7 can then be added in that order; use plenty of cement at the rear where the sides come together.

While the basic fuselage structure is drying, cut out the pylon, head rest, rudder and sub-rudder. The pylon is specified as 1/32" plywood but if this is unobtainable, hard 1/16" sheet balsa may be substituted. The grain should run vertically. Ditto for the wing struts but more of that later. Cut out the wing and landing mount from 1/16" plywood. Bend the landing gear to shape and fasten to the mount with thread stitching and several coats of cement.

The stabilizer and elevators should be cut out and assembled at this point. The plans are self-explanatory. The control horn is made of 1/32" brass, 1/8" wide. Bend a right angle in the strip so that the hole is 1/4" below the elevator spar. Wrap the other end of the strip down snug against the spar with thread. Cover with two coats of cement.

The rest of the control system can be assembled and fitted into the fuselage next and the stabilizer cemented permanently in place. Control-line leads can be .010" wire with a simple loop in end through the bellcrank. Elevator travel should be about 1/4" up and down, more for the stunt version.

Now to assemble all these parts to the fuselage. First comes the pylon, then the head rest. Add the wing and gear mount, use cement liberally here. Next add the sub-rudder and fin. Check alignment of these by sighting at the fuselage from the rear end. Cement the rudder in place with the amount of offset indicated. This about completes the fuselage except for the 1/16" square stringers which may be added later after the fuel tank is fitted in place.

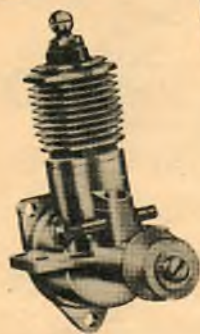
The sport wing can be cut out of 1/16" sheet and sanded smooth. The trailing edge is tapered slightly to about 1/32" thick. Cut out the ribs and prepare the wing surface before cementing in place. This type of wing can be neatly built by using the following procedure: Paint the top of the wing lightly with water from the leading edge to about 2/3 of the way to the trailing edge. Working quickly, give the bottom surface one coat of thin dope, covering the same space chordwise as the top surface. The dope will shrink and curl the sheet, and the water will allow the sheet to bend in the right places. Cement the ribs in place and hold with pins pushed in diagonally. When the water, dope and cement are dry the wing will

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be set in the proper curve. Check to see that no warps develop while drying. Any warps can be twisted out and held that way while the sheet is drying.

Repeat the operation for the two lower wing panels. These are simpler because of their size.

If you are building the stunt wing, cut out all the ribs and lay out the leading and trailing edge over your plans. The leading edge should be blocked up with 1/8" scrap blocks, the trailing edge with 3/16" sheet. The ribs can then be cemented in place with ample clearance above the plans. Tips are soft 1/2" square or sheet balsa carved to streamline shape. Lower wings for stunt version are 1/16" sheet sanded to symmetrical section as indicated on the plans.

Now comes the only tricky part—assembly of the wings to the fuselage. Cut out the wing struts, leave a little extra on the bottom in case a little "fudging" is in order. Lay the fuselage down on your work board with the landing gear hanging over one edge. Lay a scrap of 1/8" sheet under the gear mount so that the fuselage will be resting level. Now pin the fuselage down to the board through the sides and the sub-rudder. Slide the wing down onto the pylon and check for equal elevation of the wing tips and 0° incidence. Cut scrap strips to support wing tips equally above the board. The wing can now be cemented in place and the tip supports pinned to the wing and the board. Let dry a bit before proceeding.

Cut a slot through the lower wing surface to receive the lower ends of the I-struts. Slide the struts through the



slots and lay the lower wings in place on the fuselage mount. Check the dihedral angle holding the struts in place against the top wing ribs. Now is the time to insure proper alignment so shave or beef-up accordingly. When everything is lined up, the lower wings and struts can be cemented in place. Now go eat your supper and let the thing dry thoroughly.

Well, nearly finished. Add the line guide to the left I-strut, drill for lines and run leads through and bend a simple loop in the ends. Fit the stunt tank in place with the feed pipe level with the needle-valve of the engine. Now add the 1/16" square stringers and 1/16" sheet around the cockpit.

Use lightweight Silkspan for covering the fuselage top and bottom. Paper can be added to fuselage sides and wing leading edges for extra strength, but we do not recommend doing so because of the added weight.

One coat of filler, or sealer, one coat of colored dope, and one coat of hot fuel-proofer completes the job. A fancy finish is passed by for the sake of weight reduction.

The Infant engine is held in place with two wood-screws 5/16" long. Side thrust, if necessary, may be added by placing a washer behind the engine mounting flange on the left side.

Because the fuel line in the Infant tank is on the left (inside of circle) side, we found it necessary to rig a Rube Goldberg fuel line from a length of 1/8" O.D. copper tubing going into the right (outside of circle) side of the tank. This enabled the engine to practically run the tank dry in flight. Of course if the stunt tank is used, the regular Infant tank will not be used. But don't cut that mounting stud off—you may use the regular tank on some free-flight job.


And finally, props: we used a hand-carved type as recommended by K&B. We also experimented with slightly more pitch, but the difference in performance didn't warrant the trouble. Best success was achieved with the Air-O single blader. Although primarily intended for free flight, the fly-wheel action developed by the added lead weight made the engine start easier and turn more rpm.

The Special can be flown on from 10 to 15 feet of No. 20 cotton thread or silk and nylon of smaller size.

If the builder so desires, all wood sizes given as 1/16" sheet can be made of 1/20" sheet if available and a considerable saving in weight will result. Although performance is good now, a bit less weight should really make your Special jump.

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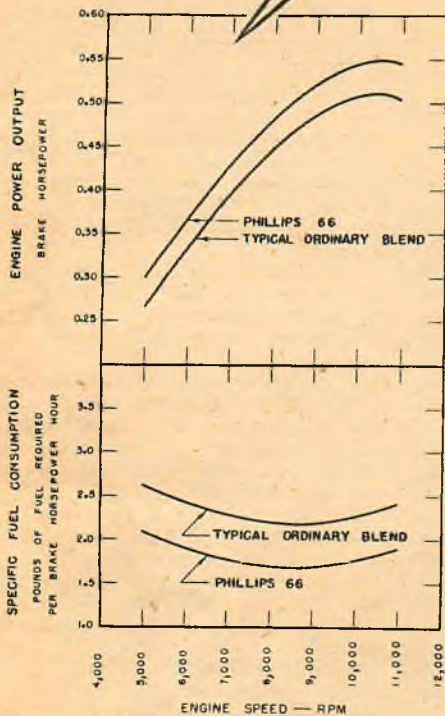


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**PHILLIPS 66
MODEL MOTOR
BLEND**



Thimble Drome Race Track

(Continued from page 50)

Repeat this procedure, but place your batting at 9' 3" from the center post and drive the stakes behind it.

The fine points of track building are no secret. There's nothing more discouraging than trying to race your car on a wavy or rough track, while a level track will give you speed and new records. If it isn't level, your cars will go wild, so be extremely particular.

You will need about 30 check stakes to level the forms. These should be about 8" long. Select your highest point on the inside track line and drive one stake, leaving it the desired elevation of your track surface; remember the track must be slightly above ground level so water won't stand on it.

Drive the stakes 2' apart all the way around the inside form. Using a level, make each stake level with the preceding one as you go. Reverse the level end for end each time you set a new stake. If your last stake comes out level with the first one everything is O. K. If it is not level with the first one you have slipped up somewhere. In this case recheck and correct the error. When all the stakes are level the form batting may be nailed in place with the top edge flush with top of check stakes.

The outside form may now be nailed in place, leveling across from the inside form.

Banking the track will minimize mud and water standing on the track after a rainstorm, but it will not increase running speeds. Banking should not exceed ¼", and can be done as follows: tack a ½" piece of balsa wood near one end of the level. Use this end of the level on the inside form and level across to the outside form as above.

A form isn't necessary for the center post base if you trim the sides neatly. The concrete will be poured flush with the ground surface anyway.

Reinforcing is highly important and necessary, because if your track develops cracks all your efforts and care are wasted. Cracks will throw your car into the air and you will not get top speeds and smooth running. This reinforcing consists of two circles of steel about 12" apart lying in the track about midway between the ground and the track surface, supported on steel dowels to which it is tied with wire. Install this as follows:

Cut sixteen dowels, 7" long from your ½" stock. Drive these dowels into the ground 4", leaving 3" extended into the track. Start at your first check stake and measure 4" toward the center of the track. Drive your first dowel here. Repeat this every 8' all the way around the track. Measuring in 4" from the outside form, again proceed around the track placing a dowel every 8' but staggering them in relation to the first circle of dowels. Fasten steel runners to these dowels 1½" to 2" from the ground all the way around each circle using tie wire. Lap the joints one inch, also tying these with wire.

A piece of ½" pipe with a coupling on one end makes a good anchor for the center bearing. Cut the pipe 16" long, screw on the coupling, put a pipe plug

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in the coupling to keep the threads clean and then push the pipe down the same hole left when you pull the center stake out. The top of the coupling should be flush with the concrete level.

You're through now, because you don't want to spoil a good track with a poor cement job. A slight wave, unnoticeable to the eye will cause the cars to leave the track. So find a contractor who will guarantee a minimum of tolerance in the smoothness of the track. Here's a tip: before the cement is hard suggest to your contractor that cross strokes with a fine brush will increase traction.

While you're waiting 48 hours to pull off the forms and another 48 hours before you run the cars, you have enough time to put in a crash wall. 1" x 6" nailed to 2" x 4" stakes driven 12" into the ground, will avoid mishaps.

