An Encyclopedia
of the

GOLDEN AGE OF MODEL AIRPLANES

1949 - 1965

"Transition"

Post World War II
and the
1/2A Revolution
into the
Multi-Channel R/C Period

Reproductions from American Magazines

PLUS

Selected Stories, Pictures and Plans from This Period

Volume
#4

THE ULTIMATE PICTURE BOOK
FROM AN ERA LONG PAST

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DEDICATION

This Volume is dedicated to:

JOHN WORTH

Past President & Past Executive Director
of the Academy of Model Aeronautics
who continues to live the
life of a true modeler who
eats, breathes, and sleeps
aeromodeling, virtually
all of his waking hours.
We have saluted John
in this book on pages
192 /193

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INTRODUCTION

Welcome to some more of the best years I've enjoyed (perhaps your's too ?) as part of modeling.

After reviewing all the magazines and looking at my own personal modeling history, I came to picking up the year 1949 from our 3rd Golden Age of Model Airplanes and started this 4th edition with the 1949 National Championships in Olathe, Kansas. I then had to look at what we'd include (so much more !) and come to an end point.

Vicki and I have had quite a few laughs as we covered a brand new time slot as we looked at all the neat people involved in these pages. I decided we'd cut it off in 1965 when R/C Equipment became useable as full-house multi equipment.

We'd been flying F.A.I. F/F Power in Canada when this R/C equipment came available (i.e. Orbit with Harold deBolt in Buffalo, servicing it). Since Vicki and I had already tried out the 'tinkerers R/C' and this 'I ain't got it' and 'there it goes' systems, so we looked very hard at this new stability and 1965 became the cut-off date for our 4th GAMA. You can see my efforts at F.A.I. F/F was still holding by my picture on page 219.

In our research for interesting material showed up some interesting people in this era ;

John Schneider, my old friend, who was the uncrowned champion of model photography (since he rarely received credits); he was the 'AMA/NATS' photographer from the '50's through the '60's with a greater body of his work appearing in Air Trails (which became Model Aviation as part of the AMA in '66).

Burt Rutan, 1st in U/C senior and 1st in Senior Clipper Cargo at the '60 Nats.

America's Hobby Center servicing the hobbyist since 1931 ... that's 75 years ! I'm sure Vicki and I visited them by walking up 2 or 3 flights of stairs at their New York store in the late '60's.

Polk's Hobby servicing the hobbyist since 1935 ... that's over 70 years ! We weren't fortunate to meet the Fabulous Polk brothers but did become a good friend of Leon Shulman who worked closely with them in the early years.

By 1951 ... the article, 'then came the Revolution (pg. 34)' about 1/2A's which brought a sagging Model Industry back into a thriving entity as evidenced by the innumerable 1/2A kits and various articles in the magazines.

The second Nats in Dallas in '51 certainly made the motto 'Fly Navy' very much the case while the Korean War was on.

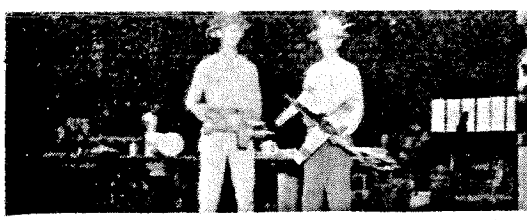
Looking at Pete Andrews Record Indoor Flight brought back memories of Vicki commenting "these Indoor Fliers were really the gentlemen of the sport", as they were dressed in suits whilst carrying their briefcases, when they came in to fly !

There is so much more we'd have liked to have included but our Golden Age seems to have come full circle with the evolution complete with R/C equipment in 1965 and hasn't changed much.

It's now 40+ years later in 2006 with new R/C equipment in a new frequency range, 2.4 Ghz developed for sport, park flyers and indoor ! Models are now becoming powered by electric motors all the way from super miniature indoor types all the way to 100+ inch behemoths, and in early 2006 there is a move towards 'sub-gram' electric radio control flight arriving ... I guess we'd better take a hard look at getting back to flying (even World Championships, electric!), with electric another Golden Age is arriving ... see you at the field (indoors or outdoors).

We hope you do enjoy this book as much as the reminiscing and great fun we had producing it.

Frank and Vicki Anderson



● Where did you get that hat? Two outstanding examples of what's new in headgear for the Nationals.

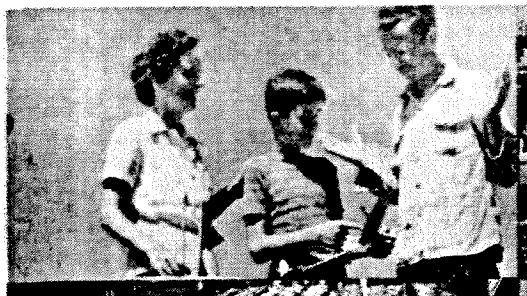
● Each contestant had his kit and each kit contained at least one camera (or St. Ives up to date!). Here are some lensmen at work.

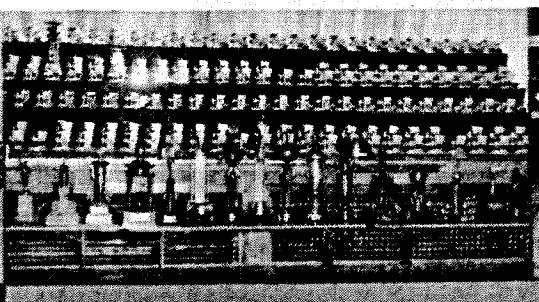
● Comm. Russell B. Jones (3rd from left) gets down to cases. He was observer from Washington.

● Joe Culver ('29 indoor champ) gets pointers from son Dick who won Junior CO_2. Mom takes no sides.

● Impressive array of the permanent trophies (at back) and the famous perpetual awards (foreground) which went to top winners.

● A few of the Army, Air Force, Marine and Navy contestants with some of their outstanding models.

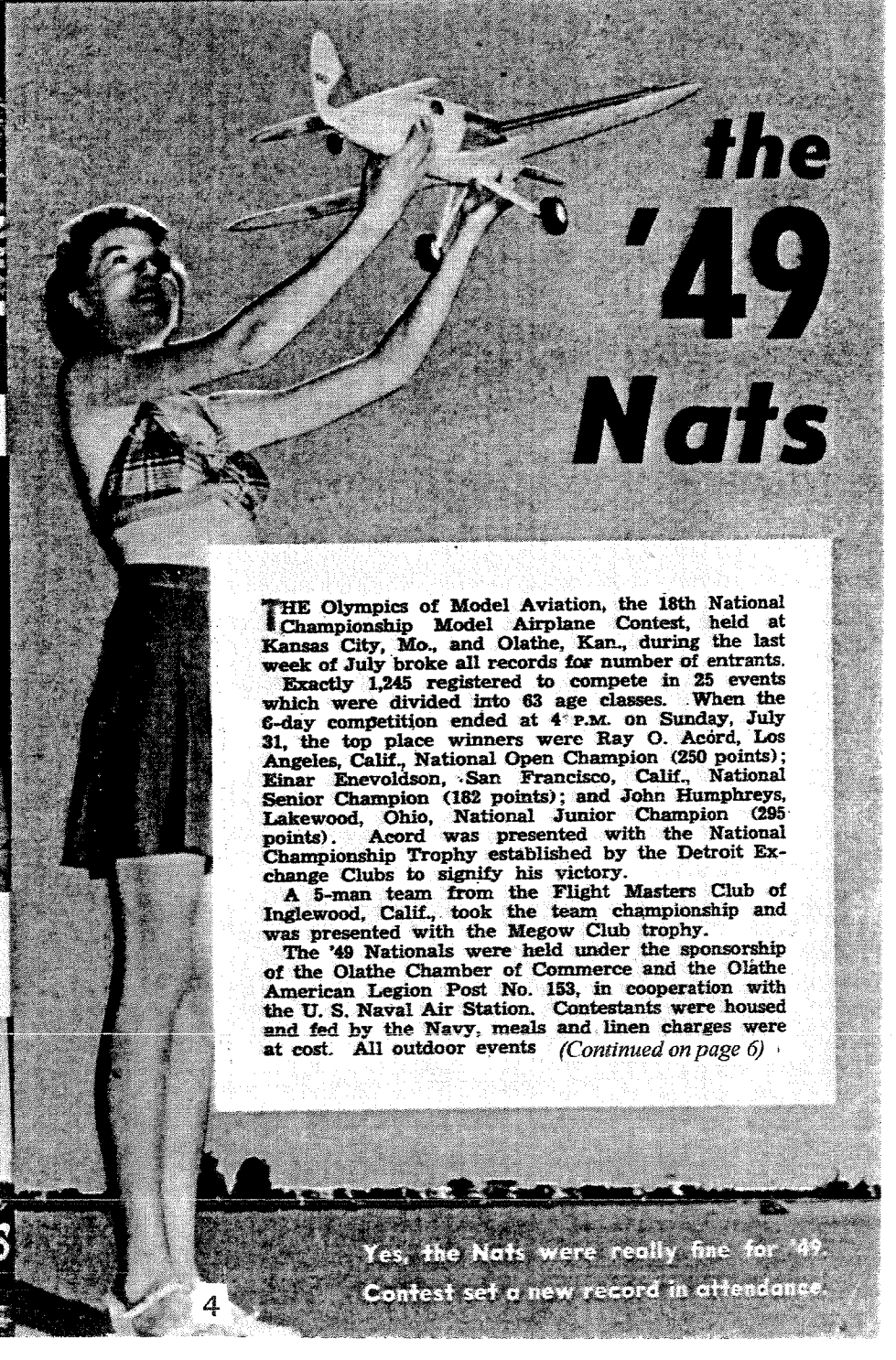




● Contestants were housed in Kinnick Hall. Here 4 a.m. scene shows many are already out testing.

● A nice feature of the meet were the lovely young ladies from Olathe who took charge of recording.

● Olathe outdid itself in hospitality. Store windows all over carried messages welcoming modelers.



the '49 Nats

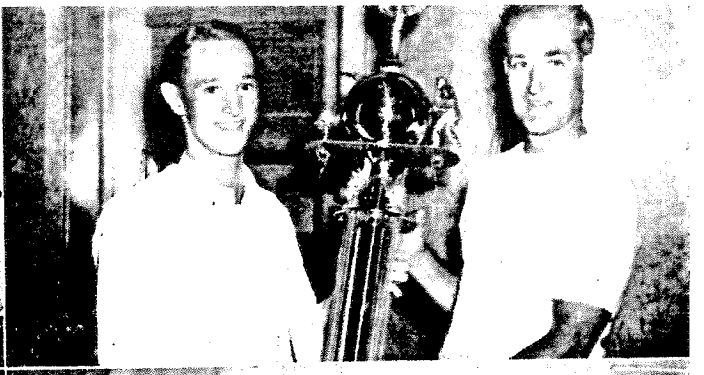
THE Olympics of Model Aviation, the 18th National Championship Model Airplane Contest, held at Kansas City, Mo., and Olathe, Kan., during the last week of July broke all records for number of entrants.

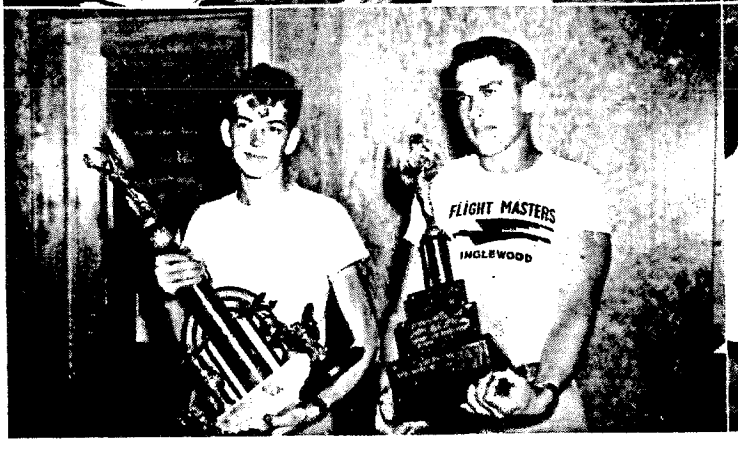
Exactly 1,245 registered to compete in 25 events which were divided into 63 age classes. When the 6-day competition ended at 4 P.M. on Sunday, July 31, the top place winners were Ray O. Acord, Los Angeles, Calif., National Open Champion (250 points); Einar Enevoldson, San Francisco, Calif., National Senior Champion (182 points); and John Humphreys, Lakewood, Ohio, National Junior Champion (295 points). Acord was presented with the National Championship Trophy established by the Detroit Exchange Clubs to signify his victory.

A 5-man team from the Flight Masters Club of Inglewood, Calif., took the team championship and was presented with the Megow Club trophy.

The '49 Nationals were held under the sponsorship of the Olathe Chamber of Commerce and the Olathe American Legion Post No. 153, in cooperation with the U. S. Naval Air Station. Contestants were housed and fed by the Navy, meals and linen charges were at cost. All outdoor events *(Continued on page 6)*

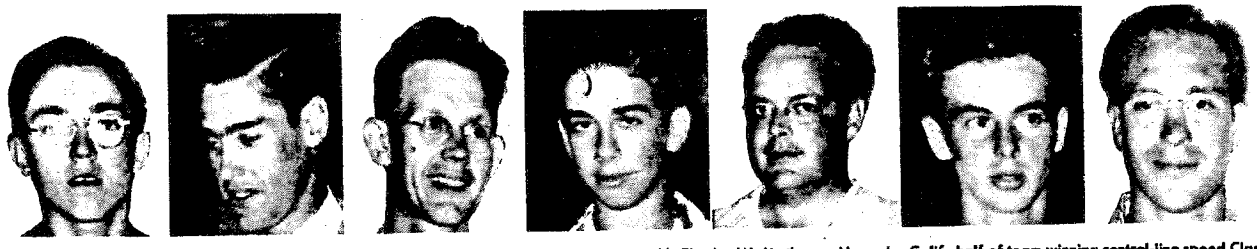
Yes, the Nats were really fine for '49. Contest set a new record in attendance.





● Upper left: Al Lewis, AT ed, presents Air Trails speed D open perpetual trophy to Harold deBolt. Upper rt.: W. Howard Thombs, Warren, Ohio, gets AJ novelty award from Jim Walker (rt.). Bottom, left: Wm. Burgess, Muncie, Ind., (lt.) holds Comet Perpetual award for his 1st place in Class A free-flight senior division and Bill Wisniewski, member of the Flight Masters championship team, with the Air Trails' Harold Kulick Memorial Trophy for 1st in Cl. D sr. speed. Bottom, rt., Geo. Gardner of PA and PAA-Load winners.

●Left to right, Phillip Laney, Little Rock, Ark., control-line speed class C junior (125 mph); Fred Miller, Oklahoma City, Class A free-flight gas open (726.5 sec.); Paul Simon, Detroit, indoor stick junior (906.4 sec.); Manuel Andrade, Oakland, Calif., indoor glider open (61.2 sec.,); Mark Brown, Stockton, Calif., control-line speed Class A senior (113.92 mph); Raymond Shearer, Little Rock, Ark—here's that boy again, he also won Cl. B—c.-l. speed Cl. C sr. 135.85 mph); Paul Gilliam, Glendale, Calif., 2nd ROW (1061 sec.).



●Marvin Allen, Akron, Ohio, towline glider junior (530.7 sec.); Richard J. Fox, Akron, towline glider senior (837 sec.); Robert Dunham, Tulsa, Okla., open rubber cabin outdoor (623.6 sec.); Warren Tomme, Little Rock, Ark., control-line speed Class B junior (124.14 mph); Charles W. Mathews, Alameda, Calif., half of team winning control-line speed Class C open (137.40); Joe Stadelman, Pittsburgh, Class A free-flight gas junior (675.6 sec.); Anfelo Lo Castro, San Francisco Calif., senior rubber cabin outdoor (873.2 sec.).

●Left, Red Hillegas, '48 winner, congratulates Johnny Clemens (right), winner of Berkeley industry award. Above, l. to r.: Bob Dailey, Ferndale, Mich., control-line precision stunt open (369 points); Bob Cart, Des Moines, Iowa, 1st jet speed (145.16 mph); Don Still, Alta Loma, Texas, control-line precision stunt senior (377 points); George W. Sweet, Beloit, Wis., 3rd place jet speed (140.08 mph); Erwin W. Huth, Alameda, Calif., speed C open team.

were run off on the air station, while the indoor flying took place in the Municipal Auditorium in Kansas City.

On the last day of the contest 58,000 spectators turned out to see the concluding events and the fine precision flying of the Blue Angels, the Navy's crack exhibition stunt team. This, incidentally, was a record for the NAS at Olathe as far as number of people on the base at one time was concerned. Sunday saw three of the most exciting events of the annual contest which drew contestants from almost every state. These special categories were control-line flying scale, rise-off-water free-flight and Pan American World Airways PAA-Load.

Radio-control flying, which was scheduled for every day of the contest, brought forth more entries than any previous Nationals and a record number of r.c. flights were chalked up.

Poor weather plagued contestants during the first four days of outdoor flying—first high winds and then rain. Relatively poor times in general could be blamed on the weather, yet most of the entrants took this handicap in their stride and did the best they could under the circumstances. Fair skies marked the final day's flying, cheering contestants and bringing out the spectators.

The meet, of course, could never have been run off on any such scale without the full support of the Navy and the cooperation of every man "aboard" the base. Enlisted men and CPO's handled the timing of flights; the regular officer personnel took a hand in all the arrangements for the meet. Each event was handled by a different contest director who was responsible to Jim McClelland of Independence, Kan., who also directed the '46 meet, the first post-war Nationals, in Wichita, Kan.

The top officials besides McClelland (who had the title of contest supervisor) were Jesse Hall, Olathe, contest manager; Dale Dorst, Olathe, assistant contest manager; Tex Witherspoon, Olathe, promotion manager; Richard Wallace, Wichita, director of rubber and glider flying; Jean Seele, Topeka, Kan., director of free-flight gas; Richard Gelvin, St. Louis, director of U-control speed; M. J. Thomas, Pittsburgh, director of radio-control; Roy Mayes, Berkeley, Calif., director of control-line stunt; Leo Rutledge, Wichita, director of PAA-Load event; Bill and Ginger Sparks, Kansas City, Kan., recording and timing supervisors; Art Carroll, Topeka, chief announcer; and Louis Caton, Kansas City, Mo., field manager.

IN addition a number of other well-known aviation, model aviation and Navy figures participated in the lengthly planning sessions and the execution of the contest. These individuals included Capt. Campbell Keene, commanding officer of the Olathe Naval Air Station; C. O. Wright, president of the Academy of Model Aeronautics; G. Richard Challinor, aviation commissioner for Kansas City, Mo., Chamber of Commerce; Tom Poor, Mayor of Olathe; Howard McKee, president of the Olathe Chamber of Commerce; Joe Nickel, Kansas state commander of the American Legion and Walter Russell, commander of the Olathe post; Russell W. Nichols, A.M.A. executive director; Val Sherrard, Topeka; Lt. Lee Stanley, public information officer at the Olathe NAS; and a host of others.

Not only high winds but bad luck seemed the order of the day at the meet's outset. Leo Rutledge, well known and highly liked activities leader who was the director of special events, was in an automobile accident just off the base but fortunately did not suffer serious injury and was able to return to his duties at the meet.

SO gigantic an operation was the contest that it was impossible to see everything. A typical example: On Sunday, July 31, while the PAA-Load event was being run off on one section of the field along with hand-launched gliders, the ROW flying was going on in another corner of the base which featured a good sized pond. And all the time the radio-control boys were competing off by themselves, the jet speed demons and the control-line flying scalers battled. Not to mention demonstrations of team racing!

Using that as a sample operation and multiplying that by the 5 days of outdoor flying it soon became apparent that to win in a contest of such size one is almost required to have an inexhaustible supply of helpers and retrievers, an auto or motor scooter to speed from one event to the other and a knack of going without food during the day and without sleep at night.

The magnitude of the meet complicated somewhat the recording and tabulating processes on the final day so that the presentation of awards was stalled for awhile. But this is nothing new to the Nationals. At first it was understood that the Oakland, Calif., Cloud Dusters had repeated their previous year's team victory, but a rechecking of points put the Flight Masters in first place.

The winners of each event follow; these are listed in first, second and third place order after the name of the event. Figure given represents total or average seconds, miles per hour or points, depending on how the A.M.A. rules score the event:

INDOOR STICK. Junior—Paul Simon, Detroit, 906.4; Ronald Plotzke, Detroit, 649.8; John Humphreys, Lakewood, O. 465.0. Senior—Erwin Rodemsky, Detroit, 892.8; Charles A. Sotich, Chicago, 746.4; Einar Enevoldson, San Francisco, 737.5. Open—Don Donahue, Montrose, Calif., 1347.8; Michael Demos, Oakland, 1303; Robert Bienenstein Detroit, 1302.

INDOOR CABIN. Junior—John Humphreys, 325.4; Paul Simon, 270; Lyman Slack, Cleveland, 120.2. Senior—George Xenakis, Detroit, 885; Carl Redlin, Detroit, 835; Erwin Rodemsky, 618. Open—George De La Mater, St. Louis, 1156.6; Manuel Andrade, Oakland, 1105.4; Joe Bilgri, San Jose, Calif., 1062.5.

OUTDOOR STICK (RUBBER). Junior—Ronald Plotzke, 341; John Humphreys, 240.5; Sherrill Bredfeldt, Hutchinson, Kan., 183.2. Senior—Carl Redlin, 420.3; Don Jagger, 400.6; George Xenakis, 397.6. Open—Robert Bienenstein, 595.6; Dick Everett, San Diego, 536.1; Dick Korda, Euclid, O., 486.

OUTDOOR CABIN (RUBBER). Junior—Ronald Plotzke, 263.8; Jack Butler, 201.5; John Humphreys, 182.3. Senior—Anfelo Lo Castro, San Francisco, 873.2; Carl Haas, Chicago, 629.6; George Xenakis, 613.4. Open—Robert J. Dunham, Tulsa, 623.6; Robert Bienenstein, 622.3; Henry A. Cole, Jr., Tacoma, Wash., 617.1.

FLYING SCALE, RUBBER-POWERED. Delbert Swartz, Burbank, Calif., 77.9; Bill Tharp, Ocean Park, Calif., 70.5; Charles Hollinger, Seattle, Wash., 63.8.

OUTDOOR HAND-LAUNCHED GLIDER. Junior—John Humphreys, 723.8; J. D. Foster, Kansas City, Mo., 382; Luther Hayes, Frankton, Ind., 366.9. Senior—Bob Costigan, Kansas City Mo., 736.6; A. W. De Valx, Kansas City, Mo., 735.3; Donald Hollfelder, Oakland, 559.4. Open—Ray Acord, 885; David Kneeland, Sunflower, Kan., 805.6; Robert J. Dunham, 742.7.

FREE-FLIGHT GAS, RISE-OFF-WATER. E. L. Enticknap, Auburn, Wash., 1293.5; Paul Gilliam, Glendale, Calif., 1061; Dick Everett, 838.9.

FREE-FLIGHT GAS CLASS A. Junior—Joe Stadelman, Pittsburgh, 675.6; Jack Butler, 530; Lyman Slack, Cleveland, 395.6. Senior—William Burgess, Muncie, Ind., 532.8; Robert F. Darrah, Des Moines, 530; Don Hermestroff, Chicago, 422. Open—Fred Miller, Oklahoma City, 726.5; Dick Everett, 579.8; Merl Shammo, Freemont, O., 532.2.

FREE-FLIGHT GAS CLASS B. Junior—Sonny Murphy, Anderson, Ind., 727.9; Roger L. Barron, Springfield, Va., 527; Jimmy Jorski, Oklahoma City, 488.7. Senior—Einar Enevoldson, San Francisco, 705.8; Eugene Bonenberger, Oklahoma City, 632.4; James H. Brakefield, Washington, D. C., 600. Open—Ray Acord, 627; Harold Tremps, Anderson, Ind., 595.8; Joe Culver, Oak Ridge, Tenn., 570.5.

FREE-FLIGHT GAS CLASS C. Junior—Jimmy Jorski, 562.2; Richard Tremps, Anderson, Ind., 452; Jack Butler, 445.7. Senior—Norman Mayeda-Richard Gernar (team), St. Paul, 552.8; William Burgess, Muncie, Ind., 539; Bill Clark, Denver, 535.2. Open—Louis Torno, Cleveland, 928.8; Dennis Davis, San Diego, 722.8; Paul Van Sant, Chicago, 680.1.

FREE-FLIGHT GAS CLASS D. Junior—Roger L. Barron, 1118; Jack Butler, 810.1; Dan Dougherty, Tulsa, 608. Senior—Mervyn Schell, Chicago, 923.6; Kenneth Dougan, Lawrence, Kan., 904.2; Ivan Wimp, Kress, Texas, 824. Open—E. L. Enticknap, Auburn, Wash., 1800; Harold Tremps, 1378.6; Sal Taibi, Indianapolis, 1295.

TOWLINE GLIDERS. Junior—Marvin Allen, Akron, 530.7; Clifford Teleford, Decatur, Ga., 515; Don Shriver, Quincy, Ill., 262. Senior—Richard J. Fox, Akron, 837; Don Jagger, 717.1; David Bell, Mission, Kan., 645.4. Open—Manuel Andrade, 766.1; Michael Demos, 725.2; Whitley M. Roberts, Jr., Atlanta, Ga., 682.

CONTROL-LINE SPEED CLASS A. Junior—Warren Tomme, Little Rock, 105.88; Everett Gray, Wichita, 103.75; Bob Carnes, Neosho, Mo., 101.12. Senior—Mark Brown, Stockton, Calif., 113.92; Robert Rawe, Kenmore, N. Y., 112.15; Jack Breen, Lakewood, O., 109.76. Open—Harold deBolt, Williamsville, N. Y., 116.88; Dr. J. R. Warden, Little Rock, 112.50; Erwin Huth-Charles Mather (team), Alameda, Calif., 110.43.

CONTROL-LINE SPEED CLASS B. Junior—Warren Tomme, 124.14; Everett Gray, 109.26; David Coates, Hialeah, Fla., 100.98. Senior—Raymond Shearer, Little Rock, 130.43; Bill Mitchener, Peoria, Ill., 129.96; Richard Rigney, Long Beach, Calif., 127.66. Open—Lew Mahiew, Long Beach, Calif., 132.84; Verne Hudson-Frank Manley (team), Wichita, 132.11; Charles Schuette, Los Angeles, 131.39.

CONTROL-LINE SPEED CLASS C. Junior—Phillip Laney, Little Rock, 125; John F. Hice, Flint, Mich., 121.62; Everett Gray, 115.20. Senior—Raymond Shearer, 135.85; Jack Friedland, Oakland, 134.33; Richard Rigney, 133.33. Open—Erwin Huth-Charles Mather (team), Alameda, Calif., 137.40; Frank Manley-Verne Hudson (team), 134.58; Dr. J. R. Warden, 133.33.

CONTROL-LINE SPEED CLASS D. Junior—Pat McGahan, Terre Haute, 129.5; Lyman A. Slack, Jr., Cleveland, 122.4; Bob Carnes, 121.62. Senior—Bill Wisniewski, Hawthorne, Calif., 140.63; Raymond Shearer, 139.53; Eugene Stiles, Alameda, Calif., 136.36. Open—Harold deBolt, 147.54; Lew Mahiew, 146.34; James E. Jennings, Dalton, Ga., 138.46.

JET SPEED. Bob Cart, Des Moines, 145.16; Merle F. Koebernick, Beloit, Wisc., 142.86; George Sweet, Beloit, 140.06.

CONTROL-LINE PRECISION STUNT. Junior—James Freshman, Berkeley, Calif., 328; Dave Webb, Dallas, 323; Curtis Comer, Decatur, Ga., 310. Senior—Don Still, Alta Loma, Texas, 377; Gene Marshall, La Mesa, Calif., 369; Russell Snyder, Inglewood, Calif., 346. Open—Bob Dailey, Ferndale, Mich., 369; Lou Andrews, 354; Capt. H. M. Bourgeois, Santa Ana, Calif., 352.

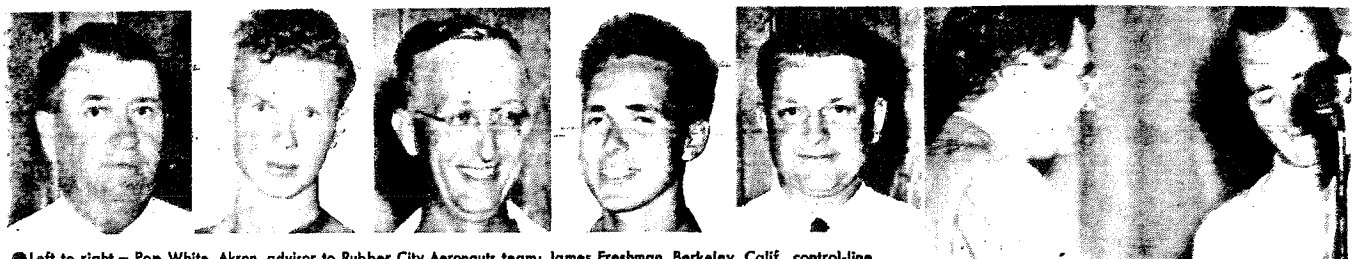
CONTROL-LINE FLYING SCALE. Junior—Ben Coffin, Kansas City, Kan., 217½; James Freshman, 203½; Sherrill Bredfeldt, Hutchinson, Kan., 163. Senior—Dale Kirn, Salina, Kan., 369; Cpl. Bryant Thompson, Keesler AFB, Miss., 317½; James Smith, El Cerrito, Calif., 310. Open—Mr. and Mrs. John T. Matthews, Atlanta, Ga., 359; Fred Sage, Jr., Independence, Mo., 358; Charles Hollinger 343.

RADIO-CONTROL. Dr. Walter Good, Silver Spring, Md., 119; Paul Johnson, Des Moines, 109.2; Jim Walker, Portland, Ore., 94.2.