In using the track there are several points to keep in mind:

First, for accurate timing the center of the car must be 10' 6" from the center of the center post. This will give you an exact mile in 80 laps. Official timing is based on 1/10 mile or eight laps. When you think your car is at its peak speed, check the next 8 laps with your stop watch.

Second, be extremely careful with your cable and the makeups at the bride and center post. Examine these occasionally and make sure they are in safe condition. At high speeds, if a car comes loose it becomes an extremely dangerous projectile. At 60 miles per hour there is 40 lbs. pull on the cable. A slight jerk at this speed if the cable catches on anything, then slips off, increases this 40 lbs. by several times, in the same manner as a hammer blow.

To figure the pull on the cable use the following formula:

$$\text{Weight of car x (ft. per second)}^2 \\ 32 \text{ x radius}$$

To figure the speed of the car when timing 8 laps or 1/10 mile, simply divide 360 by the number of seconds to get the mph. On a 35-ft. track timing will be on ½ mile or 6 laps. To figure speed, divide 450 by the number of seconds for the six laps.

For those who want a larger track there follows a bill of materials and cost of a 1/48-mile track. The 35-foot diameter allows one to watch the car better, although many report top speeds on this track to be slightly under those obtained on the smaller track.

LIST OF MATERIALS FOR 21-FOOT TRACK

	Approx. Cost
Concrete for track and center base:	
1¾ cu. yards of Ready-Mix, approximate cost	\$17.50
or 7 sacks of cement	
¾ yards sand	
¾ yards medium rock	
Lumber:	
150'—¾" x 4" batting, approximate cost	7.50
5c per ft.	
50'—1" x 2" batting, approximate cost	1.25
2½c per ft.	
Steel—½" reinforcement steel rod:	
130' (includes enough material for dowels), approximate cost 5c per ft.	6.50
Center post and bearing, approximate cost	2.00
8' tie wire	
Nails	
	\$34.75

LIST OF MATERIALS FOR 35-FOOT TRACK

	Approx. cost
4 cu. yds. Ready Mix	\$40.00
or 16 sacks cement	
1¾ yds. sand	
1¾ yds. gravel	
420 ft. ½" steel rod (includes dowels)	21.00
225 ft. 1" x 6" form lumber	10.00
110 surveyors stakes 1" x 2"	3.00
100-ft. tie wire and nails	
16' of ½" galv. pipe and ½" coupling	1.00
1 center post bearing	1.00
	\$76.00

We Fly The Cessna 190

(Continued from page 25)

about the use of rudders while hopping in and out of tricycle-geared planes. There is plenty of torque as the throttle goes forward and the ship will wander off to the left unless you keep a fairly close watch. With the big engine mounted rather high off the ground, this torque effect is quite noticeable, but after a couple of take-offs, there is no reason for a pilot to have any trouble.

One of the most pleasant features of this high-powered airplane is its rate of climb. Ever-conservative Cessna says that the 190 will climb an even thousand feet per minute at the altitude and temperature we had for the start of this flight. They weren't kidding, either, for we had more than enough altitude to clear the mountains by the time we hit the corner of Cajon Pass just north of San Bernardino.

As the altimeter unwound past 6,000 feet, Ben Hazelton began to have trouble. He had a very bad cold that made his head almost split open because of the change in air pressure as we climbed rapidly. After a quick discussion in the cockpit, we abandoned our plans for a high altitude flight and headed Eastward on-the-deck. Had we flown higher to take advantage of the strong prevailing tail winds, this flight would have been almost an hour shorter since we had to wander around the hills between Kingman and Flagstaff, Arizona, to stay low. The highest altitude

on our eastern trip was only 8,500 feet.

We cruised at 1,950 rpm with 22½ inches of manifold pressure. This big Cessna is the only personal airplane now on the market with the Hamilton Standard constant-speed propeller. With this type of "paddle," a plane may change air speed and the rpm will remain the same until the prop control is moved. In rough air there is no surging of a propeller of this type. As in all planes with in-flight adjustable propellers, the pitch control should be increased before the throttle when more power is needed while a power reduction should be made with the throttle before the prop is cut down to avoid excessive manifold pressures.

To ease Mr. Hazelton's ears, we let down gradually between the Acomita radio range station and the 5,330-foot-high Kirkland Field at Albuquerque, N. M. We passed over an eastbound streamline passenger train that had departed from Los Angeles nearly 18 hours earlier. We had been in the air less than four hours.

"Cessna nine-eight-Victor," said the Kirkland tower operator, "you are cleared straight-in on runway one-one. Wind southwest ten."

As the big Cessna slowed up to 130, we checked around the cockpit to make sure we had adequate carburetor heat and full rich mixture. We wound in on the Vernier prop control to full forward and hit the flap switch. The flaps are small, split-type that lie flush in the wing just forward of the trailing edge. The trim of the plane does not change as the flaps go down since they are purely drag flaps. The flap indicator is

mounted on the left side of the instrument panel and the control switch has a safety catch that must be pinched before the flaps start down to eliminate the accidental application of flaps at cruising speed. Red-line for the flaps is 130 mph.

We came across the fence indicating 90 mph and "Salty" said, "You're too fast. Let it slow up a little more and then hold it off until it quits flying. Try to drop it in about six inches."

We started back on the control column as the ship began to lose speed. The nose came up . . . and up . . . and up! When it seemed as though we should have landed at least 10 mph sooner, the nose came up a little more and the 190 squatted on the runway. How that plane will hang in the air at slow speeds!

Forward visibility during the landing roll-out was quite satisfactory around the left side of the engine cowling. As in take-offs, you've got to stay right on the rudders to keep going straight ahead, but like most pilots in a strange airplane, we over-controlled considerably on the rudder pedals during our first roll-out. The brakes are very efficient and the chrome vanadium spring-steel landing gear is just as good on Cessna's big airplane as it is on the smaller models. If anything, the brakes are a little too easy to hit with your toes as you apply rudder pressure.

We rolled to a stop within 1,500 feet of the approach end of the runway and taxied back over a few little snowdrifts along the side of the runway toward the hangar. Here again the simple spring steel landing gear took the shock out of the bumps.

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The Cessna took 69½ gallons of gas and no oil in spite of the 100 hours already logged on this particular airplane. Air time for the non-stop hop from Monrovia was an even four hours, but the ship had been preflighted extensively and then flown across town from the Gardena Airport, at least a 15-minute hop, and the tanks had not been topped before our take-off. Partial carburetor heat was required for at least half of the flight so that fuel consumption was higher than the minimum and we burned 16 gallons per hour. After buying over \$20 worth of 80-octane fuel, not even the windshields were wiped off. No wonder many an airplane owner gets hot under the collar about aircraft service!

After a bite to eat we checked with the CAA Weather Station at Kirkland Field. The man behind the desk showed us the current weather map and answered our questions. Yes, we would have a 40-mph direct tail wind at 8,000 feet; 50 mph at 10,000. Then he smiled like a prosperous undertaker viewing a Broadway jaywalker and said, "You're quite lucky to be going through here today. There'll be a beautiful blizzard in Wichita tomorrow. Just look at all this stuff moving in."

Scheduled airliners that fly out of Albuquerque circle from five to 15 minutes over Kirkland Field before heading east over the 10,695-foot Manzano range of mountains only ten miles away. We didn't need to circle in the 190.

"Head straight for the pass," said "Salty." "You'll have plenty of altitude by the time you get to that low spot. It won't hurt the engine at this altitude to leave on full power. Come back on the prop to 2,100 rpm once you're in the air. Our rate of climb will be over 700 feet per minute at this mile-high elevation in spite of our heavy load."

When the tower gave us the nod, we taxied around a C-47 that was warming up and "poured on the coal." Acceleration was naturally slower than during our first sea-level take-off, but the 190 was off the ground in less than half the length of Kirkland's shortest runway. As soon as we cleared the boundary of the field we turned directly toward the range of mountains and started climbing. Before reaching the range, we were back at our 8,500-foot cruising elevation—and that was high enough to go through the pass safely in the currently calm air. Lightplanes normally take on 10,000 to 11,000 feet before heading eastward, but out of deference to Mr. Hazelton's sniffles, we sliced through the pass over the highway and headed toward Tucumcari, N. M.

Clouds were building up off our right wing as we paralleled the storm front that was creeping up from the El Paso area. However, the air over the mesa near Tucumcari was moderately smooth and we had a chance to sit back, relax a bit in the roomy pilot's compartment and really look over the finer points of the 190.

The big instrument panel is full; there are 34 different instruments and controls included as standard equipment. Among the instruments not normally found on many personal airplanes are a manifold pressure gage, a cylinder head temperature gage, a rate of climb indicator and a carburetor heat gage. Even then, space is provided for gyro instruments at extra cost.

Elevator and aileron trim tab controls are mounted on the control column.

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Standard equipment includes a throw-over control wheel with dual rudders and dual brakes. Our ship had complete dual control wheels since it was used extensively for demonstration flights, but this was the only piece of optional extra-cost equipment on the airplane. There was no rudder trim tab on this particular airplane and the ship took a noticeable amount of right rudder during climbs. Subsequently, factory engineers advised that a rudder trim tab is now being built into the latest production models.

Carburetor heat and mixture control handles are identical; one mounted on each side of the throttle. Both have safety handles that must be squeezed before the control will move. A careless pilot might make a mistake while worrying about a bad weather flight and pull the wrong control, stopping the engine with the idle cut-off on the mixture control. To date, however, Cessna has had no report of forced landings from this cause.

Cruising speed of the 190 is comparable to the DC-3 up to 7,000 feet where the super-chargers of the scheduled airliner give it a boost. Rate of climb is slightly faster in the Cessna up to 7,000 and decreases thereafter. Cabin interiors are at least as luxurious since Cessna makes their own upholstery and the factory takes great pride in its high quality. Ventilation is excellent with two airline-type scoops that pull out from the leading edge of the wing for each front seat. Two additional vents are mounted in the roof of the cabin for rear-seat passengers.

Perhaps it's because they build the 190 in Kansas where it occasionally gets cold on the ground, but this airplane has one of the most efficient cabin heaters yet built. Their big "Southwind" gasoline heater is approved for airline operation and only two of these identical units are needed to warm a complete DC-3. Fuel consumption is less than one gallon for the entire range of the airplane. With this heater installation, the engine need not be running to warm up the cabin. On extremely cold days it is possible, as regional sales manager Frank Martin later proved to us, to climb into the 190, hit the master switch and have the cabin warm enough for shirt-sleeve flying within 60 seconds no matter how much snow is on the ground outside. For the other end of the thermometer, the fan on the heater unit can be used to cool the wing-shaded cabin while the ship is on the ground in the summer.

The entrance door is roomy, 43 x 31 inches, and a retractable step pops out of the fuselage when the door opens. This door is large enough to accommodate ambulance patients without moving them from the regulation ambulance stretcher. The rear seat is removable with five bolts, providing 85 square feet of cargo space.

Radio equipment for this off-the-shelf model has been kept to a minimum and many 190 series owners have additional communications and navigation sets installed at the factory. Standard equipment on the 190 is the same little GE two-way set that comes with the smaller Cessnas. The radio speaker is built into the headliner of the left wing root so that the transmission is within inches of the pilot's left ear. As in other late model Cessnas, the radio microphone is clipped to the center of the control panel where it can be operated by pilots in either front seat.

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We asked about the difference between the 190 and the 195. The 195, according to "Salty," has a 300-hp Jacobs engine and is from six to ten mph faster, depending on altitude. It takes off slightly faster and climbs a little better. Other than the larger engine—and \$1,600 more money—the airplanes are identical. Both big Cessnas have a fuel capacity of 80 gallons, evenly divided between two rubberized cells in the wing roots. A selector switch makes it possible to draw from either tank—or both. Both tanks are recommended for take-off and then a pilot may switch to one tank or the other, as we did, to keep a time-check on fuel consumption.

We edged north of the airways with a compass heading of 70 degrees between Tucumcari and Amarillo, Texas. Our course roughly followed the Canadian River from the Conches reservoir to thirty miles west of the Gage, Oklahoma, emergency field. Cutting the corner of the airways here that normally pass over Amarillo saves a little time between Albuquerque and Wichita.

The country was almost uninhabited and long queues of dust streamed up off the barren ground. The air became more choppy as we passed through the first turbulence of the frontal passage that was breathing down our necks. There was a slight flexing motion to the wings as the 190 plowed through the bumps, but we tightened our safety belts and maintained cruising power settings. Here again, the 190 flies much like the DC-3 and gives the pilot a very solid feeling as it plows, almost with brute force, through the choppy currents.

"It's getting dark awfully early here," remarked "Salty."

"Sure," replied Hazelton. "We've lost two hours of daylight compared with Pacific Coast time. That 2:30 on the clock is actually 4:30 local time."

That's when we eased forward on both prop and throttle to nurse a few extra miles from this already fast airplane. Since our ground speed, including the generous tail wind, was in the neighborhood of 225 mph, we began an easy 200-foot-per-minute let-down while a good 75 miles west of Wichita.

Lights of the little west Kansas farm towns began to blink in the dusk. High winds on the ground flicked the trees and ice was already forming on the waterholes and reservoirs of this rich agricultural area. It was cold on the ground, but we were flying in our shirt-sleeves. The cabin windows and single door of this 190 fitted so tightly that we had not once turned on the heater.

Visibility dropped to ten miles with haze and blowing dust but the brilliant amber approach lights on the south end of the Wichita Municipal Airport glowed brightly. We called the tower and were cleared in on runway 18 with a 20-mph gusty surface wind.

Our Wichita landing was made at that time of dusk when it is most difficult to

judge distances. It was just a little too dark for normal daylight flying—yet too bright to take advantage of landing lights. Bright runway markers outlined the broad 7,500-foot cement strip and we came across the roof of the Cessna factory on our final southward approach. Just off the end of the runway we passed over a CAA low approach building.

Again we came across the fence with a little excess speed and floated down the runway. There was a slight cross wind from the left but the big 190 responded perfectly to a little left aileron and right rudder to hold a slight forward slip. Again, it was remarkable how long this heavy airplane stayed in the air as its speed dissipated. A pilot at all familiar with the 190 could land in some tiny airports. Cessna salesmen, in fact, offer to demonstrate the 190 and 195 from any field where a Cub will operate.

The beginnings of the promised blizzard hit just after we landed. A fine rice-like sleet began to fall as we taxied up to the factory. By the time we tied the airplane down on the soft, muddy parking area, and our baggage was out of the plane, a brittle white glaze covered the ground. By morning there was over an inch of solid ice, not snow, covering the whole area.

It was surprising to this reporter to find so little pilot fatigue after seven hours behind the wheel of this fleet executive transport. A stable airplane, good soundproofing and vibration dampening plus better-than-average flying weather made this eastward hop in the 190 Cessna one of the most comfortable cross-country trips we've ever put in the log books.

Air Briefs

Name News:

The Air Force's world-speed-record-holding F-86 sweptwing fighter has been officially named the "Saber." . . . The name "Scorpion" has been approved for the new Northrop F-89 all-weather fighter. . . . North American's B-45 jet bomber will be called either "Apache," "Tornado," or "Challenger"; the company gets final choice. . . . USAF ruled against proposal to name McDonnell's XF-88 experimental penetration fighter the "Voodoo," on grounds that only production model aircraft rate official names.

Bomber Stopper:

After some wartime experimentation the USAF is again using the parachute as a landing brake for fast jet bombers. Released from the tail just before the ship's wheels touch the runway, a special 30-foot ribbon chute billows out behind, helps slow the plane and saves on brakes. The Air Force calls it a "practical equivalent of reverse propellers for the jet airplane." The parachute brake system is being tested on the XB-47 Stratojet bomber, was used to bring the big plane to a halt at Andrews AFB, Maryland, after the Stratojet's 607-mph cross-country flight a few months ago.

Helicopter Happenings:

The Navy is testing two new shipboard helicopters, the Sikorsky XHJS-1

and the Piasecki XHJP-1. The Sikorsky five-placer is the first large Sikorsky model with original metal blades. It resembles Navy's HO3S four-placer Sikorsky. . . . The new Piasecki 'copter, described as "the world's fastest and highest performing," is an all-metal tandem design for a crew of two and five passengers. It has demonstrated an unusually fast rate of climb.

A transcontinental demonstration flight is being made by a United Helicopter Hiller 360. It's the first complete country-wide trip ever attempted by rotary wing aircraft. The Hiller 360 is now in production, with more than 100 Pacific Coast manufacturers making parts for the 'copter on subcontracts.

Boosts by Refueling:

One of the key points in future Air Force planning will be aerial refueling enabling big bombers to fly to any target and return. USAF will work to perfect techniques not requiring far-flung foreign bases for tanker planes. The first non-stop round-the-world flight in history, made by the USAF B-50 "Lucky Lady II" was a dramatic demonstration of in-flight refueling possibilities. It showed also, however, that the need for foreign bases is not yet gone. The refueling was done by tanker planes based at four strategic spots—the Azores, Saudi Arabia, the Philippines, and Hawaii. USAF hopes to develop fueling methods so that refueling will be done by tanker planes which accompany a mission part way to a target, then deliver over the additional gas needed to send bombers on to goal and back. In-flight refueling equipment is now being installed on B-29's and B-50's.

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"32"**

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A scale kit, free flight, of the Piper Cub for use with the K & B Infant. Die-cut balsa parts.

TRIXTER BABE \$1.00

Lou designed this control line model for use with the K & B Infant. It can be flown in or outdoors for straight, stunt or inverted flying. Wingspan 20", overall length 15", weight without power plant 1-1/2 ounces. Kit comes with most parts die-cut. Easy construction.

TRIXTER INVERT, JR. \$2.95

Two of these models, powered with Ohlsson 23, were used in winning the International Stunt Championship. Wingspan 40". Directions for Lou's Variable Speed Control for Glow Plug Engines included.

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Licensed under Jim Walker U-Control, United States Patent No. 2,292,416.

**PAUL K. GUILLOW
WAKEFIELD, MASS.**

Dynamic

(Continued from page 51)

Lockheed Vegas and Northrop Gammas.

Ten years ago Scientific moved into its present factory with 12,000 square feet of floor space and, with the addition of the latest machinery and equipment, began to produce such famous models as Maxwell Bassett's Miss Philadelphia, the Miss America, and Benny-Shereshaw-designed Ensign, Commodore, and Mercury. For the small fry, gas-type kits were marketed, including the Flea, Firefly, and Miss America.

Fresh out of college, John's brother Harold joined the family's model business. When World War II came along, Harold became a Liberator pilot while John joined the planning department of General Motors. The concern was turning out Grumman fighters for the Navy. During this interim period of material shortages, Dan kept the home fires burning by producing World War II replicas from hardwood, paper and cardboard.