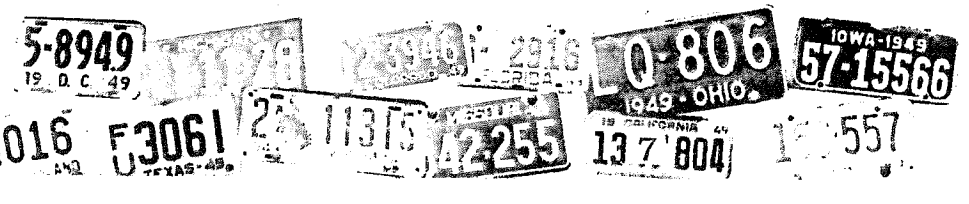
● The new club champions posed alongside the Ohlsson & Rice DC-3 which flew Californians to Olathe: front l. to r., Bill Tharp and Ray Acord; standing l. to r., Bill Wisniewski, Don Kennedy and Jack Butler. Top, rt., Mayor Tom Poor of Olathe with John Humphries, Lakewood, Ohio (holding Sun-Times trophy), junior champ, and Einar Enevoldson, San Francisco, senior champion. Lower, rt., contest director Jim McClelland presents open class champ Ray Acord, Los Angeles, holding Exchange Nat'l champ trophy. Inset: Acord.

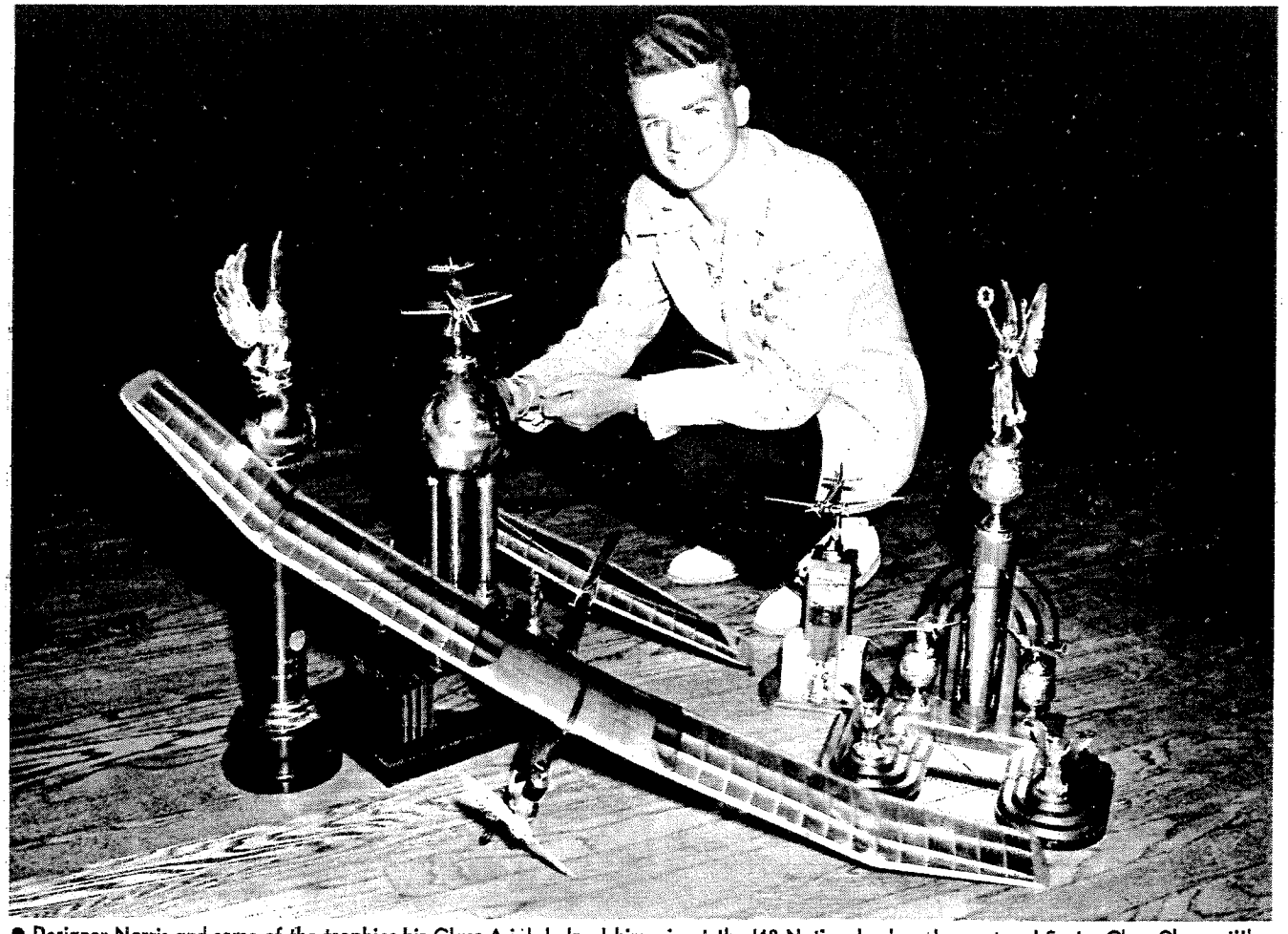
● Winners (from left to right): Howard Robinson, Shelby, Ohio, CO_2 open (613.2 sec.); Donald Hollfelder, Oakland, Calif., indoor sr. glider (59.2 sec.); Erwin Rodemsky, Detroit, indoor stick sr. (892.8 sec.); George Xenakis, Detroit, indoor cabin sr. (885 sec.); Mervyn Schell, Chicago, Class D free-flight gas sr. (923.6 sec.); Bob Costigan, Kansas City, Mo., outdoor hand-launched glider sr. (736.6 sec.); Roger L. Barron, Springfield, Va., Class D free-flight gas jr. (1118 sec.). 1st place winners shown on these pages unless otherwise noted.

● Left to right: Richard Gerner, St. Paul, Minn., half of team winning Class C free-flight gas sr. (552.8 sec.); Lou Andrews, Norwood Mass., U-control novelty 1st.; Norman Mayeda, St. Paul, Minn., other half of sr. free-flight C team; Jimmy Jorski, Oklahoma City, Class C free-flight gas junior (562 sec.); Louis Torna, Cleveland, Class C free-flight gas open (928 .8 sec.); Charles Sotich, Chicago, carbon dioxide powered free-flight senior (735.5 sec.); Raymond Shearer, Little Rock, Arkansas, Class B control-line speed senior (130.43 mph).



● Left to right – Pop White, Akron, advisor to Rubber City Aeronauts team; James Freshman, Berkeley, Calif., control-line precision stunt junior (328 points); Merle Koebernick, Beloit, Wis., 2nd place jet speed; Lew Mahiew, Long Beach, Calif., U-control speed Class B open (132.84 mph); Dr. J. R. Warden, Little Rock, Ark., 2nd U-control speed Cl. A (112.50 mph.). Right, Russ Nichols presents Berkeley chronograph award to Tex Witherspoon of KPRS.





● Designer Norris and some of the trophies his Class A job helped him win at the '48 Nationals where he captured Senior Class Champ title.

Blitz Buggy

By JACK NORRIS

This plane has racked up an impressive list of National and Plymouth meet victories

UNLIKE most models the Blitz Buggy was not designed, it was developed. For the past seven years we have made an effort to produce a free-flight design that would answer the demands of competition. From experience we have found this necessitated constant attention to practical aerodynamics. The result is a model that has won the Plymouth Internationals, the Philadelphia Flying Circus, the Scripps-Howard Junior National Air Races, and two classes at the 1948 Nationals.

Through association we have developed a keen respect for the modeler's ability to follow plans. We have planned, therefore, to omit the usual description of construction details. Instead, we have decided to give a summary of the basic design concepts incorporated in the model in an effort to make the material more interesting and instructive to the reader.

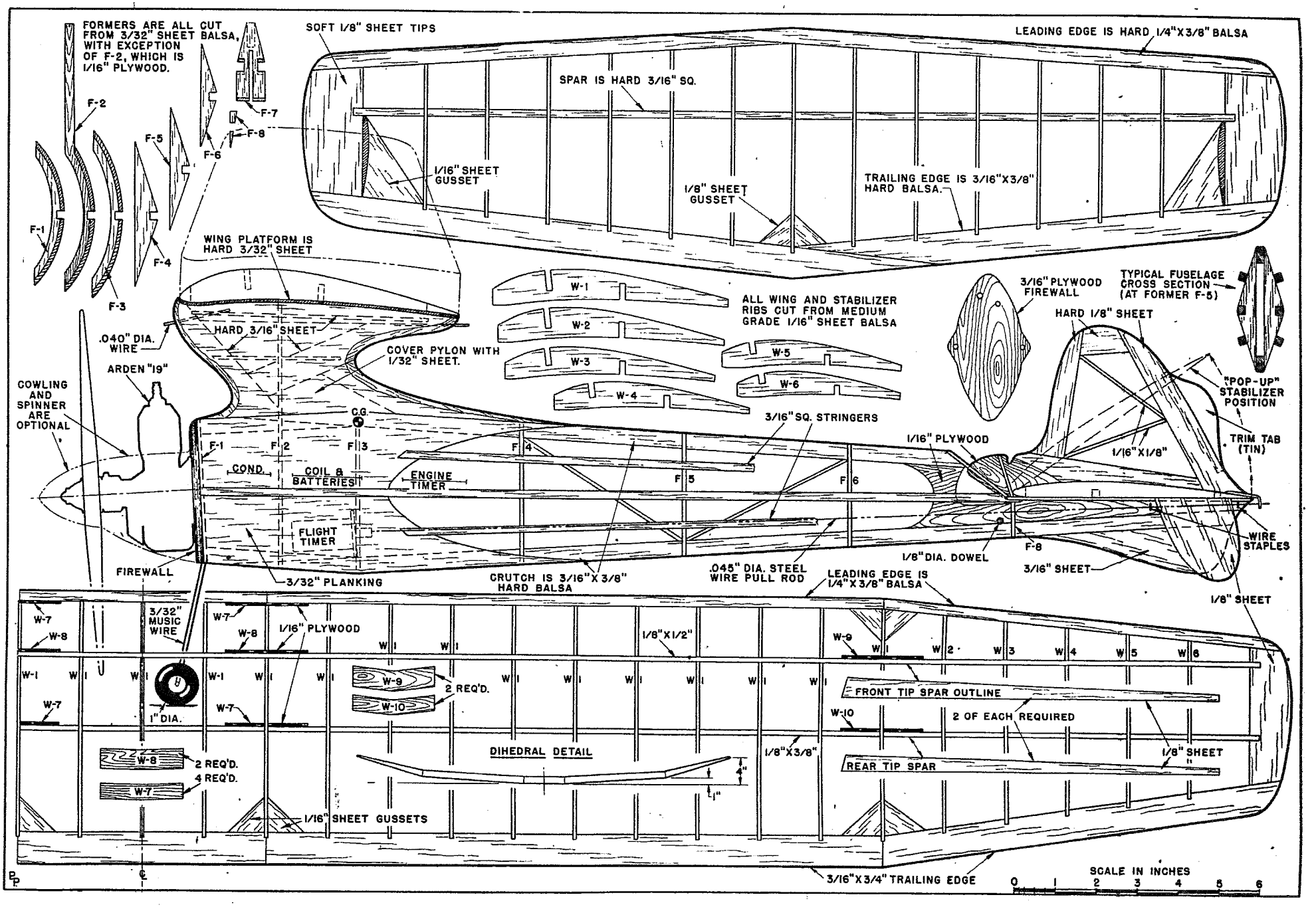
The design of a contest free-flight model, like any other engineering problem, requires constant compromise. By practical aerodynamics we mean a balance of those factors which produce the three goals of free-flight design: efficient flight characteristics, stability, and ease of construction.

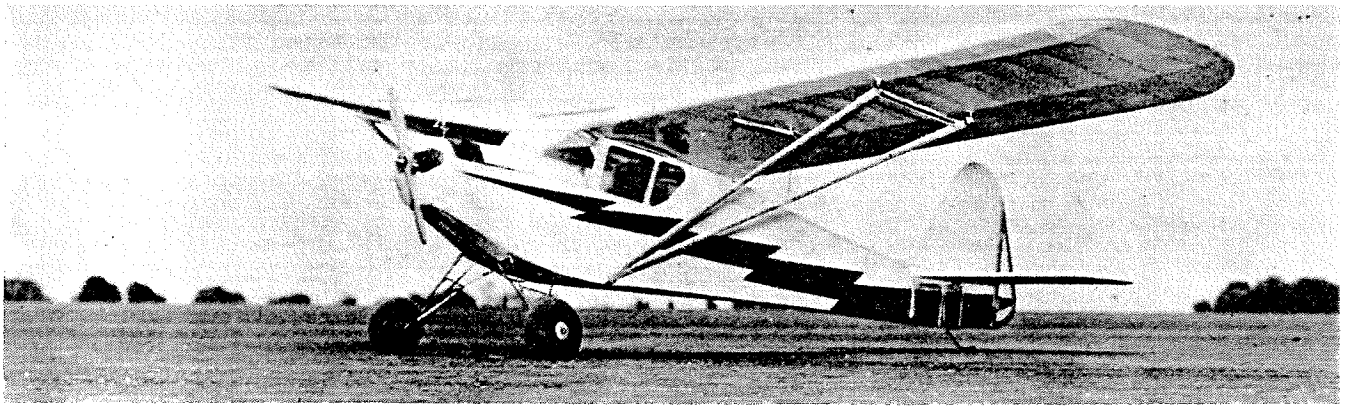
The factors which produce these characteristics are often so closely related that instead of blunt compromise, it is often possible, through thoughtful design, to fulfill two, or perhaps three, of these goals with one idea. As a practical example of this, streamlining will almost always enhance appearance and flight characteristics. By the use of some ingenuity in design, construction methods may be incorporated which give good streamlining.

CLASS B BLITZ BUGGY

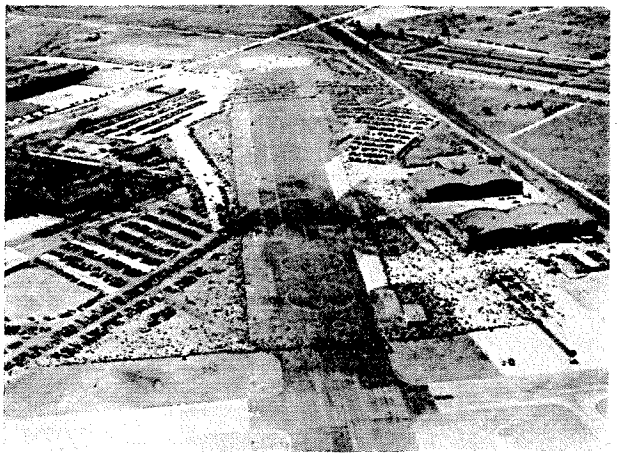
Author Norris says anyone can turn out his winning Class B version of the Blitz Buggy by multiplying all dimensions given for the Class A job by 6/5. The only change in the design is that the flat center section is left out of the wing giving it a span of 60 inches.

Using his B class DeLong-powered job, Norris took a 1st at the 1948 Nationals, 1st at the 1947 Plymouth Internationals, 1st at the 1947 Scripps Howard Junior National Air Races, 1st at the 1946 Philadelphia Flying Circus—to mention only a few of its top places in scores of major meets.