When the war was finally over John and Harold bounced back into the hectic postwar competitive picture, turning out such control-liners as the Atomic, Cyclone, Trail Blazer, Stunt Ace, Stuntmaster, and now the Dynamic. John notes that each contained more prefabricated parts than its predecessor. John handles sales and purchases and Harold keeps an eye on production. Both mean to keep pushing a policy of more prefabricated parts at lower prices.

With the kit producers vying with each other to reduce assembly pains to a minimum, it is always highly interesting to browse through the drawings and directions. Some manufacturers feel that an impressive array of per-

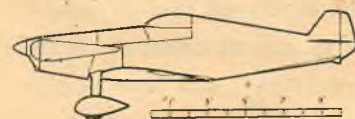
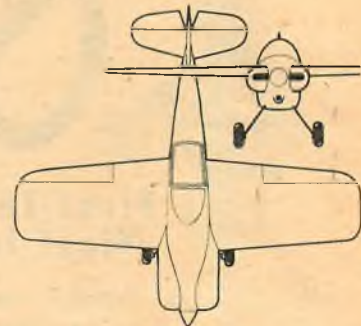
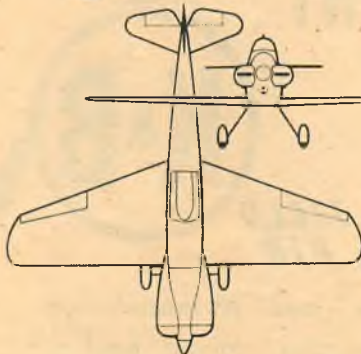
spective step-by-step sketches are needed to lead the builder—any builder—by the hand from the time he opens the box until the moment he cranks the engine for the first time. Others take the line that the control-line kits are so highly prefabricated that they fall together themselves so why bother with illustrated directions. The Dynamic falls in between these two approaches. Points that could give trouble are sketched in detail, including the home-made gas tank, bending of the control horn, shaping of the profile cut tail plug that is ready-slotted to take the stabilizer, the landing gear attachment, hinge location, and so on. An exploded line drawing of the various assemblies as they come together to make the airplane completes the extra details. Anyone with the rudiments of building, and that means the common sense to point the end of a glue stick and use the right kind of sandpaper, should have no difficulty with the Dynamic.

Another characteristic of a kit plan that speaks volumes is the printed information scattered about to identify parts. Sometimes, and this is one of those cases, the designers take it upon themselves to put down a little useful information that can almost be regarded as tips. For example, the Dynamic plans show how the lead-out wires are bent, bound with soft wire and soldered; metal tubing eyelets take these leads through holes in the tip blocks. With the O & R 23 shown on the plans, a ten-inch diameter, six-inch pitch prop is called for. Engine offset to the right—the Dynamic flies counterclockwise—is designated at 2½ degrees. A one-ounce lead weight is shown in the right wing tip, the outside wing, to keep that wing down and out during maneuvers. Claimed to be capable of all maneuvers, the Dynamic is flown on 50-foot lines.

GOODYEAR RACERS



● Falcon Special (below) flown by W. L. Le Fevers. Span 17'2", length 17'6". Took first in '48 Goodyear race semi-finals, with speed of 152 mph. Color, black and white.



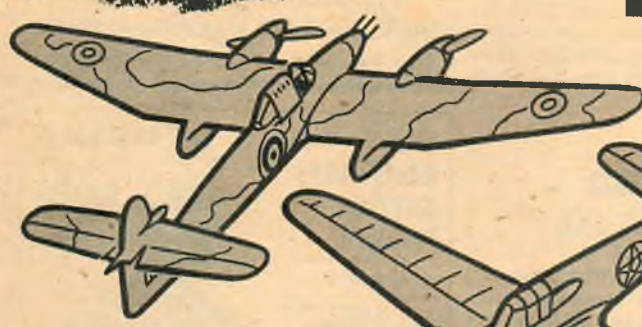
● Pitts Special (above) piloted by P. C. Quigley. Second place in second heat of 1948 competition, at a speed of 166 mph. Span 17'7", length 17'5". Color, all red.



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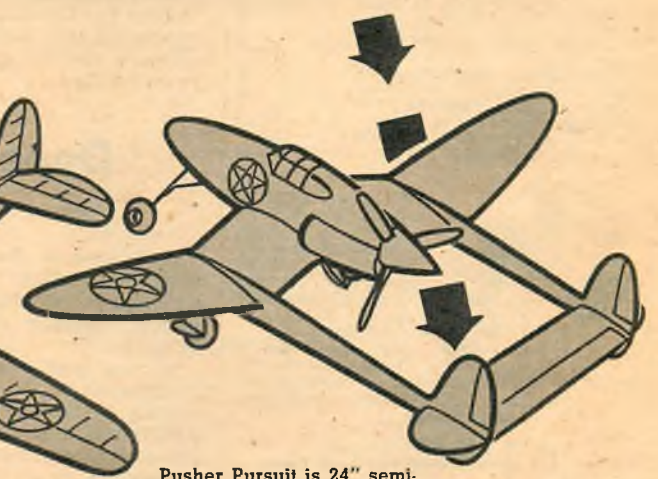
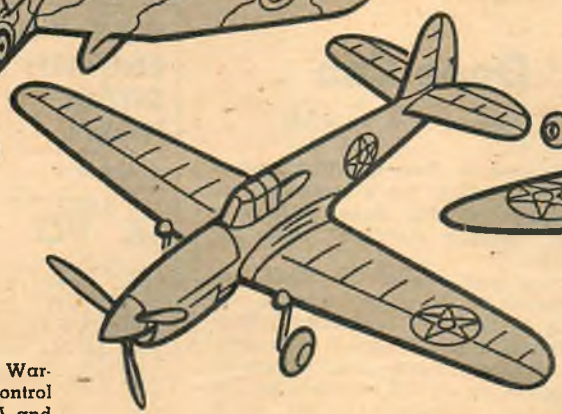
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Assembly is, for the most part, typical of prefabricated control-line models. The wire landing gear is bound with thread to a plywood firewall, engine bearers sliding through holes in the firewall. The tail surfaces and the wing glue to the bottom shell, the upper shell being cemented in position after these surfaces and the gas tank have been installed. The wing itself is quite simple, consisting of just a few operations. The ribs fit into the slots in the edges, the tip blocks are finished and cemented in place, the center section sheeted over. Silkspan is provided for covering the open areas of the wing.

While both Harold and John Frisoli consider the Dynamic the answer to today's trend, they hope the answer to tomorrow's are the designs now on the drawing board.

Dope Can

(Continued from page 43)

time divided by four; in which case it would be possible for a contestant in, say, fourth or fifth place to have a higher "average duration" than the actual winner.

In case you missed the AMA announcement on the subject, a letter was written to S.M.A.E. requesting official interpretation on a number of points. The letter, which was written because of inquiries made by modelers in this country, was answered by Mr. A. F. Houlberg and settled the following points:

1. If a fuse-type dethermalizer actuator is used, the length of fuse trailing aft of the model is not to be counted in the model's length for cross-section purposes.

2. The area of any part of the wing enclosed or covered by the fuselage is not to be counted in computing wing area. (It is assumed that this also goes for the stabilizer.)

3. Ball bearing thrust washers can be used. All other metal parts and fittings, except gear wheels or commercial timers, must be formed by the builder.

4. There is no restriction as to the size of wheels. As a matter of fact, wheels are not required. Before you get any ideas of using a spring or some similar device in place of a conventional gear, though, we hasten to remind you that take-offs must be unassisted, and if a spring isn't an assist—!

5. S.M.A.E. considers that the fuse, if used for dethermalizer, is completely consumed. Hence, the "dropping of parts" rule is not applicable.

Before signing off on this, it must be happily reported that the timers have been given a break at last, since they're now permitted to wear sun glasses. Could the glare at Akron have influenced that one? At any rate, we're sure they're grateful.

EAMAC Ballots Sent Out by Frank Bushey, pro tem Executive Director. The ballots, sent to all known model clubs from Maine to West Virginia, asked for approval of the Eastern Association of Model Airplane Clubs plan. An explanatory letter which accompanied the ballot outlined the intended method of operation, which calls for a connected line of representation for clubs through section, district and state.

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MORO CRAFT BOX 4154 EDMONTON, ALBERTA

Thumbers' Junior Program is still going strong. Latest report of the Los Angeles "Thermal Thumbers" to reach us announces the indoor meet scheduled for Feb. 20. Events run were hand-launched glider, stick and cabin. As usual, the Thumbers turned out to help the kids get their models flying right.

The Wind And The Rain got into their hair on Jan. 23 at Phoenix, Ariz., but it didn't stop the members of the Phoenix Model Airplane Club from running off their record trials. They also had the ill luck to lack a lake, but licked the lack of liquid by digging a hole and filling it to look like a lake. Well anyway, eight reports of record performance were sent to AMA Headquarters; three for Bob Brawner, two for Chuck Sutton and one each for Leonard Schultz, Bunky Hollinger and Oscar Montgomery. Montgomery's from Tucson, and his was in Sr. D Speed.

You'll Like Baltimore And More if you compete in the "Air O Ites" 1949 contest. To be held in June, the meet will feature all classes of free-flight, plus CO₂. As a former "ossifer" of the Baltimore Model Airplane Association, and co-founder of the BMAA Marching and Chowder Club, we know whereof we speak when we say that the boys there know how to run a meet. Write Joseph B. Haas, 1822 N. Milton Ave., Baltimore 13, Md., for details.