FORMERS ARE ALL CUT FROM 3/32" SHEET BALSA, WITH EXCEPTION OF F-2, WHICH IS 1/16" PLYWOOD.
F-1
F-2
F-3
F-4
F-5
F-6
F-7
F-8
SOFT 1/8" SHEET TIPS
LEADING EDGE IS HARD 1/4"X3/8" BALSA
SPAR IS HARD 3/16" SQ.
1/16" SHEET GUSSET
1/8" SHEET GUSSET
TRAILING EDGE IS 3/16"X3/8" HARD BALSA.
WING PLATFORM IS HARD 3/32" SHEET
W-1
W-2
W-3
W-4
W-5
W-6
ALL WING AND STABILIZER RIBS CUT FROM MEDIUM GRADE 1/16" SHEET BALSA
3/16" PLYWOOD FIREWALL
TYPICAL FUSELAGE CROSS SECTION (AT FORMER F-5)
HARD 1/8" SHEET
.040" DIA. WIRE
HARD 3/16" SHEET
COVER PYLON WITH 1/32" SHEET.
ARDEN "19"
COWLING AND SPINNER ARE OPTIONAL
C.G.
3/16" SQ. STRINGERS
"POP-UP" STABILIZER POSITION
TRIM TAB (TIN)
1/16" X 1/8"
1/16" PLYWOOD
COND.
COIL & BATTERIES
ENGINE TIMER
FLIGHT TIMER
WIRE STAPLES
1/8" DIA. DOWEL
F-8
3/16" SHEET
FIREWALL
3/32" PLANKING
CRUTCH IS 3/16" X 3/8" HARD BALSA
.045" DIA. STEEL WIRE PULL ROD
LEADING EDGE IS 1/4" X 3/8" BALSA
1/8" SHEET
3/32" MUSIC WIRE
1/16" PLYWOOD
1/8" X 1/2"
W-7
W-8
W-9
W-10
2 REQ'D.
1" DIA.
FRONT TIP SPAR OUTLINE
2 OF EACH REQUIRED
REAR TIP SPAR
1/8" X 3/8"
1/8" SHEET
DIHEDRAL DETAIL
4"
1"
4 REQ'D.
1/16" SHEET GUSSETS
3/16" X 3/4" TRAILING EDGE
SCALE IN INCHES
0 1 2 3 4 5 6



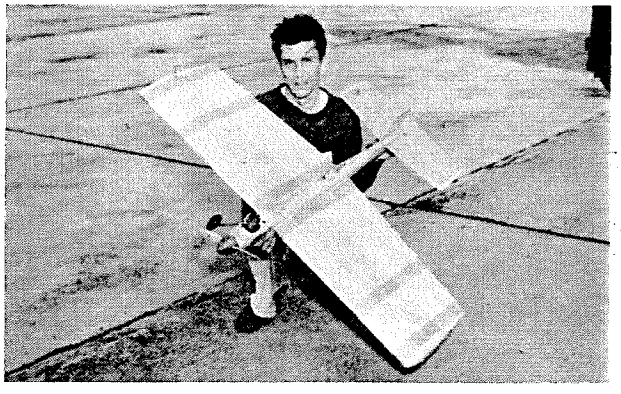
● O&R 60 powered Taylorcraft was radio-control entry by Joe Picarole, Morristown, N. J. Fran McElwee won event with his Radart model.



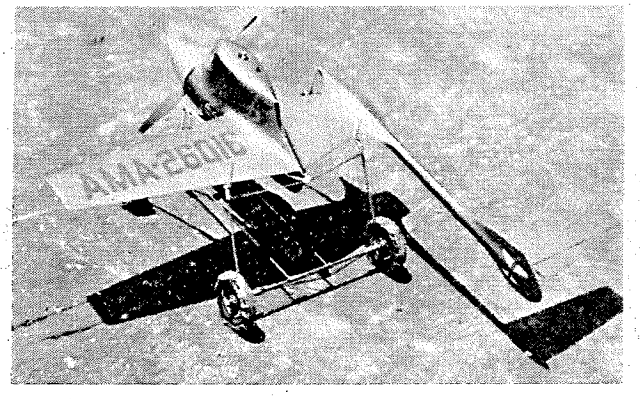
● Portion of Grumman airport showing 12 U-control circles, cleared free-flight area (bottom) and small portion of thousands of autos.

World's Largest Model Meet

New York Mirror's Model Flying and Air Fair draws 250,000 spectators, 1,000 contestants to Grumman Airport, L. I.



● Plymouth International stunt champ Lew Andrews of Boston, Mass., flew his new design. Wing has 660 sq. in. area, weighs 2 lb., 7 oz.



● McCoy 29 powered asymmetrical speed job entered by J. Warren Kohler. Speed events were timed by electronic-operated pylons.

● Harold Reinhardt, 16, Elizabeth, N. J., trimmed all the boys in stunt, received raft of prizes including Grumman aluminum canoe.

● Aubrey Pearson, Schenectady, N. Y., (center) receives Air Trails trophy from Seldin Converse, Grumman chief pilot, for 1st in D f.f.

Radart

By FRANCIS McELWEE

● Radio-controlled Radart shown above with first antenna set-up used by designer McElwee. Range was limited so radiator was raised as seen in photo at left. Fran holds controls.

A noted stunt flyer turns to radio-control with remarkable results which you can duplicate. Here is his story and model

HERE is a model designed for radio flying, which is not merely a converted free-flight. It employs structural features proven through the years in the free-flight field. Simplicity and ease of adjustment are paramount. Much thought went into the design, and if it's to be your first radio-controlled ship, it is suggested that the plans be followed very closely.

In the past six months, in the neighborhood of 200 flights have been put in. The ship has been well proved, both for its strength and consistency in flight.

General specifications are: wing span—60″; area—4 sq. ft.; length—42″; weight—4½ lbs.; power—Drone diesel; prop—10″ dia., 6″ pitch.

A high wing loading (18 oz. per sq. ft.) plus a Clark "Y" wing section makes the model fairly fast so it can be flown in stiff winds. This has been proven many times when the author flew this model out of small ball-fields in windy weather. This is a great help in the operator's judging for close landings as the glide is fast and steady and the descent is at a good, even, steady rate.

FULL SIZE PLANS

Working drawings of the Radart will be available from Air Trails Full Size Plan Service in about 30 days. See plan announcement in next issue for complete details.

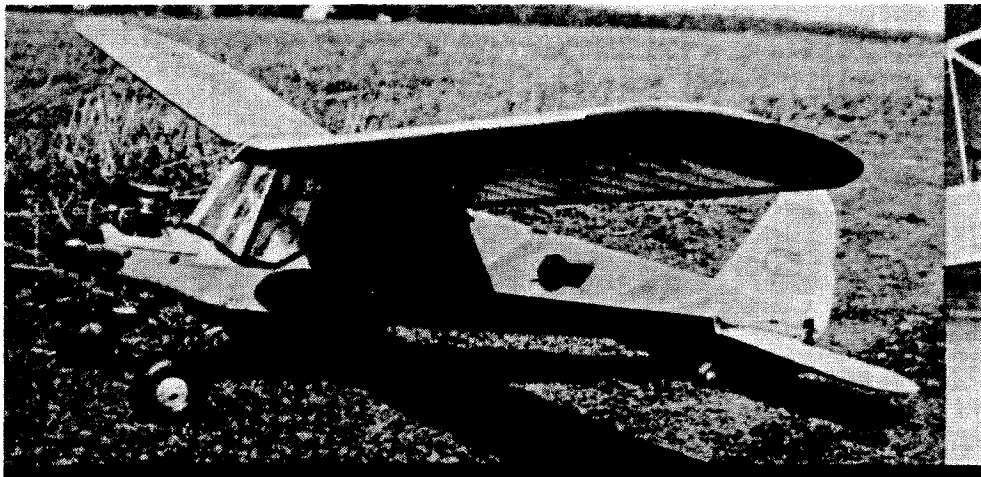
The fuselage, while a box, has a slightly different construction than usual and efforts were made to retain real plane looks. The radio equipment has to be accessible and the fuselage has to be able to take the beating that it is subject to through continuous flying under varying conditions.

It is built around a crutch, which also separates the receiver from the batteries, for crash protection, and has so called skyscraper mounts for ease of power adjustments. The rudder is permanently attached so the ship is always in trim. No electrical or mechanical connections are taken apart. Wing and elevator are adjustable and keyed. Down thrust is built in. A long rubber motor for the escapement was deemed necessary and one winding is usually sufficient for the day's flying. To rewind, it takes but a minute to take the elevator off (four rubber bands) and wind the motor through the opening below the rudder.

The wing and elevator are conventional, though constructed extra strong for violent maneuvers and to resist warping.

The radio is a stock Aero-Trol unit and no trouble has been experienced to date. Anyone who can wire up an ignition engine can follow the Aero instructions without difficulty.

The power used is the older version Drone diesel. This engine has power to spare and had to be slowed down with the free-flight choke and a small, inefficient propeller to give the *(Continued on page 12)*



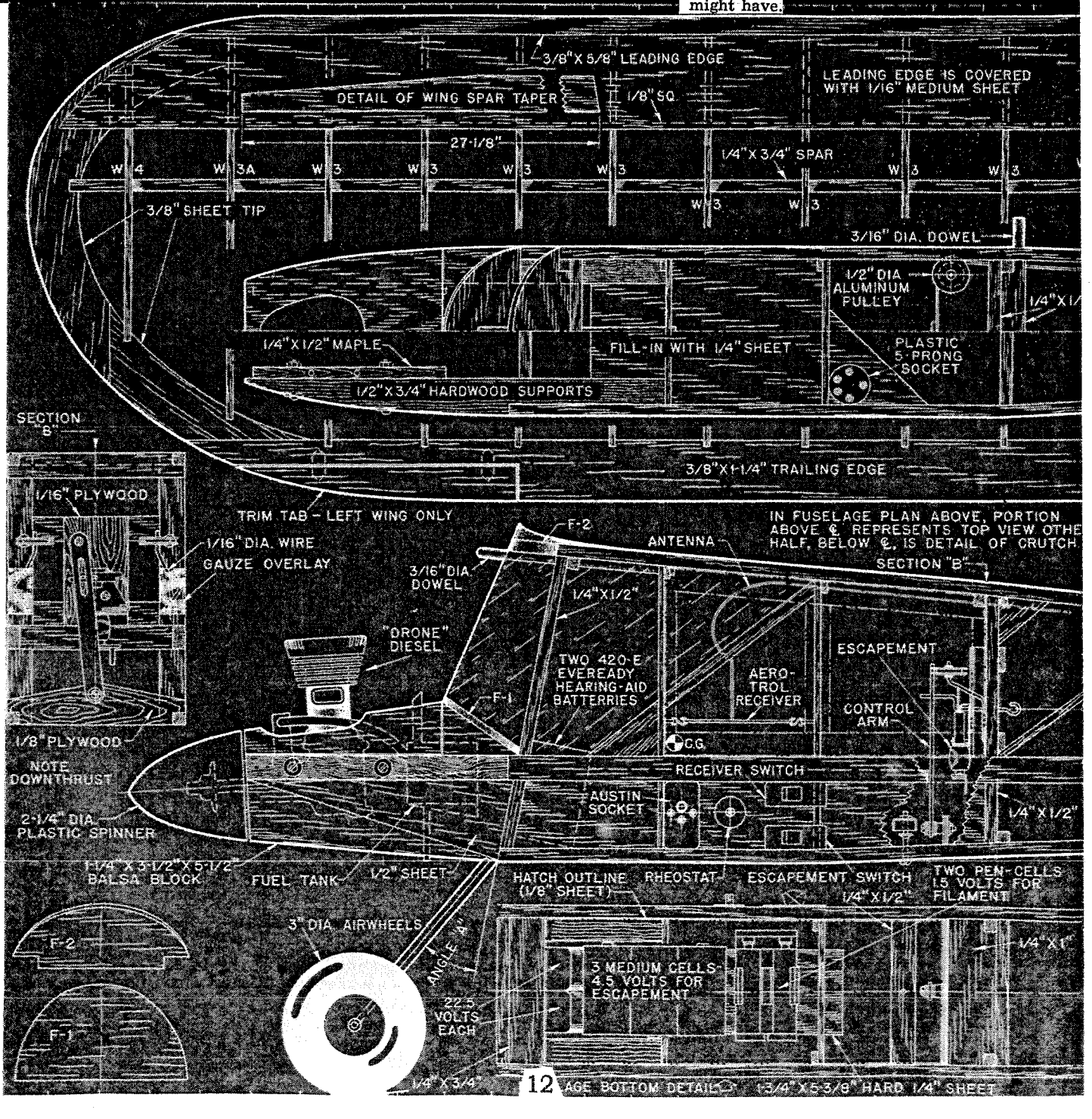
● Radart is controlled by Aero-Spark "Aero-Trol" unit and powered by Drone diesel engine fitted with Drone free-flight device. Ship did well at '48 Nats.

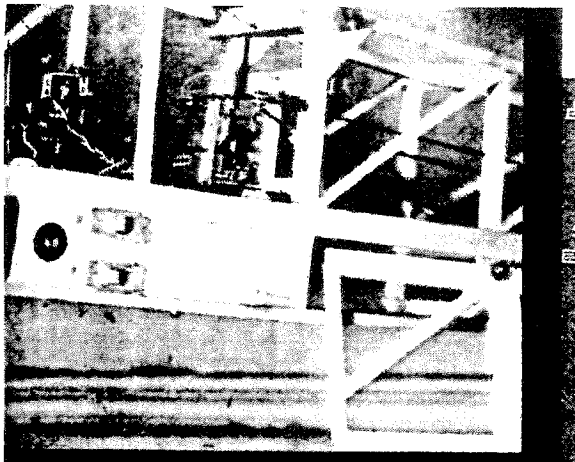
(Continued from page 11)

climb desired, which is very shallow. The slow climb gives a smoother looking flight as it goes gracefully into and out of turns. No space nor weight is needed for ignition when using a diesel and no flight timer is needed; vary your fuel supply to limit the engine run. However, any class "B" engine would do; a "C" would be much too large for this type of flying in this particular ship. In the way of contest performance, the first day this ship was flown by radio, it took second in a meet on Long Island. A month later, with plenty of practice in that time, it took first in the Mirror meet.

Unable to attend the Nationals, I lent the ship to Leon Shulman, who with no former experience with this craft, took fifth at Olathe as a team entry.

Everything is stock equipment and the plane was constructed on a kitchen table in a two-room apartment. No special tools are needed other than those the average gas-model builder might have.





● Radio setup in aft section of cabin. Rudder is actuated by pulley arrangement.

1/8" X 3/8"
1/16" SHEET
3/16" X 1/2" SPAR
S-1
S-2
S-3
1/4" SHEET
3/8" SQ. TRAILING EDGE
1/4" SHEET
"SPADE" BOLTS
1/4" PLYWOOD FIREWALL
WASHERS ON AFT SIDE OF FIREWALL
REAR (MAIN) STRUT
BEND LANDING GEAR TO SHAPE DIRECTLY OVER FULL SIZE PLAN, THEN BEND STRUTS FORWARD TO MATCH ANGLE "A" IN SIDE VIEW
1/4" HARD BALSA DIHEDRAL BRACE W-5
1/8" DIA. MUSIC WIRE
1/4" X 3/4" X 4" CENTER SPAR PIECE
S-3 2 REQ'D.
S-2 6 REQ'D.
S-1 2 REQ'D.
APPROXIMATELY 9/16" RUDDER MOVEMENT
OVER CENTER SECTION WITH 1/16" MEDIUM SHEET
W-3
W-2
W-1
SH LINE
1/4" HARD BALSA DIHEDRAL BRACE W-6
ALL 1/8" SHEET
1/8" X 1/2" CROSS BRACES
1/8" SHEET
3/16" DIA. DOWEL
1/4" X 1/2" HARD BALSA CRUTCH
1/4" DIA. PULLEY
3/8" SHEET GUSSET
RUDDER HORN
TRIM TAB
1/4" SHEET
1/16" DIA. WIRE REINFORCEMENT
R-4
THIN BRASS OR ALUMINUM
1/4" SHEET
RECEIVER HOOKS 4 REQUIRED
W-3 22 REQ'D. 1/8" SHEET
W-3A
R-3
1/4" SQ.
3/8" SQ.
REAR RUBBER HOOK
LOOP FOR WINDER
R-2
R-1
1/16" SHEET
RUBBER LINE - ONE LOOP OF 1/4" FLAT, 15" LONG
1/8" X 1/4" DIAGONALS
1/4" SQ. LONGERONS
CLOTH HINGES
3/16" DIA. DOWEL
1/8" PLYWOOD
1/4" X 1/2" CRUTCH
1/8" X 1/2" UPRIGHTS
1/16" X 1/2"
SECTION "C"
1/16" DIA. MUSIC WIRE
3/16" DIA. DOWEL
1/16" DIA. MUSIC WIRE REAR HOOK
COVER WITH GAUZE & CEMENT WELL
1/8" X 3/8"
1 3/8" DIA. SPONGE RUBBER TAILWHEEL
RADIO RUDDER
W-2 2 REQ'D. 1/8" SHEET
BIND TAILWHEEL FORK ON
W-4 2 REQ'D. 1/8" SQ.
R-4
R-3
W-1 3 REQ'D. 3/16" SHEET
RUDDER RIBS T FROM 1/8" SHEET LY ONE OF EACH E REQUIRED.
R-2
1/8" PLYWOOD
W-5 1 REQ'D. 1/4" HARD SHEET
R-1
W-6 1 REQ'D. 1/4" HARD SHEET

DRAWN BY PAUL PLECAN

World's First 30-Minute Indoor Model

Here is "Pete" Andrews' own story of how he reached the goal of all indoor modelers for years—a half hour flight

A DECADE and a half ago a 30-minute flight with an indoor model was thought to be attainable "in the next year or two," but it has taken a long time, lots of hard work, and considerable improvement in the model airplane of 1934 to make the 30-minute flight an established fact.

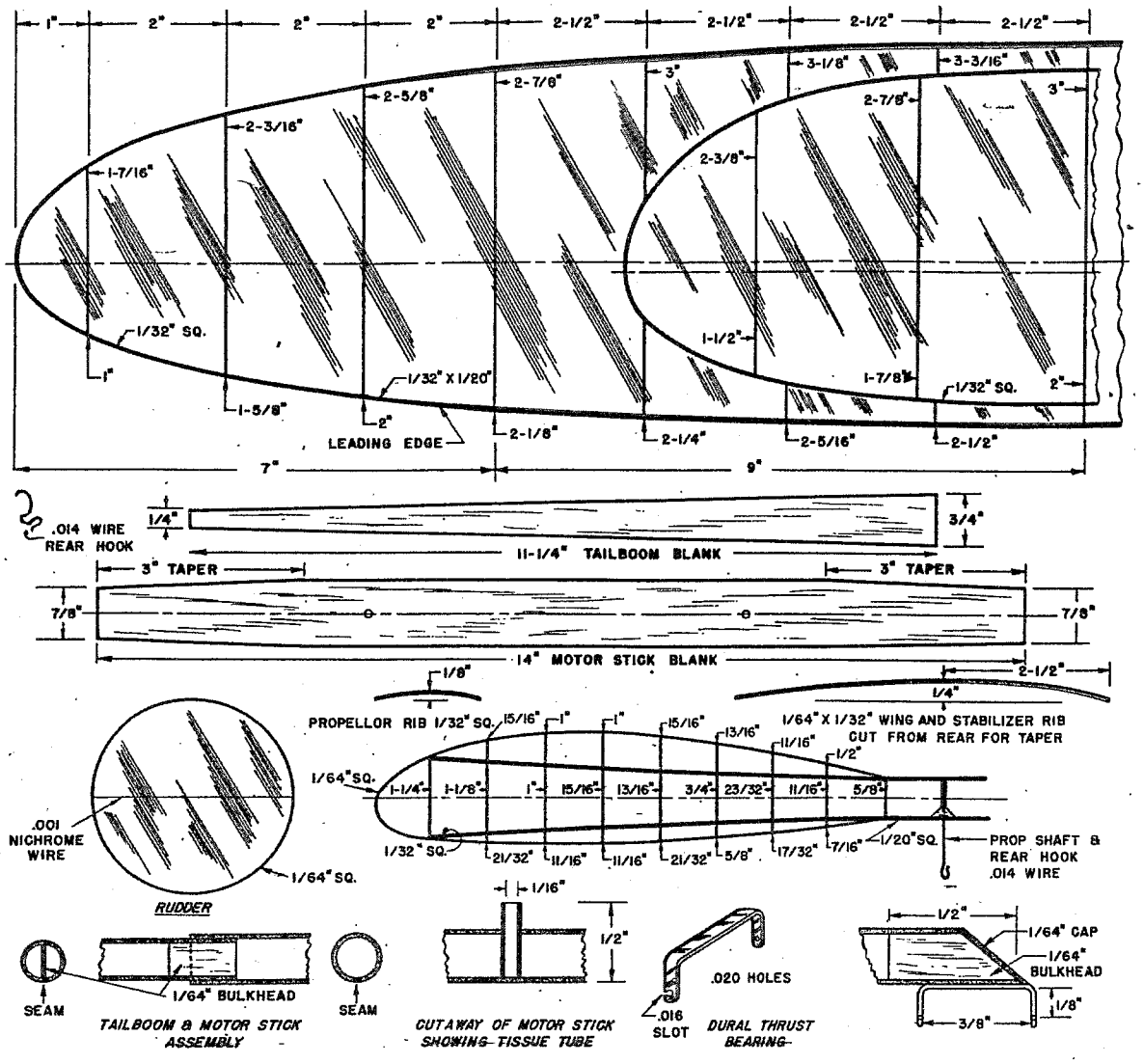
The contributors to this work are numerous. Special mention should go to those modifications first brought to my attention by Frank Cummings, well-known West Coast modeler and 1947 National Champion.

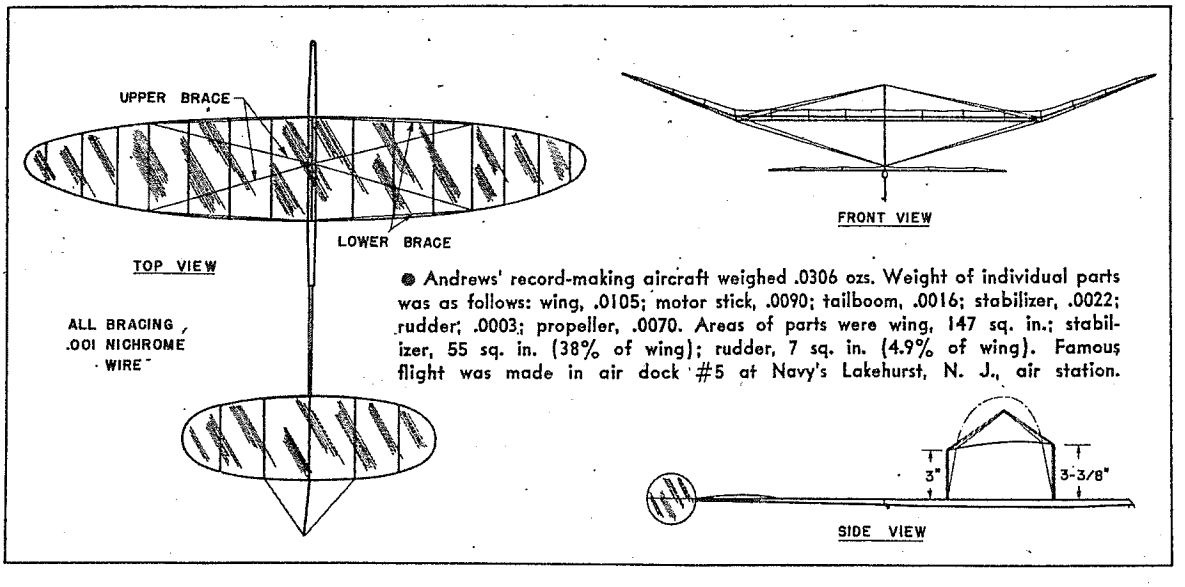
A few of the improvements since 1934 when Carl Goldberg did 22 minutes at Akron, O., include the circular cross-sectioned hollow motorstick with permanent sleeves for wing mounting. This motorstick tapers front and rear as viewed from the side for hook clearance. It is lighter, stronger, and assures a more positive wing adjustment. Another step forward was a modified type of wing bracing which enabled me to build a lighter, stronger wing with a more positive means of adjustment for torque control by loosening the glue holding the cross wires on top of wing and holding wing in the proper position while regluing.

Each record on file with the A.M.A. since 1934 attests the improved efficiency of the indoor model plane. Some of these records are Carl Goldberg's flight of 23 minutes in 1935, Mayhew Webster's 24 minutes that same year, Robert Jacobson's 25 minutes in 1936, my flights of 26 minutes in 1940 and 27 minutes in 1946, Frank Cummings' flights of 28 minutes in 1948 and 29 minutes in early 1949, then finally my flight of 32 minutes on August 14, 1949. The improvement is evident when you compare the total weight of .133 ounces for Carl Goldberg's 1934 plane with the ship described here, which has a total weight of .064 ounces.

Indoor models capable of exceeding thirty minutes were being flown in 1947.

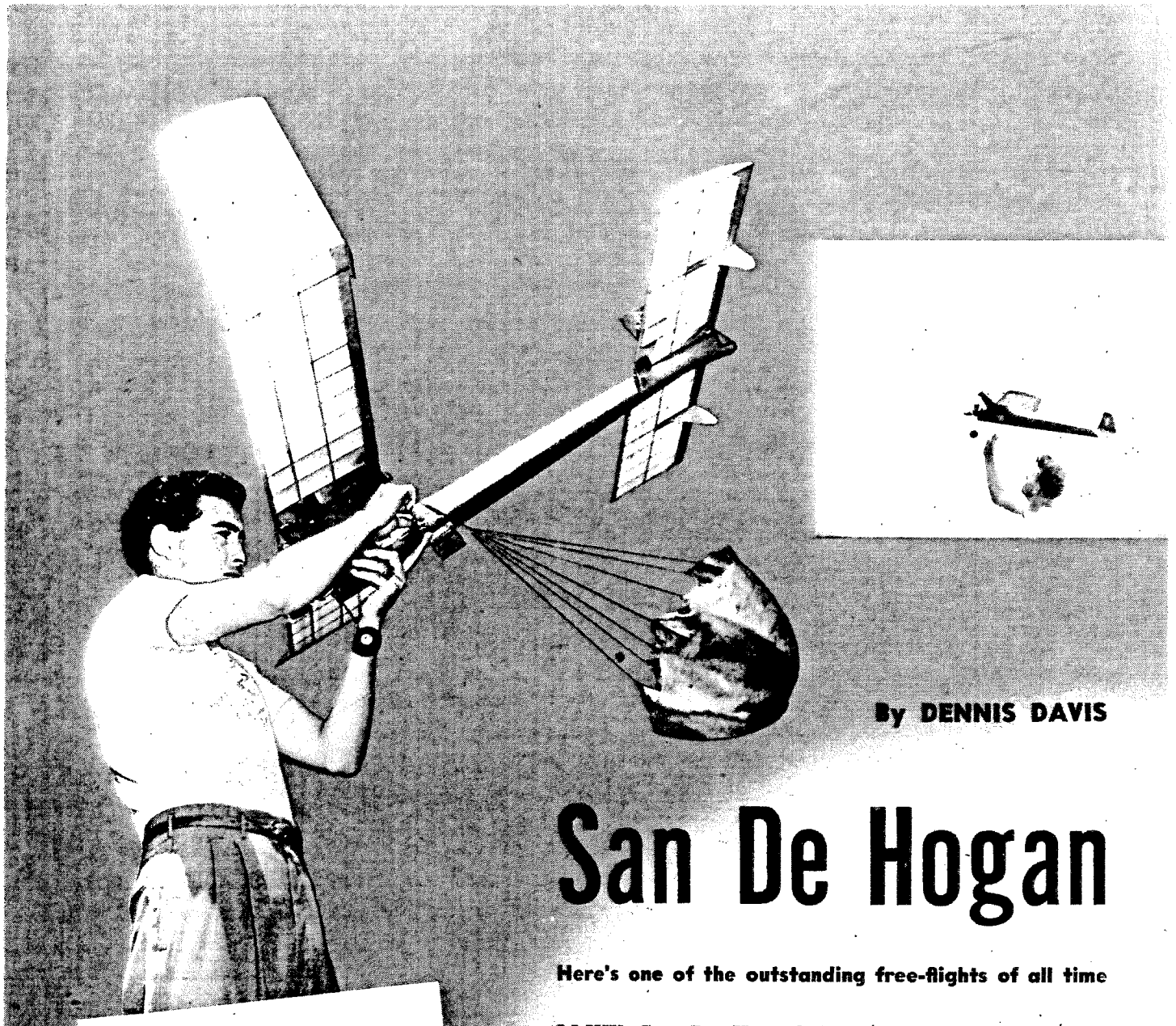
By MERRICK S. ANDREWS

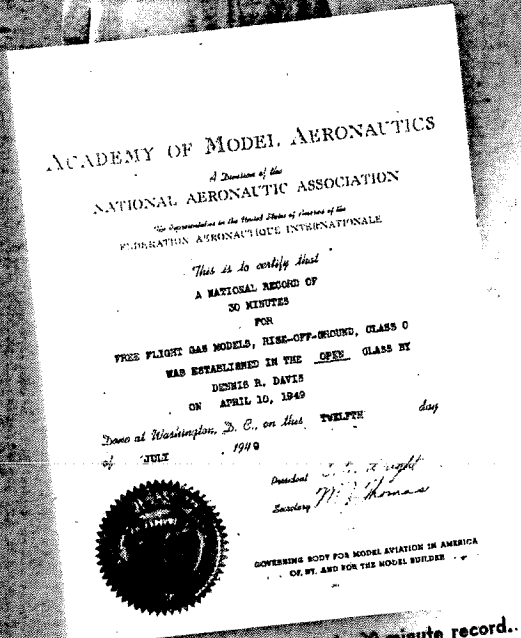




● Andrews' record-making aircraft weighed .0306 ozs. Weight of individual parts was as follows: wing, .0105; motor stick, .0090; tailboom, .0016; stabilizer, .0022; rudder, .0003; propeller, .0070. Areas of parts were wing, 147 sq. in.; stabilizer, 55 sq. in. (38% of wing); rudder, 7 sq. in. (4.9% of wing). Famous flight was made in air dock #5 at Navy's Lakehurst, N. J., air station.