Bisons Love Bables if the babies happen to be K&B Infants. Norris Maltby writes that the "Flying Bisons" of Buffalo, N. Y., have gone Infant-crazy, with free-flight, control-line 'n' everything. In the meantime, they're planning for their big control-line meet to be held in the latter part of June. Plans call for an innovation in the form of dispensing with the age group system and substituting Expert and Novice classes. Experts will be those who placed third or better in any 1948 contest, with all others competing in the Novice class. You might write for more dope to the club address, given on the letterhead as 95 Mariemont Ave., Buffalo.

Pottol Does It! Honor of being the first to hit a 30-minute total officially goes to Charles Pottol, of the Oakland (Calif.) "Cloud Dusters," who flew his classy Class E Thermic 70 last Jan. 30 for three "limit" flights in a row. Other records applied for as a result of the record trials were Joe Bilgri's 12:23.6 with his original Class D towliner, Manney Andrade's 5:30.0 with an original Class D cabin and 4:51.4 in Class E cabin, also flown by Andrade. Plenty of "Coettes" (Air Trails, of course!) were flown by Elmhurst "Prop Busters." In free-flight gas, Cloud Dusters, Prop Busters and East Bay Aeroners were plenty busy. Interesting note from Pop Robbers is that the boys couldn't run fast enough to take advantage of the new 200-foot towlines.

"Cooperation Is The Answer" writes Aaron M. Smith, president of the Springfield (Ohio) Strato-Hawks, on the question of support of model aviation by communities. He feels that attendance at meets held by clubs within an area should be as close to 100% as possible by all clubs in that area. In this way, meets are sure to be successful, and contestants from far away would then be so much "gravy." When a club of, say, 25 members attracts a



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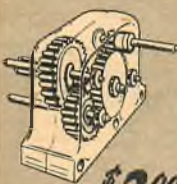


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total of 30 to its contest, which is held in a section thickly dotted with model clubs, the general public, unaware of the existence of these other clubs, assumes that the activity is a form of local mania and therefore doesn't whip itself into a state of wild enthusiastic support. However, if the good citizens see that the towns of East Burlap and North Overshoe over in the next county are encouraging and supporting the activity, they'll be more apt to give the local flyers a helping hand, so that the home town of Applesauce Junction can't be accused of being backward.

Goodyear Race On Celluloid: Model clubs on the hunt for movies to show at meetings will do well to get in touch with the Public Relations Department, Goodyear Tire & Rubber Co., Akron, Ohio, for loan of the 16-mm sound film, "A Big Race for Little Wings." Depicting the flying of the popular Goodyear Trophy Race, the two reels should provide your club with a very enjoyable evening.

Kanadian Korner has big news this month! Model flying has been organized and officially recognized in Canada. Name of the official governing body is the Model Aeronautics Association of Canada, and it has been given the Federation Aeronautique Internationale franchise by the Royal Canadian Flying Clubs Assn., thus making it the parallel of AMA. President is internationally-known modeler Lavalle J. Walter. The Association will issue licenses, sanction contests, and recognize Canadian records. Air Trails has contacted AMA on the subject, and has been advised that AMA Contest Directors will be asked to honor MAAC licenses at sanctioned meets, and that all requests for AMA licenses originating in Canada will be referred to MAAC. Canadians should write to Mr. James W. Graves, secretary-treasurer, Model Aeronautics Association of Canada, 1555 Church St., Windsor, Ont., for details.

Don Dempsey, of 120 Earlsdale Ave., Toronto, writes for dope on rubber. (Not that you oughta put dope on rubber, though!) It seems that he has a scale rubber job with 48-inch span and with what we believe is 20 inches between motor hooks, and wants to know how much rubber to use. It is suggested that he start off with about 20 strands of 3/16, 30 inches long. Don properly asks about lubricating the motor, and to his question as to the reason for it the answer is that lubrication permits more turns, smoother operation and longer motor life. A mixture of three parts of liquid green soap to one part glycerine works well. After making up and tying the motor, pour a little of the lubricant into the palm and rub the motor between the hands, working down its length until the entire motor has each strand covered well. Shake off the excess and install in the model. It's best to have a stop on the aft side of the nose block and a tensioner spring (see plans for contest-type rubber models as shown in Air Trails regularly) so that the motor won't fully unwind and destroy the model's balance. Motor should be stretched to about five times its length before starting to wind and grind, with hand drill having a hook well clamped in the chuck. Walk in towards the ship—and your buddy who's holding it—as you wind, so that you're right up to the ship when reaching the desired number of turns.

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India Heard From in the form of a short but newsy letter from Rusi B. Mobed of the Aeromodeller's Society in Karachi, Pakistan. He writes that an exhibition and meet was to have been held there, so we're anxious to learn the results.

What Were You Doing In 1916? D. A. Gordon, secretary of the West Essex Aeromodellers and of S.M.A.E., writes that he was a Radio Operator ("Sparks," that is!) in the British Navy and was stationed in both Bermuda and New York. His fond memories of the former prompt his request that an official of a Bermudian model club write to him; particularly if said club is near Daniel's Head W/T Station, Somerset Island. As to the service in New York, Mr. Gordon had the opportunity while there to attend "Cheer Up" at the Hippodrome. This proves how old we are, since we also have fond memories of those Dillingham shows, with Joe Jackson and his bicycle, Marcelline the clown and the king-size swimming pool right on the stage. What Mr. Gordon would like is a recording of "Melodyland," which was featured in the show, so dig into that stack and see if you can help him. Also, if you have the plans around for the Bunch "Major" or "Cadet"—or both—which were produced as kits about 11 or 12 years ago, the members of Mr. Gordon's club would like very much to have them, in spite of the fact that the club has most of the English control-line records sewed up and is rapidly reaching the same point in radio-control. Write Mr. Gordon at 298 Markhouse Road, Leyton, London, E. 11, England.

Wanna Swap Plans with David E. Wield, 18 Rothsay Place, Bedford, England, or with Eric Sykes, 67 Austwick Rd., Ryelands Estate, Lancaster, Lancashire, England? Both are anxious to obtain American model plans but dat o' debbil dollar shortage prevents it. There are some good ones available there—particularly in rubber—that you'd like to have, we're sure.

First Post-War Australian Nats were held Nov. 20-21 at Bankstown Aerodrome, N. S. W., writes Boyd Feltstead. Familiar names of Frost and Marden (remember the Wakefields?) appear among the winners, with Frost getting a second in hand-launched glider and Marden getting seconds in Wakefield and Class D speed. Individual champs are N. Bell (10:22 in towline), A. Meader (2:11 in hand-launched glider and 29.2 ratio in free-flight diesel), A. L. Joon (6:00 in Wakefield and 116.4 in Class C speed, a record), C. Williamson (7:26 in Open rubber, W. Evans (7:20 in free-flight gas), E. Gregory (362 points in control-line stunt) and L. Stevens (110.9 in Class D speed).

Report From Washington

The Academy of Model Aeronautics is distributing for 1949 a complete Rules Booklet. As in the past, the current regulations are included covering record categories and, in addition, the rules for Control-Line Precision, Novelty and Flying Scale, Radio-Control, and Wakefield.

For the second consecutive year no changes were voted by the Contest Board for the indoor flying rules. For what is probably the first time in the history of model aviation, the board voted no changes for free-flight gas. Be

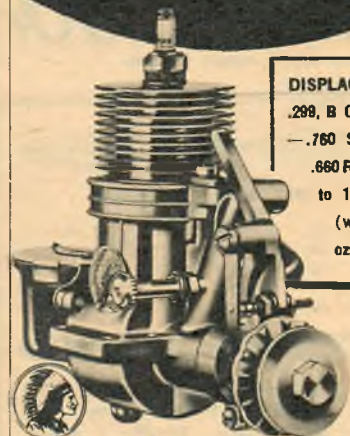
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closest voting on proposed changes for free-flight was recorded in connection with the suggested rule that a contestant be given the option of hand-launch or R. O. G., with a "bonus" engine run time of five seconds being allowed the flyer who elected to R. O. G. The final voting was 13-9 against the proposal.

Considerable Board discussion was centered around several proposals received in connection with the recognition of national record performances. The final decision of the Board was that in order to obtain official recognition on a record flight, it will be necessary for a minimum of ten flyers to be entered in the Record Trial or contest, and have their ships processed for flight.

Particular study was given by the Board to the problem of improving timing procedure for speed flights. After considering the many suggestions submitted, it was decided that the timing of speed flights in 1949 should be done in the same manner as in 1948, with three timers clocking the entire flight; the average speed recorded by the three timers being used for official scoring and record purposes. In this connection, however, many members of the Board felt that a "check" timer would be desirable. Although not included in the Official Regulations, it is recommended to Contest Directors that a check timer be provided for each speed circle wherever possible, to minimize the possibility of errors. The Board would appreciate receiving comments from Contest Directors on this particular point as the 1949 season progresses.

Other significant changes in 1949 rules are:

Control-Line Speed: Lines used for speed models must have a diameter of .001" for each two ounces of the plane's weight. Line lengths have been increased to 52 1/2" for Class A, 60" for Class B and 70" lines will be required for all Class C and D models. Official national speed records will be recognized for outdoor flights only.

Control-Line Precision: The recommended changes in the Control-Line Precision Rules made by the Precision Acrobatic Committee were accepted by the Board almost unanimously. In 1949, landing gear is required and may be fixed or retractable. R. O. G. is required, and no dollies are permitted in this event. Minor changes were voted for the recording of appearance and flight points. It was specified that special maneuvers must be made by the model, not by the flyer. In 1949, jet models may fly in Precision, Novelty and Flying Scale events.