◀ **Historic moment: Andrews launches his indoor model on its 32 min., 19 sec. record flight.**





ACADEMY OF MODEL AERONAUTICS

A Division of the

NATIONAL AERONAUTIC ASSOCIATION

The Representative in the United States of Membership of the

FEDERATION AERONAUTIQUE INTERNATIONALE

This is to certify that

A NATIONAL RECORD OF

30 MINUTES

FOR

FREE FLIGHT GAS MODELS, RISE-OFF-GROUND, CLASS C

WAS ESTABLISHED IN THE OPEN CLASS BY

DENNIS R. DAVIS

ON APRIL 10, 1949

Done at Washington, D. C. on this TWELFTH day

of JULY, 1949

President

Secretary

GOVERNING BODY FOR MODEL AVIATION IN AMERICA

OF, BY, AND FOR THE MODEL BUILDER

● A.M.A. certificate attests to 30-minute record.

By DENNIS DAVIS

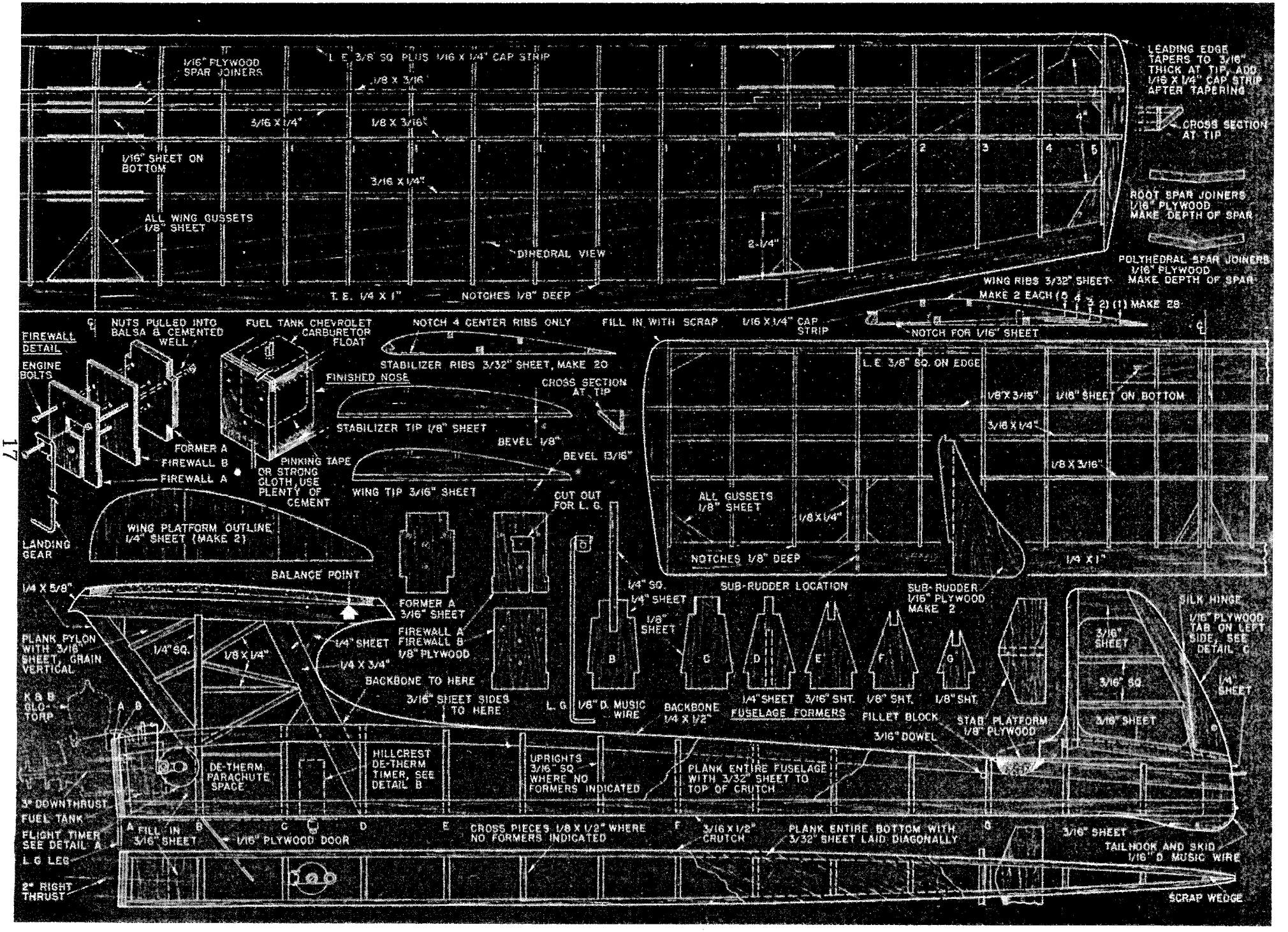
San De Hogan

Here's one of the outstanding free-flights of all time

WHY San De Hogan? It's a combination of "San Diegan" and Hogan—the latter inspired by a now famous local California disc jockey, the former handle in honor of the ship's hardy ancestors.

The job was designed, flown, rehashed and generally run through the mill before the plans presented here were drawn. An important contribution was the local all-year-round flying weather which made it possible to literally fly the dope off the ships; not only by me but by some promising young junior and senior modelers who gave the design a great deal of help and contest proving. The youngsters have done very well with the ship too—needless to say the design was arrived at largely with them in mind.

Consistent competition demands a lot of any model design with ruggedness a most important factor. Achieving strength yet light weight was *the* consideration which finally led to the finished, ready-to-build product presented here. A low-drag factor was achieved by incorporating a thin, flat undercamber wing section and a minimum fuselage profile with very small cross section. The low drag shows up in the climb, which incidentally is the ship's middle name. Altitude and hardware are synonymous with this baby. Install a hot .29, put in some preliminary test time, then start opening it up.


1/16" PLYWOOD SPAR JOINERS
L.E. 3/8 SQ PLUS 1/16 X 1/4" CAP STRIP
1/8 X 3/16"
3/16 X 1/4"
1/8 X 3/16"
1/16" SHEET ON BOTTOM
3/16 X 1/4"
ALL WING GUSSETS 1/8" SHEET
DIHEDRAL VIEW
2-1/4"
T.E. 1/4 X 1"
NOTCHES 1/8" DEEP
LEADING EDGE TAPERS TO 3/16" THICK AT TIP, ADD 1/16 X 1/4" CAP STRIP AFTER TAPERING
CROSS SECTION AT TIP
ROOT SPAR JOINERS 1/16" PLYWOOD MAKE DEPTH OF SPAR
POLYHEDRAL SPAR JOINERS 1/16" PLYWOOD MAKE DEPTH OF SPAR
WING RIBS 3/32" SHEET MAKE 2 EACH (5, 4, 3, 2) (1) MAKE 28
NOTCH FOR 1/16" SHEET
1/16 X 1/4" CAP STRIP
FILL IN WITH SCRAP
NOTCH 4 CENTER RIBS ONLY
STABILIZER RIBS 3/32" SHEET, MAKE 20
FINISHED NOSE
CROSS SECTION AT TIP
STABILIZER TIP 1/8" SHEET
BEVEL 1/8"
BEVEL 13/16"
WING TIP 3/16" SHEET
FIREWALL DETAIL
NUTS PULLED INTO BALSA & CEMENTED WELL
FUEL TANK CHEVROLET CARBURETOR FLOAT
ENGINE BOLTS
FORMER A
FIREWALL B
FIREWALL A
PINKING TAPE OR STRONG CLOTH, USE PLENTY OF CEMENT
LANDING GEAR
WING PLATFORM OUTLINE 1/4" SHEET (MAKE 2)
CUT OUT FOR L.G.
L.E. 3/8" SQ. ON EDGE
1/8 X 3/16"
1/16" SHEET ON BOTTOM
3/16 X 1/4"
1/8 X 3/16"
ALL GUSSETS 1/8" SHEET
1/8 X 1/4"
NOTCHES 1/8" DEEP
1/4 X 1"
BALANCE POINT
1/4 X 5/8"
PLANK PYLON WITH 3/16" SHEET, GRAIN VERTICAL
1/4" SQ.
1/8 X 1/4"
1/4" SHEET
1/4 X 3/4"
FORMER A 3/16" SHEET
FIREWALL A FIREWALL B 1/8" PLYWOOD
BACKBONE TO HERE
3/16" SHEET SIDES TO HERE
L.G.
1/8" D. MUSIC WIRE
1/4" SQ.
1/4" SHEET
1/8" SHEET
BACKBONE 1/4 X 1/2"
SUB-RUDDER LOCATION
FUSELAGE FORMERS
1/4" SHEET
3/16" SHT.
1/8" SHT.
1/8" SHT.
SUB-RUDDER 1/16" PLYWOOD MAKE 2
FILLET BLOCK
3/16" DOWEL
STAB PLATFORM 1/8" PLYWOOD
SILK HINGE
1/16" PLYWOOD TAB ON LEFT SIDE, SEE DETAIL C
3/16" SHEET
3/16" SQ
3/16" SHEET
1/4" SHEET
K & B GLO-TORP
A B
DE-THERM. PARACHUTE SPACE
HILLCREST DE-THERM TIMER, SEE DETAIL B
UPRIGHTS 3/16" SQ WHERE NO FORMERS INDICATED
PLANK ENTIRE FUSELAGE WITH 3/32" SHEET TO TOP OF CRUTCH
3° DOWNTHRUST
FUEL TANK
FLIGHT TIMER SEE DETAIL A
L.G. LEG
2° RIGHT THRUST
A FILL IN 3/16" SHEET
B
C 1/16" PLYWOOD DOOR
D
E CROSS PIECES 1/8 X 1/2" WHERE NO FORMERS INDICATED
F 3/16 X 1/2" CRUTCH
PLANK ENTIRE BOTTOM WITH 3/32" SHEET LAID DIAGONALLY
G
3/16" SHEET
TAILHOOK AND SKID 1/16" D MUSIC WIRE
SCRAP WEDGE

ESTABLISHED 1931

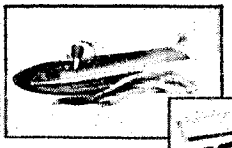
America's Hobby Center is the country's LARGEST motor and gas model headquarters.

LARGEST HOBBY MAIL ORDER FIRM IN AMERICA

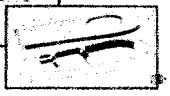
COMPLETE SPEED BOAT OUTFIT

Here is a real buy for racing-boat enthusiasts. You get a complete outfit: The new Scientific "Buckeye" torpedo-type speedboat which is completely prefabricated with a ready-carved hull and top deck: 17" long, 5" beam. Can easily be built in one evening . . . AND a fine motor . . . AND all accessories—everything you need to build and operate the boat. Actually clocked at 40 m.p.h. in test runs!

THE COMPLETE OUTFIT, AT ABOUT ONE-HALF THE ACTUAL COST IF THE ITEMS WERE BOUGHT SEPARATELY!!



takes one evening to construct



the NEW "BUCKEYE" Speedboat

with choice of:

GENIE OR JUDCO Engines, $11.95

with choice of:

THOR OR OHLSSON Engines, $14.95

HERE IS WHAT YOU GET:

1. Your choice of four well-known engines.
2. Fuel tank.
3. Champion spark plug.
4. Complete engine instructions.
5. Wilco Quality coil.
6. High tension wire.
7. 18" insulated ignition wire.
8. Everlast condenser.
9. Metal battery box.
10. 4 mounting bolts.
11. 4 mounting nuts.
12. Coil holder.
13. Wiring lugs.
14. Motor cover.
15. Plug gauge set.
16. No. 70 motor oil.
17. 50 page book: Gas Engine Theory.
18. 3-way spark plug wrench.
19. Ignition slide switch.
20. "Buckeye" speed boat kit.
21. Full size simplified boat plans.
22. Sandpaper.
23. Brass stuffing box.
24. Prop shaft (boat) tubing.
25. Universal coupling.
26. Engine flywheel.
27. Washers & hardware.
28. Die cast 2 bladed prop.
29. Riddle mount.
30. Adjustable engine mounts.
31. Casein waterproof glue.
32. Black & Gold decals.
33. Numerals.
34. Complete instructions.
35. Membership in the Modelcrafters of America.
36. Postage.
37. Insurance.
38. Packing.
39. Full A. H. C. Guaranty.
40. 24 page Giant Hobby Catalog.

COMPLETE RACE CAR OUTFIT

Everyone is racing the new Thimbledrome race car, the little 10" model that cannot be beaten for realism, craftmanship, speed and lasting pleasure. Speeds from 15 to 70 miles per hour. You can race this car in a sidewalk-yard or any small, level space.

COMPLETE OUTFIT AT ABOUT 2/3rds THE ACTUAL COST IF ITEMS WERE PURCHASED SEPARATELY!!

with BUZZ $10.50

with OHLSSON $15.50 (both glo engines)

HERE IS WHAT YOU GET:

1. Your choice of two well-known engines, ready to run.
2. Go plug for new, ignitionless engine operation.
3. Metal fuel tank.
4. Neoprene gas line.
5. Complete engine instructions.
6. Battery connecting wire.
7. Mounting bolts.
8. Mounting nuts.
9. Motor cover.
10. Pamphlet on glo fuels.
11. Plug wrench.
12. Thimbledrome race car engineer.
13. Complete instructions for installing and running engine.
14. Motor mounting bracket.
15. Flywheel.
16. Yoke.
17. Tether cord.
18. Membership in Modelcrafters of America.
19. Postage.
20. Packing.
21. Insurance.
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Everything you will need except a 4½ volt battery, fuel and a small file for cutting away parts of the body to install the engine. In addition, mounting and motor shaft holes must be drilled.

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BUZZ CO2 ENGINE (includes refillable tank, capsule charging unit). Costs only 2c per flight to run. Choice of Cavacraft Stinson or Ercoupe kits with all parts Cava-Cut (kits are completely prefabricated, ready to assemble).

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O.K. CO2 ENGINE (largest CO2 engine made) with choice of Megow CO2 Special (completely ready to fly—no gluing) or the contest CO2 Powerhouse kit.

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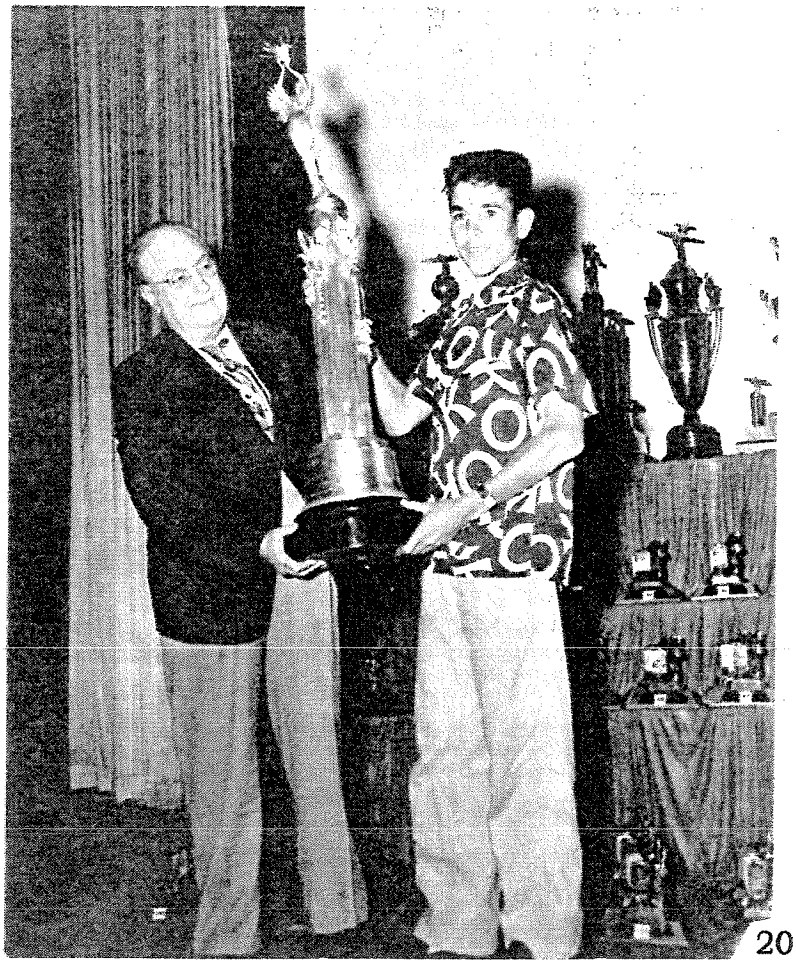
Detroit club takes the team title and a Californian walks away with the National Championship; meet suffers worst weather in history

The

Navy's Blue Angels stunt team roars overhead in diamond formation. Crack aerobatic unit flew last show at the Nationals; members were ordered to Korea with their F9F Grumman Panther jets.