Control-Line Flying Scale: In this section of the rules, the Board voted to delete the term "General Appearance" in favor of "Detail." Minor changes were made in the scoring system for fidelity to scale and workmanship. In addition, it was voted by the Board to give 15 points for the presentation by a contestant of an authentic 3-view drawing of the full scale airplane with an additional 15 points for presenting the actual plan from which the model was built. It was felt by the Board that by comparing the 3-view with the actual plans used for the model, judging would be simplified greatly and would tend to be more accurate.

Copies of the official 1949 Model Airplane Rules and Regulations are available from AMA headquarters, 1025 Connecticut Avenue, N.W., Washington 6, D. C.

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PLAN 108. Another pair of aces. The Senator, record holder for free-flight; McCullough's Upstart stunt job.

PLAN 109. PAA-Load Winner for Pan American Airways payload contest; Radart, radio. job for Aerotrol system.

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Participation in the National Meet by the U. S. Navy, important as it is, is only the beginning. Last February a program for year-round support of model airplane activities was announced for the Navy by Secretary John L. Sullivan, who said, "I desire to encourage further, active participation by the Navy in this valuable aviation training program by promoting model airplane building, and local, regional, and national air meets."

As concrete evidence of a sincere desire to make a worthwhile contribution to the activity, the Navy has drafted and published a Seven Point Program of cooperation with the Academy of Model Aeronautics and model builders throughout the country.

* * *

In the past, AMA Chapter Charters have been issued by Headquarters to model airplane clubs maintaining membership of 20 licensed flyers. In response to literally hundreds of requests from smaller clubs for official registration and charter, the AMA Committee on Clubs and Chapters reported, "In view of the important contributions to the over-all advancement of model aviation by the hundreds of clubs which, although having a small membership, conduct aggressive and active programs each year, a plan should be worked out whereby proper recognition can be given these groups."

This has been done and model airplane clubs which have a minimum of ten licensed members may now apply for recognition as an officially chartered AMA Club. The requirements for the Chapter Charter remain unchanged and provision is made for issuing a revised charter for those clubs which eventually build up their membership roster to the minimum of 20 and thereby qualify for the regular Chapter Charter.

* * *

During the past several months a growing interest in Team Racing events for control-line models has been apparent. The resulting correspondence disclosed the fact that both Keith Storey in Pasadena, Calif., and Brad Thomas in High Point, N. C., were working on complete plans and scoring procedure for the event.

Obviously, the idea was gaining interest rapidly among both model flyers and spectators at various contests at which the events had been staged. It appeared that a team race is both fun to fly in and fun to watch.

Complete reports on the event have been submitted by both Keith Storey and Brad Thomas. A visit from John Young of Hagerstown, Maryland, served to acquaint us with the fact that interest in team racing is mounting in this area which, along with the interest created as a result of Bill Winter's article, "Why Not a Junior Goodyear Event?" (Air Trails, March, 1949) resulted in an effort to combine and correlate this information in order that it might be made available to all interested flyers.

In order to start the ball rolling, John Young, Bill Winter, Keith Storey, and Brad Thomas have agreed to officially serve on an unofficial committee without portfolio. These men will get their heads together via the mail, survey the results of team racing obtained thus far, and submit to AMA a report in the form of a recommendation to the Contest Board for a team racing event.

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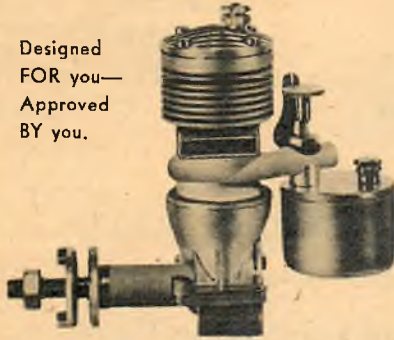
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Contest Calendar

Contest directors are invited to send listings of meets to Contest Calendar, c/o Air Trails, Box 489, Elizabeth, N. J. Such announcements must be received at least 90 days before contest date.

To secure more information on a contest, write to the individual listed. His or her city and state address is same as location of meet unless otherwise noted. Where different city is listed in address, the state is the same.

Air Trails makes every effort to check listings. It should be noted, however, that contests carried in this Calendar are subject to change without notice.

- May 14-15—Greenville, S. C., J. W. Scharpf, Jr., 110 Paris Dr.
- May 15—Long Beach, Calif., record trials, Lew Mahieu, 211 Roosevelt Rd.
- May 15—Burlington, N. C., Rudy Smith, 503 Peele.
- May 15—W. Lafayette, Ind., Les Gerhardt, c/o Purdue Aeromodellers, Purdue Memorial Union, W. Lafayette, Ind.
- May 22—Charleston, W. Va., Dr. Jules McCracken, Box 82, Milton.
- May 27—Long Beach, Calif., record trials, Lew Mahieu, 211 Roosevelt Rd.
- May 28-30—Glider meet (full scale), Wurstboro airport, N. Y.
- May 29—Fresno, Calif., Ocie Randall, 716 Waterman Ave.
- June 4-5—Wichita, Kan., Jack Pierce, 2122 S. Terrace Dr.
- June 5—Parkersburg, W. Va., Dr. Jules McCracken, Box 82, Milton.
- June 5—Bethpage, L. I., N. Y. Mirror Model Flying Fair, N. Y. Mirror.
- June 12—Olean, N. Y., C. L. Matson, 1311 E. State.
- June 12—High Point, N. C., Walter Thomas Jr., 711 Sunset Dr.
- June 12—Everson, Wash., Delbert Erickson, c/o Everson Model Shop.
- June 12—Omaha, Neb., Oscar Olson, 2122 N. 56.
- June 14-16—San Francisco, Calif., Annual trade show and convention of Model Industry Assoc., Franklin Butler, Model Industry Association, 30 W. Washington, Chicago 2.
- June 18-19—Atlanta, Ga., H. R. Hudson, 881 Glen Arden Way N. E.
- June 19—Augusta, Maine, H. E. Smith, 93 Bangor.
- June 19—Ashland, W. Va., Dr. Jules McCracken, Box 82, Milton.
- June 19—Fond du Lac, Wis., c/o Flying Badgers, Box 352.
- June 25-26—Hiawatha, Kan., D. B. Allerton, 628½ Oregon.
- June 26—Fresno, Calif., record trials, Ocie Randall, 716 Waterman Ave.
- June 26—Washington, D. C., Val Luce, 1025 Conn. Ave. N. W.
- June 29—Chicago, Ill., Charles A. Bell, 5755 N. Artesian Ave.
- July 2-10—Elmira, N. Y., 16th Nat. soaring contest, Harris Hill.
- July 2-4—Adelanto, Calif. Soaring regatta (4th heat), El Mirage Field.
- July 2-3—Newport News, Va., Vincent Serio Jr., 7005 Park Dr.
- July 2-4—Tulsa, Okla., Ralph Roof, 815 S. Trenton.
- July 3—Jacksonville, Fla., M. W. Myers, 1807 E. 27th.
- July 3-4—Providence, R. I., L. B. Stuart, 209 Elmwood Ave.
- July 3-4—Beckley, W. Va., Mrs. Gene Keatley, 217 Prince.
- July 4—New Haven, Conn., Chas. Hoelck, 25 Dennison Ave., Mystic.
- July 4—Chicago, Ill., P. L. Vacco, 4652 Milwaukee Ave.
- July 4—Philadelphia, Pa., Bulletin-Plymouth Flying Circus, Contact the Bulletin newspaper.
- July 10—Crossville, Tenn., Roy A. Stone.
- July 10—Windsor, Ontario, Canada, J. W. Graves, 1555 Church.
- July 10—Huntington, W. Va., Dr. Jules McCracken, Box 82, Milton.
- July 16-17—Knoxville, Tenn., H. D. Powers, Briar-Cleft Rd., Fountain City.
- July 17—Aurora, Ill., Hart Betts, 7 Fox Promenade.
- July 24—Portsmouth, W. Va., Dr. Jules McCracken, Box 82, Milton.
- July 26-31—Olathe, Kan., National Championship Meet, Jess Hall, American Legion.
- July 31—Fresno, Calif., record trials, Ocie Randall, 716 Waterman Ave.
- July 31—New Rochelle, N. Y., R. V. Ceartoss, 347 North Ave.
- Aug. (date pending)—Essex, Conn., Chas. Hoelck, 25 Dennison Ave., Mystic.
- Aug. 6-7—Adelanto, Calif. Soaring regatta (5th heat), El Mirage Field.
- Aug. 7—Beckley, W. Va., Dr. Jules McCracken, Box 82, Milton.
- Aug. 21—Grand Island, Neb., W. H. Parmenter, 1634 K Lincoln.
- Aug. 22-29—Third Annual Plymouth International meet. Contact your local Plymouth dealer for entry blank and rules.
- Aug. 28—Long Island, N. Y., E. V. Roff, 56 Stuart Ave., Malverne, L. I.
- Sept. (date pending)—West Chester, Pa., H. J. Aldsworth, 302 S. High.
- Sept. 3-5—Adelanto, Calif. Soaring regatta (6th heat), El Mirage Field.
- Sept. 4—Jacksonville, Fla., M. W. Myers, 1807 E. 27th.
- Sept. 4—Decatur, Ill., Fred Bascom, 806 W. Elm.
- Sept. 5—Far Hills, N. J., Harold J. Dobbs.
- Oct. 1-2—Adelanto, Calif. Soaring regatta (7th heat), El Mirage Field.
- Oct. 29-30—Adelanto, Calif. Soaring regatta (8th heat), El Mirage Field.

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Solo Club

(Continued from page 32)

about the small plane that dove into the passenger liner over New York, I recalled the article in the Solo Club about watching out for airliners, as it is hard for them to see small planes when they are taking off, and so on."

John refers, of course, to the aerial collision between a Europe-bound Connie and a Cessna over suburban Port Washington, on Long Island. Although the Cessna disintegrated, the Constellation was able to make nearby Mitchell Field: What might have happened to private flying in the New York area had the airliner crashed? While this menace is particularly acute near New York, especially on the west end of Long Island, many other cities inevitably have private craft and transports in close proximity. Let's all of us make a resolution to give airliners a wide berth. Better still, we should develop the habit of swiveling our necks constantly when flying in the vicinity of an airport control zone.

John Forbes, as a student pilot, has some interesting questions on technique. "I was getting checked out the other day," he tells us, "and held the ship on until she flew herself off. Now my instructor told me I held it on too long. He says it is hard on the ship and unnecessary. For my part I am more at ease when she flies herself off. But as soon as we roll a short distance, my instructor starts waving his hands to lift her off. The point I have in mind is this: Is there more of a strain on a long running take-off, or a short-run take-off?"

John, you remind us of a similar trouble we had as a student. In our case, the right wing was always low in the instructor's opinion. Yours truly would be beating along the down-wind leg, holding altitude and feeling fine, when the instructor would set up a pounding on the top of the panel to shock us out of the reverie and then wave up the right wing. Then we flew along with the left wing low, or so the student figured. After this went on for a few days, the instructor looked us in the eye and said, "Maybe it's me. Let's go over and get the wings checked by the test pilot." Were the wings cockeyed? Nope! Fortunately, we didn't get nicknamed "one-wing-low," despite getting three subsequent instructors doubting their senses!

So, John, even if we feel sure of ourselves, we have no choice but to assume that the instructor knows his stuff. He did pass a test which presumably justifies our humoring him—the old crank! Sure, he might be wrong, but in all probability you are holding the ship on longer than necessary to let it fly off, the very thing you prefer to do. If you overdo the forward stick, you actually increase the speed at which the ship will get off, and there is no point to pounding down the runway, fighting to keep the ship down. There is a time when you will need to do that, and that is in a cross wind. In that case, the ship is held down and the stick brought back fairly abruptly and firmly to break clean from the ground. Premature take-off in a cross wind only permits the ship to drift, settling back on to put a severe strain on the gear, perhaps wiping it off. On the other hand, you can tell if you are getting off too soon by the heavy

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feeling of the stick; you will have to exert considerable back pressure on the stick to hold the airplane off. In general, CAA prefers a long take-off. As a check, why not stop off at a different field, or get another instructor to check you out. If he waves you off "too soon," you can bet your boots your take-offs are overly long. As to comparative strain, we may be wrong, but we fail to perceive any dangerous overloads on either long or short take-offs that remain within reason.

Here is a genuine beef from new member Glade H. Malinoski, Olympia, Washington. Glade, by the way, holds Commercial ticket with Flight Instructor's rating, number C-6679245 and has approximately 300 hours time. To Glade's question, "May I air a view?" we'll answer by asking him to take the good old soap box.

"Here in my home town, we have three aviation schools (G.I. Bill) turning out many new private pilots. Fine and dandy. But along with this large output of pilots we have had a lot of complaints, criticism, and narrow-mindedness due to 'buzzing' or 'flat hatting.' The large majority of people here in town are forming a hearty dislike for airplanes and aviation as a whole. This is entirely due to those few pilots who insist on strafing Farmer Jones' turkeys, or scaring some fisherman to death by zooming over his rowboat at an altitude of ten feet! This in spite of CAA regulations to the contrary. These young pilots persist in carrying on in this manner.

"We are supposed to give aviation a build-up and not a bad name. I feel that if more student pilots and private pilots (not to mention a few commercial pilots) realized the effect of their flying on the public, it might do some good."

Well spoken, Glade Malinoski. Your phrasing shows you know what you are talking about. This isn't idle gum beating, fellows—and girls; and by the way, has anyone heard of a girl guilty of buzzing? CAA knows that the chief culprits are young pilots. Aviation adolescence, they call it. The serious part is that almost half the fatalities in private flying occur in buzzing. Not so much the buzzing itself, but the high speed stalls—which students don't recognize—and other pitfalls that produce fatal stalls and spins. With thousands of members, the Solo Club undoubtedly includes a limited few with a disposition to kick up their aerial heels. If you feel the urge to fly low, don't do it.

BULLETIN BOARD: CAB's Safety Bureau has a hard-hitting instructive report called "Spin Crashes," based on data from the accident analysis division. (Safety Study No. 101-48.) Among the startling facts: in a typical year, 335 fatal spin accidents were reported to CAB. Pilots involved had an average time of 883 hours, and an average age of 29. Most of these were not students without adequate spin instruction. Spins in normal operations due to pilot error (the Solo Club believes that spinnable aircraft have a built-in pilot error) as when climbing too steeply, turning too sharply down-wind, or slowing up too much on the approach. These circumstances contributed 113 accidents, with pilots averaging 700 odd hours. Closely allied to the above were thirty fatal stall-spins that followed loss of power. Most of these occurred in a steep turn

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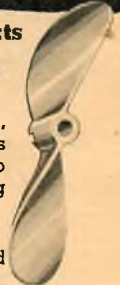
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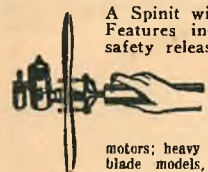


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to make a field or in turning back to the airport. Show offs washed out 132 airplanes with fatalities to 196 persons. Fifty percent of these pilots were under 25 years of age, and about half of these had less than 50 hours! Proof that these stall-spins can be virtually eliminated is seen in the statistics for spin resistant and non-spinnable aircraft. Only three of the fatal 335 crashes occurred in spin-resistant airplanes, while no such accidents happened to pilots flying non-spinnable ships.

"If You Don't Know Weather Flying" is the title of another well worth reading bulletin (Safety Bulletin No. 182-48) issued by CAB. Of the first 4,000 accidents reported in 1948, 75 were due to "continuing visual flight into unfavorable weather." Despite the fact that instrument flight is sure death without adequate equipment and/or know-how, nine such accidents happened to pilots with less than 50 hours, 17 to pilots with 50 to 100 hours, 20 to those having 100-300 hours. What should interest us, is CAB's point that there is no such animal as half-instrument weather, or such a thing as flying half by visual contact. You either fly instruments or contact. The unfortunate truth is that many of us do not recognize instrument conditions when we see them and try to turn back too late. Beware! On losing contact, loss of control is almost instant. CAB believes that most pilots simply get into the fatal pickle without realizing it. How deadly "less-than-minimum" flying can be is illustrated by the student who took off from his farm to fly to a hangar less than a mile away yet crashed on entering a snow squall.

"Many contact pilots have reported incidents of entering clouds or fog and getting back and out in a hurry; those reports almost invariably emphasize the instantaneous change from flying with confidence to holding onto the control with utter hopelessness, misery, and abandon," remarks the report.

Jimmie Mattern, well known aviation figure and solo-round-the-world pilot, has introduced an instrument called the "Course and Mile-Gage," a pilot's protractor giving mileage readings for any aerial map, without additional computation. It is made from engraved aluminum and fits in a shirt pocket. Has two legs that can be used as dividers, which, in fact, the instrument does resemble. Accurate, simple, easily handled by student, pilot, or navigator, it is priced at \$3.45, from Jimmie Mattern Co., P.O. Box 281, Burbank, California.

University of Illinois has new flight training course for students in education. Course expands "flight experience" training originated at Illinois in 1947, when that university was the first to give recognition to the need of teachers for practical knowledge of aviation. Course includes two cross-country flights, with visit to Chicago Municipal Airport, weather bureau, and traffic control center. Return flight from Chicago is made after dark for experience in flying the range. Including ten hours of flight training in addition to class work, the course is optional for students enrolled in a required "workshop" course in teacher training.

"It has come to my attention," says Lieut. General Idwal H. Edwards, Deputy Chief of Staff, Personnel, USAF, "that there is a belief among veteran flight trainees that they are not eligible for Aviation Cadet training.

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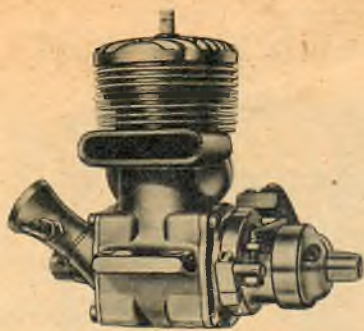
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William Lazarus, former State Aviation Supervisor, Florida State Improvement Commission, brings to the attention of the Solo Club the case of Gerald L. Geriott, who built a "better mousetrap" in the form of an airport for fishermen. Geriott likes to fish and fly. Figuring that others would do likewise he obtained a suitable piece of land on a good lake, built his field, and then... "The place is getting to look like the international airport at Miami, instead of a fishing camp," cracked one happy guest. Landing planes can taxi up to their cabins and almost into the row-boats. One ship that overshot in the night ran out into the lake where it sank up to the wings. Early the next morning the surprised "rescuers" found the victim perched atop his doused ship happily fishing.

Before wishing you C.A.V.U. until next month, how about that letter to headquarters? Those pictures of self and ship? What gives with you?

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Slim Jim

(Continued from page 44)

is put on. Put on all stringers tapering to fit at the rear of the fuselage and aligning them up by sighting along the length of the fuselage. Add the landing gear and dethermalizer timer before proceeding with the top half. Also put in the wheel well. You will notice that the spring that retracts the landing gear pulls to the right side of the center. This pressure plus the vibration of the engine is what releases the landing gear from its locking groove. Build the top half of the body to the bottom.