A/2 PAA-Load winners: J. Greenspan, Brooklyn, 3rd; F. Ehling, Jersey City, 1st; G. Gardner of Pan-Am; D. Daugherty, Tulsa, 2nd.

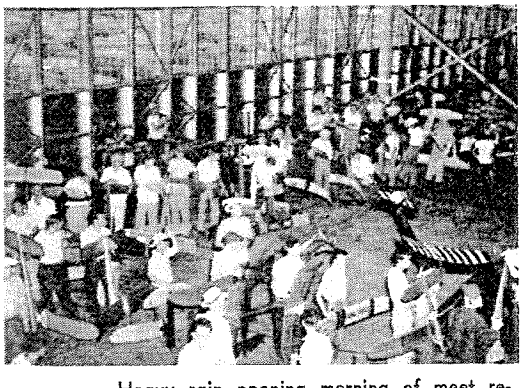


Heavy rains or 20-30 mph winds harassed more than 900 contestants all during meet. Wind was strongest on day of Half-A free flight.

Fifteen-year-old Leslie Bartlett of San Diego, Calif., shown left with Herold M. Harter, national secretary of The National Exchange Club, won the 1950 National Championship award with 31 point total. Runner-up was Jim Lempke, also 15, from Detroit, 27 points.

National Championships

At last—an "Oscar" for modeling! This distinctive award went to 1st, 2nd, 3rd placers.



Heavy rain opening morning of meet resulted in processing inside the work hangar.

Top team in 19th annual National Championships was from Detroit, Mich., Balsa Bugs club. Five men were permitted to compete as team from any A.M.A. chapter club. These flyers brought home the bacon (from left): Carl Redlin, Erwin Rodemsky, Bob Bienenstein, Paul Simon and Jim Lempke. Jim almost got individual Nat. Champ. too.

■ The 1950 National Championship Model Airplane Contest—the mid-century "Nationals" and the 19th such competition — almost wasn't held. It was set up to be run off at the Dallas, Texas, Naval Air Station July 25 through 30 before the Korean conflict flared up. By July 25th every Navy base in the country except Dallas NAS had been closed to the public. So to the Navy goes great credit for the 19th Nats, the nearest thing to a "wartime" championships model aviation has ever had.

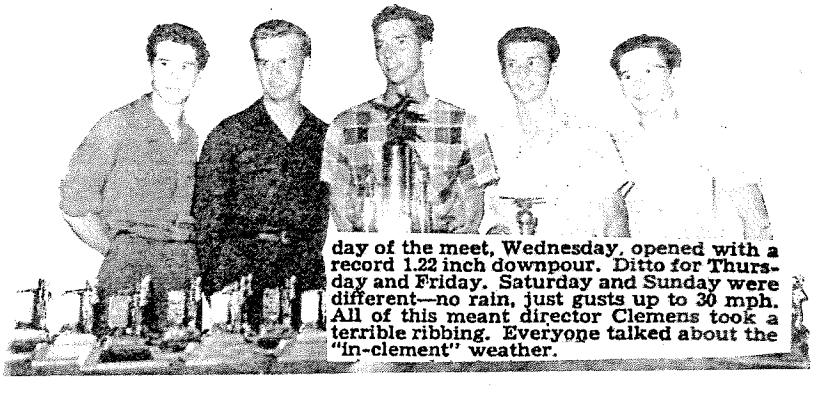
The 1950 contest was the first to take place in the Southwest section of the U. S. Previous meets have been conducted at Detroit, Dayton, Atlantic City, New York City, Akron, St. Louis, Chicago, Wichita, Monticello, Minn. and Olathe, Kansas.

Sponsored by the Downtown, Oak Cliff, North Dallas-Park Cities and East Dallas, Texas, Exchange Clubs. the outdoor events were run off at the Dallas Naval Air Station; the indoor events at the Will Rogers Memorial Coliseum in Fort Worth. No previous "Nats" have had a more loyal crew of hard-working officials.

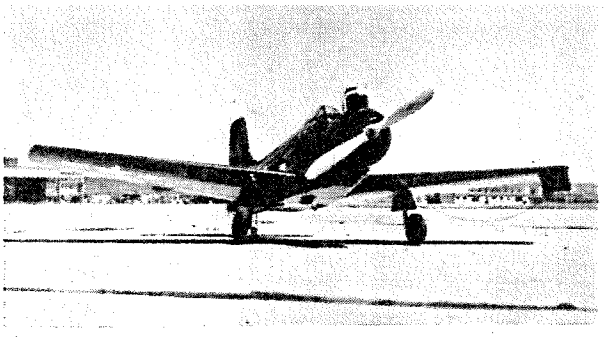
John E. Clemens directed the meet; J. D. Dickey was chairman of the Exchange's executive committee; Capt. Hugh R. Nieman, Jr., CO of the Naval Station, represented the Navy.

When all the flying was ended Leslie Bartlett, 15, of San Diego, California was crowned National Champion, and the Detroit Balsa Bugs were declared the Champion Club. Between registration on the 25th and the victory dinner on the 30th there was considerable activity —but only because 900 entrants who filed more than 2,900 entries in the 70 events were determined to fly at the National Meet come hail or high water.

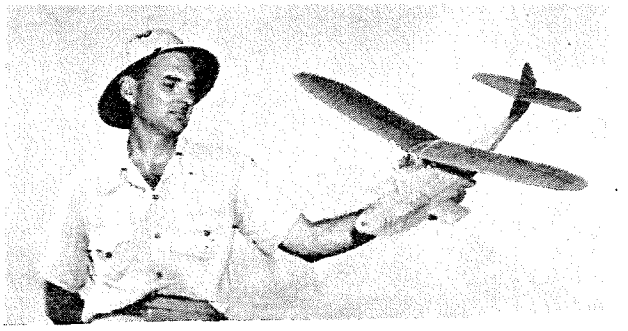
Frankly, flying conditions were terrible. The weather bureau reported there'd been no rain during the same period for 15 years; yet the first *(Continued)*



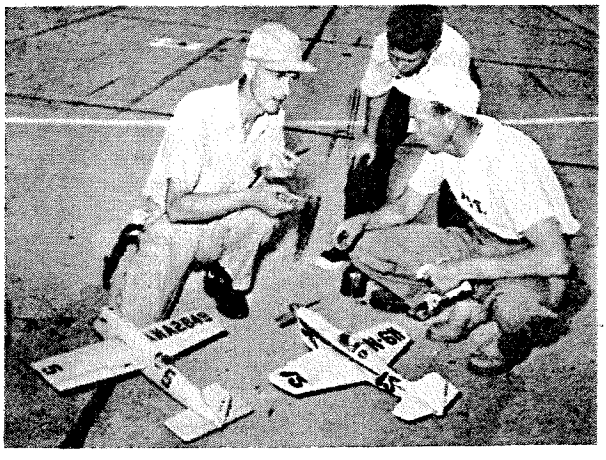
day of the meet, Wednesday, opened with a record 1.22 inch downpour. Ditto for Thursday and Friday. Saturday and Sunday were different—no rain, just gusts up to 30 mph. All of this meant director Clemens took a terrible ribbing. Everyone talked about the "in-clement" weather.



Winner of Navy's carrier event was Douglas AD-2 model by Calhoun Smith. Has 2-speed ignition O&R 60, 43½ in. span, ⅞ in. to ft.



Bob Holland, '48 Nat. Champ, holding Art Snyder's Wasp-powered seaplane. Ship weighs 7 oz., has 150 sq. in. of wing area, reports Bob.



Team racers Frank Manley (left) of Manley & Hudson combo and Rudy Panko compare props. Rudy placed 2nd, M&H team 3rd.

K&B's Lud Kading with "Gnats." Without engine one on left weighs 2 oz., has done 17 mins. with .02 infant. Boasts 21 sq. in. area.

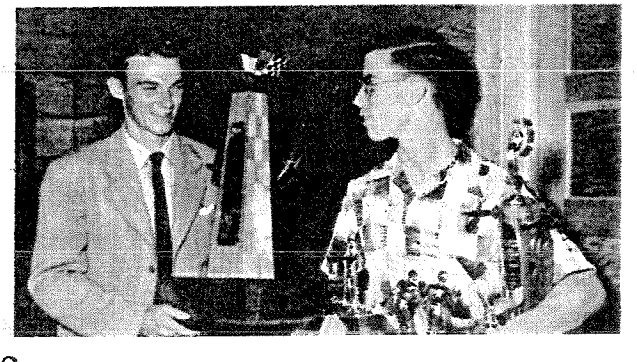
Charlie Bothner, Rutherford, N. J., with enclosed Dyna-Jet; has battered 150.

Contest director Johnny Clemens (left), originator of "in-clement" weather, with Don Murray, indoor dir.

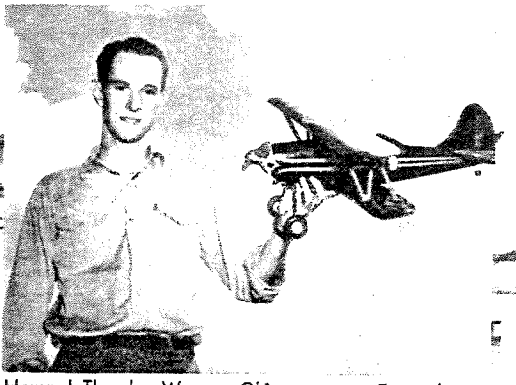
Bill Krecek, a San Valeer from Calif., flew this 240 sq. in. rubber canard job.

Indianapolis' Gene Foxworthy (left) took radio control event with Citizenship r-c unit by V. C. McNabb (rt.) in "Hoosier Hot-Shot."

Keith Storey (left) on behalf of California's F.A.S.T. club presents team racing trophy to winner Donald Post, Glen Rock, N. J.

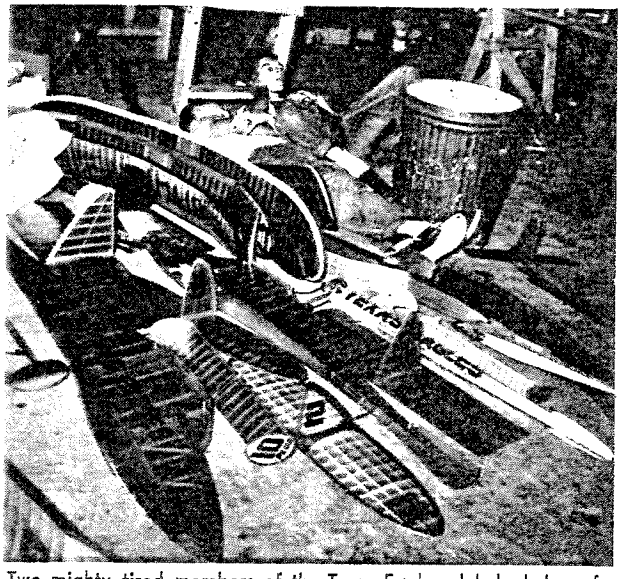


Bryant A. Thompson of Keesler, Miss., AFB returned for 2nd year with his B-17G four-engined flying scale entry. He took 3rd in Senior Class. Air Trails sponsored 1st, 2nd, & 3rd place flying scale awards.



Howard Thombs, Warren, Ohio, won new Testor best-finish perpetual trophy with semi-scale bipe. Plane has K&B 32 Glo-Torp, 325 sq. in. of wing area, weighs 21 oz.

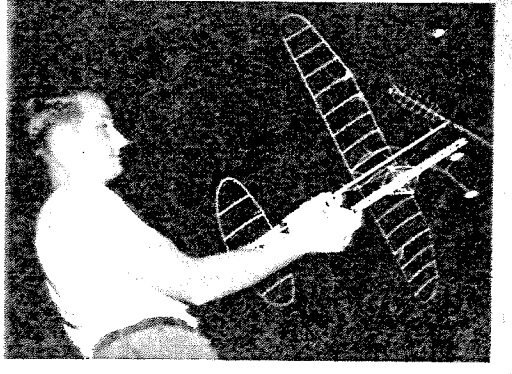
Claude McCullough, noted free flighter from Ottumwa, Iowa, gets one away between the showers which plagued flyers.

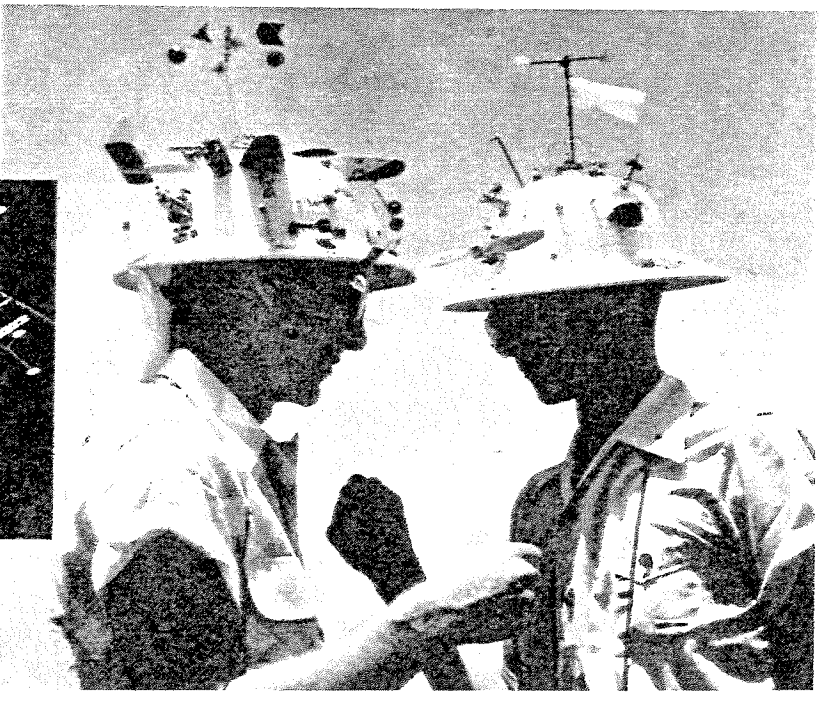


Two mighty tired members of the Texas Eagles club bed down for quick shut-eye after some late repair work. Navy set aside big hangar where contestants worked all night building and repairing.