The cowl is cut out after the planking is complete. Fit the cowl to the engine used. Cowl extends back to former 3 and its bottom is even with tops of engine bearers.

The dethermalizer timer and engine timer are both reversed for conven-

ience of operation in their respective jobs. The front timer actuates a K & B Shur-Stop fuel cut-off device. Remove the top of the Austin timers by filing the eyelets that hold the fiber top to the aluminum body and pull out the plunger. Reverse the plunger leather and place the spring at the bottom of the aluminum case. Before assembling, drill a small hole in the side of the case so that air can enter allowing the plunger to jump near the end of its motion. This fast action should be about 1/4 of an inch. Use 1/16" grommets to hold the timer together.

The dethermalizer timer does not push the dethermalizer release wire until it has started this fast action. This allows the timer to operate consistently because there is no increase or decrease in pressure along its entire run. The fast action of the timer pushes the release wire which in turn pushes the locking pin out of the 1/16" tube thus releasing the stabilizer. Be sure a strong

thread stops the stabilizer at about a 40° angle.

The ribs for the wing and stab are made by the same method. My brother and I first used this method in 1938 and have never found a faster or more accurate way to cut out ribs. In making ribs for a tapered wing one must be sure to have the exact number of ribs required for both wing panels. Also the center template must be one size larger than the largest rib used. A 1/16" piano wire soldered to the templates has been found to be very satisfactory besides being readily available to the modeler. The templates are pressed tightly against the sheet balsa and then soldered in place. First rough in the ribs with a knife or block plane then finish with a file or sandpaper making certain that all the ribs are flush with the top of the templates. Unsolder and cut the ribs in pairs as shown on the drawing. The notches for the spars are cut as shown, that is, up from the bottom and down from the top. The distance

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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this June, 1949 index.

back from the leading edge being determined from the wing plan.

The rudders are very simple and only one comment is needed here. As the rudders must carry the shock of landings and the vibration of the engine they should be made of fairly hard balsa.

The Slim Jims that have been built have weighed 28 and 30 ounces each with the center of gravity just right on the first one and only about a half-inch too far forward on the second. The CG was changed by adding a little extra color dope to the stab. The weight of the model can be increased in this manner so that it can qualify under AMA rules for the Glo-Torp 32 and thus can be flown in both class B and class C. Small weights may also be used in balancing. One other important adjustment is in the difference in incidence between the stab and the wing—this is between 9/16" and 5/8". The CG is at the rear spar.

Before that first power flight, glide the model until you are thoroughly familiar with its gliding characteristics. Careful analysis of a model's glide may save a great deal of repairs and washed out ships. Be sure to test the incidence and CG before launching under power.

A word on how to test with a glow-plug-equipped model before giving it full power. This idea comes from the Thermal Thumbers club and really works. It is done simply by cementing a stick along the back of the prop thus reducing the thrust by making the prop inefficient! Sand or cut the stick down for each boost of power desired until the prop is smooth again. Start with a 1/8" square stick.

CAP Newsletter

(Continued from page 29)

and Westover's AF Air Rescue Service.

One of the more interesting features of the 3-day conference was a simulated practice rescue that was so real some thought for a while there was a genuine rescue being made.

An airman was stationed in dense pine woods to represent an injured person who had been located and reported by CAP. A para-medical team parachuted into the trees to give aid, and supplies were dropped by other aircraft. An Air Rescue 'copter evacuated the "injured" person. Droppable A-1 life boats, JATO equipped aircraft and droppable field hospitals were among the equipment used during the demonstration.

The conference developed a standard operating procedure between CAP and Air Rescue Service, with CAP being designated as an auxiliary to ARS. Under the plan adopted, CAP will be alerted by ARS and will search areas designated by and under the supervision of the Search Commander. Gas and oil will be provided for all CAP planes by ARS. The service will be available to private citizens and state agencies.

Lt. Paul Roberts, USAF-CAP Liaison Officer for Vermont, has already publicly announced that to obtain rescue service a collect telephone call can be made to the CAP Wing Headquarters, Hotel Barre, Barre, Vermont.

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Simulated Search

The Canaan, Conn., Flight CAP recently completed a successful search and rescue mission of a downed plane which had every member participating thinking it was "the real thing."

The plane had been intentionally landed and partially concealed by canvas and brush to give practice in search and rescue work. Four planes systematically covered an area within a 10-mile radius, with each plane being assigned a definite search sector and reporting by radio to a control officer. About one hour and 10 minutes was required to locate the plane from the beginning of the search.

Squadron Fund Assist

CAP'ers desiring to build up their squadron's funds will be interested in new plan offered by Air Trails whereby special subscription rates are available to Patrol members which produce funds for the participating squadrons and flights.

Any squadron which does not have full details may obtain them by writing C.A.P. Section, c/o Air Trails, Box 489, Elizabeth, N. J. Your representative should ask for information on the CAP-Air Trails subscription-contribution program.

Kellogg New Idaho Commander

Lt.-Col. Wilson Kellogg, member of the Idaho Wing CAP for the last seven years and Deputy Wing Commander since 1945, is the new Wing Commander, succeeding Col. L. Davis.

Col. Kellogg is an experienced mountain flyer, has led or participated in many searches for lost planes, and spent more than 5,000 hours in CAP activities. He is Director of the Bureau of Plant Industry for the State of Idaho.

Col. Davis, Idaho Wing Commander for nearly six years, has been urged by National Commander Maj. Gen. Lucas V. Beau, to remain on the National Executive Board.

Join the Civil Air Patrol! Anyone over 15 is eligible. Fill out and mail this form. Air trails will forward it to your state CAP Wing Headquarters.

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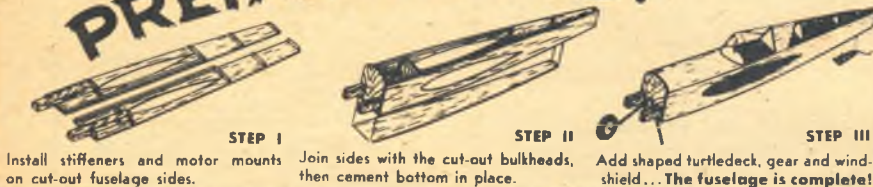


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The Last Word

Busy days, indeed: With the approach of good flying weather the Air Trails offices begin to take on that "confusion compounded" look as your editors make their appointed rounds to find out what's new in the aviation world. To give you an idea, here are just a few of the individuals interviewed during the past few weeks: Bill Odom, the famous distance flyer; Jim Walker, "Mr. U-control" himself; World War I ace Eddy Rickenbacker; Mr. and Mrs. Don Downie; Capt. "Jimmy" Thatch, ranking Navy ace and inventor of the "Thatch Weave" fighting maneuver; William T "Cub-Cruiser-Clipper" Piper; Sal Taibi, now with CAA landing aids station in Indianapolis; Admiral J. W. Reeves, Jr., chief of Naval air training; stunt man Bevo Howard—the list could go on and on.

Rip-snortin' performance: Air Trails is fortunate in having a "built-in" control-line flying site at its Elizabeth, N. J., offices. There are about six acres of leveled ground around the plant which has both dirt and concrete surfacing. What more could a U-controller ask for?

Jim Walker, accompanied by Calhoun Smith, put on a grand show for Air Trailites recently at our private flying site. Jim demonstrated his sabre dance in which he hovers a regular control-line model in the air just like a helicopter. It's one of those accomplishments that must be seen to be appreciated. Jim figures his technique can be applied to full size aircraft for very slow, almost vertical take-offs and landings.

July is contest time: Both the full scale fans and model builders will be out in force for the summer competitions. To give you an advance view and plenty of contest-winning material, we've whipped up what we consider an extra-special issue.

The cover plane is Vernon Payne's Knight Twister, Jr. Here's a real beauty! We've got some excellent scale plans of the ship, plus Mr. Payne's own story on how the sleek, small biplane was developed. A real eye-opener is the Winged World feature, Cliff Hangers, which takes you out to California where the gliding pilots ridge-soar along the cliffs to give you a thrilling pictorial.

A bigger Civil Air Patrol section awaits all those who are active in, or would like to join the C. A. P. organization. Major General Lucas V. Beau, national C. O. of the Patrol, explains why the Cadet program is so important.

Doug Rolfe's Air Progress sketches celebrate the anniversary of Louis Bleriot's flight across the English Channel. In addition to a splendid cutaway drawing of the famous Bleriot plane, scale drawings are included.

Radio-control comes in for a boost! AMA prexy C. O. Wright explains how simple it all is in "You Don't Have to be a Genius to Fly Radio-Control." Gordon Light follows up with suggestions for some new r.c. events in "You're Right, Mr. Wright!" For the contest-going crowd we'll have Dick Ealy's fine P-12C control-line scale job; Jack Norris' record-breaking Blitz Buggy free-flight; and Henry Jex's Aloha CO₂ winner. And plenty more, folks.

—THE EDITORS

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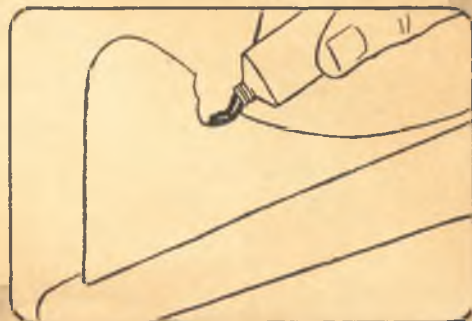
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