Dale Kirn's B-25 won 1st in Senior Class U-control flying scale. He's from Salina, Kan., flew same ship in '49. Plane is built from a Cleveland kit, has great detail. Insert shows twin-engine entry flying.

Ervin Shaw (left) & Milton Moise, both of Sumter, S. C., sported meet's most unique headgear. Carl Rambo (below), Oakland, Calif., won indoor stick event in open class with 19:24.1. He holds cabin which replaced stick; 148 sq. in. stick weighed .036 oz.





OFFICIAL 1950 NATIONALS WINNERS

NATIONAL CHAMPION
Leslie Bartlett, San Diego, California

JUNE PIERCE MEMORIAL AWARD
Jim Wilmes, St. Charles, Missouri

BONEHEAD AWARD
Roy Carter, Jr., Dallas Exchange Club

CLUB CHAMPIONS
Detroit Balsa Bugs

INDOOR STICK

Open—1. Carl Rambo 19:24.1; *2.* Joseph Foster 18:29.0; *3.* Robert Bienenstein 18:22.9. *Sr.—1.* Ronald Plotzke 20:13.4; *2.* Paul Simon 19:15.0. *3.* Erwin Rodemsky 18:53.0. *Jr.—1.* Jim Lempke 10:53.0; *2.* Roger Barron 4:33.0; *3.* Gene Jackman 3:58.0.

INDOOR CABIN

Open—1. Joe Bilgri 16:10.0; *2.* Joseph Foster 16:00.0; *3.* Robert Bienenstein 14:46.2. *Sr.—1.* Charles Hallum 15:21.0; *2.* Carl Redlin 14:12.4; *3.* W. R. Ehrlich 12:10.0. *Jr.—1.* Jim Lempke 8:36.4; *2.* Roger Barron 1:10.0.

INDOOR H-L GLIDER

Open—1. Frank Garcher 0:56; *2.* Joseph Foster 0:53; *3.* Joe Kehr and Carl Rambo (tie) 0:50. *Sr.—1.* D. Rushing 0:50; *2.* Paul Simon 0:47; *3.* W. R. Ehrlich 0:45. *Jr.—1.* Earl Haggard 0:42; *2.* Jim Lempke 0:40; *3.* Curtis Minier 0:39.

FREE FLIGHT GAS CLASS ½A

Open—1. Ted and Mary Samuelson 12:24.8; *2.* William C. deLorme 10:00.0; *3.* George Chapman 9:33.3. *Sr.—1.* John Voedisch 8:47.3; *2.* Erwin Rodemsky 6:24.4; *3.* Robert Parker 6:14.4 *Jr.—1.* Harry Bratton 10:07.9; *2.* Clifford Green 7:00.6. *3.* Leslie Bartlett 6:13.3.

FREE FLIGHT GAS CLASS A

Open—1. Dennis Davis 18:09.0; *2.* Wallace Short 14:17.2; *3.* Frank Lilly 13:14.2. *Sr.—1.* D. F. Huffhines 14:17.0; *2.* Don Murray 13:40.3; *3.* Allen Johnson 13:16.1. *Jr.—1.* Jim Jorski 10:51.8; *2.* Leslie Bartlett 9:09.3; *3.* John Rieker 6:58.5.

FREE FLIGHT GAS CLASS B

Open—1. Joseph Foster 26:11.4; *2.* Ernie Shailor 21:50.3; *3.* Dennis Davis 21:49.1. *Sr.—1.* Norval Hale 18:42.2; *2.* Bill Ballowe 16:21.4; *3.* Jim Kohls 15:57.5. *Jr.—1.* Leslie Bartlett 18:21.8; *2.* Gene Jackman 10:16.3; *3.* Jim Jorski 9:41.3.

FREE FLIGHT GAS CLASS C

Open—1. James H. Ripkin 18:45.7; *2.* Donald Butcher 18:41.0; *3.* Ernie Shailor 18:25.0. *Sr.—1.* Jack Emery 23:20.0; *2.* Bert Parker 16:41.0; *3.* Don Raines 15:50.2. *Jr.—1.* Leslie Bartlett 14:06.5; *2.* Paul Bunch 13:33.4; *3.* Gene Jackman 13:13.3.

CONTROLINE SPEED CLASS A

Open—1. Massey-Hall (team) 113.88; *2.* Harold deBolt 112.74; *3.* Thomas Jones 112.46. *Sr.—1.* Eugene Stiles 108.39; *2.* Mark Brown 107.10; *3.* Phillip Laney 105.84. *Jr.—1.* Warren Tomme 116.84; *2.* Bud Ramsey 109.71; *3.* Peter Todd 108.39.

CONTROLINE SPEED CLASS B

Open—1. Tony and Stanley Grish 137.88; *2.* Thomas Jones 124.09; *3.* Manley-Hudson (team) 123.58. *Sr.—1.* Philip Laney 121.57; *2.* Fred Clark 119.95; *3.* (tie) Thomas Rieckeen and Eddie Schwarz 116.84. *Jr.—1.* Leslie Alford 123.24; *2.* Jim Price 121.57; *3.* Warren Tomme 119.16.

CONTROLINE SPEED CLASS C

Open—1. Lew Mahieu 135.28; *2.* Hall-Massey (team) 128.50; *3.* Manley-Hudson (team) 126.71. *Sr.—1.* Jack Friedland 125.56; *2.* Val Jean Feist 124.95; *3.* Raymond Shearer 124.95. *Jr.—1.* Warren Tomme 125.82; *2.* Jimmy Price 115.56; *3.* Larry Weare 110.39.

CONTROLINE SPEED CLASS D

Open—1. J. Warden 142.24; *2.* Thomas Baker 141.60; *3.* Harold deBolt 140.90. *Sr.—1.* Eugene Stiles 147.48; *2.* Mark Brown 143.94; *3.* Raymond Shearer 141.34. *Jr.—1.* Peter Todd 139.48; *2.* Larry Weare 128.89; *3.* Jimmy Price 128.52.

CONTROLINE SPEED-JET

Open—1. Thomas Baker 138.41; *2.* Phil Baker 138.41; *3.* Charles Bothner 132.30. *Sr.—1.* Colin Keys 130.38; *2.* Dale Kirn 130.38; *3.* Jack Gouvermeur 128.52. *Jr.—1.* Ken Mattingly 123.24; *2.* Caesar Fulton 121.57; *3.* Donald Farage 111.07.

CONTROLINE FLYING SCALE

Open—1. George Adams 179; *2.* Richard Moorehead 148; *3.* Stephen Smith 143. *Sr.—1.* Dale Kirn 187; *2.* J. Clevenger 182; *3.* Bryant Thompson 126. *Jr.—1.* Raymond Baker 64; *2.* John Jacobs 50; *3.* Mickey Muening 46.

TOWLINE GLIDER

Open—1. Harold Gauger 11:40.0; *2.* Raymond Good 8:12.8; *3.* J. J. Beasley 7:09.1. *Sr.—1.* Murray Feigenbaum 11:50.6; *2.* James Casper 10:37.3; *3.* Harry English 9:52.4. *Jr.—1.* Leslie Bartlett 5:53.0; *2.* Earl Haggard 4:32.0; *3.* Curtis Minier 3:03.8.

CO2

Open—1. Joseph Elgin 18:02.7; *2.* Frank Garcher 10:16.4; *3.* Frank Ehling 8:47.8. *Sr.—1.* Richard Culp 7:07.4; *2.* Billy Jaggers 4:04.8; *3.* Edward Mate 4:04.8. *Jr.—1.* Judson Stone 4:10.0; *2.* Leslie Bartlett 2:18.7.

STUNTS

Open—1. L. J. Andrews 418; *2.* Bob Palmer 391.5; *3.* Harold deBolt 362. *Sr.—1.* Donald Ferguson 390; *2.* Don Still 371; *3.* Charles Mullins 347. *Jr.—1. Mickey Muening* 350.5; *2.* Caesar Fulton 321; *3.* Melvin Wartenbe 315.6.

RADIO CONTROL

1. Gene Foxworthy 120.5; *2.* James Schenck 113; *3.* George Trammel 110; *4.* E. Paul Johnson 82; *5.* Jim Walker 77.

R. O. W.

Open—1. Keith Kreigh 10:59.2; *2.* Hubbard-Collins (team) 9:43.2; *3.* Joseph Foster 5:57.0. Sr.—*1.* Paul Simon 5:46; *2.* Bill Fox 5:11; *3.* Norval Hale 2:31. *Jr.—1.* Jerry Boughnour 1:30.

OUTDOOR H-L GLIDER

Open—1. Robert Bienenstein 5:13.3; *2.* Dick Everett 4:17.8; *3.* G. W. Patrick 3:23.4. *Sr.—1.* D. Rushing 3:21.7; *2.* Gerald Turner 3:21.0; *3.* Carl Hallum 2:59.4. *Jr.—1.* Don Tune 9:31.1; *2.* Jim Lempke 2:34.3; *3.* Bob Gelvin 2:05.5.

PAA-LOAD CLASS ½A

1. Frank Ehling 13:16.4; *2.* Dan Dougherty 4:27.4; *3.* Jack Greenspan 4:06.9.

PAA-LOAD CLASS A

Open—1. Raymond Mathews 10:24.1; *2.* Joe Bilgri 9:29.1; *3.* Richard Sladek 8:35.8. *Jr.-Sr.—1.* Jim Neal 12:46; *2.* Paul Simon 7:20; *3.* Lester Smith 6:06.

PAA-LOAD CLASS B

Open—1. Joseph Foster 10:20.8; *2.* James Ripkin 9:32.2; *3.* Joe Bilgri 6:13.7. *Jr.-Sr.—1.* Gordon Hilton 12:24.7; *2.* Herbert Watson 8:09.2; *3.* Bob Dever 6:36.7.

FREE FLIGHT RUBBER STICK

Open—1. Dick Everett 17:26.1; *2.* Robert Dunham 16:01.1; *3.* Carl Lindsey 14:53.2. *Sr.—1.* Charles Hallum 17:50.0; *2.* Carl Redlin 17:13.4; *3.* W. R. Ehrlich 9:29.0. *Jr.—1.* Jim Lempke 6:08.0; *2.* Don Tune 5:00.7; *3.* Melvin Wartenbe 4:20.4.

FREE FLIGHT RUBBER CABIN

Open—1. Dick Everett 15:23.3; *2.* Joseph Foster 15:07.0; *3.* Thomas Quermann 14:26.1. *Sr.—1.* Charles Hallum 14:25.6; *2.* Carl Wheeley 9:32.6; *3.* A. E. Walloch 8:48.8. *Jr.—1.* Leslie Bartlett 9:40.7; *2.* Jim Lempke 5:47.6; *3.* Don Tune 3:22.3.

FREE FLIGHT RUBBER SCALE

Open—1. Paul Gilliam 243.8; *2.* Edward Stall 239.1; *3.* Thomas Quermann 238.5. *Sr.—1.* James Casper 204.5.

TEAM RACING

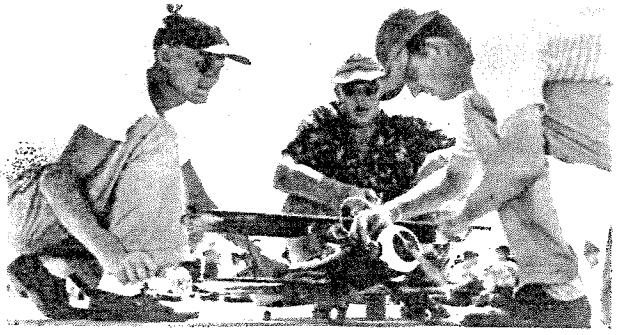
1. Donald Post; *2.* Rudy Panko; *3.* Manley and Hudson (team).

NAVY CARRIER

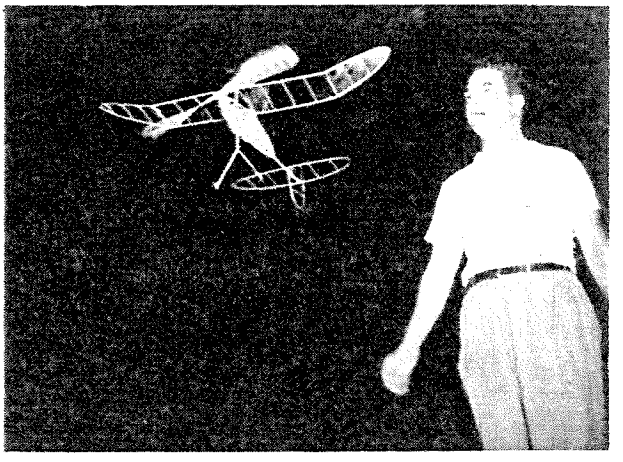
1. Cal Smith 370.46; *2.* Don McKercher 200; *3.* Harry Harper 157.84.

National Championships

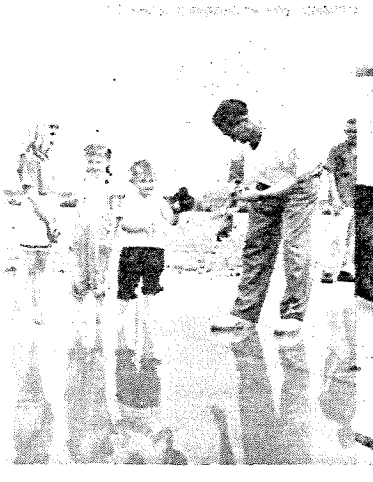
Dick Everett, San Diego, Calif., gets ROW underway. Keith Kreigh won event with 10:59.2 time. Heavy wind made take-off tough.



Richard Moorhead, Houston, Tex., with his 2nd place Waco in control-line flying scale, open class. George Adams, Phila., was 1st.



Dave Call, Phila., Pa., flies his national-record-holding Cl. C cabin job at indoor events held in Ft. Worth. Ship has done 24 min. plus.



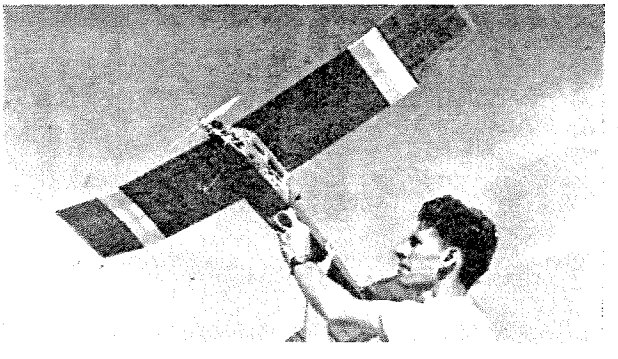
Jim Walker, daddy of U-control, brings out the young spectators—rain or shine.

Veco's Bob Palmer (rt.), outstanding stunt man despite hand injury, took 2nd in open category.

Frank Zaic (rt.) winding rubber stick job, lost tail-surfaces en route, had to rebuild.

Rubber-powered flying scale entries were few. Two fine ones were L-5 (left) by Ed Stoll, Detroit; Feisler Storch by Dick Overman, NYC.

Ray Matthews, CAA instructor from Oklahoma City, racked up 1st place in PAA-Load. His "Crowbar" did 10:24.1 with Arden .199.



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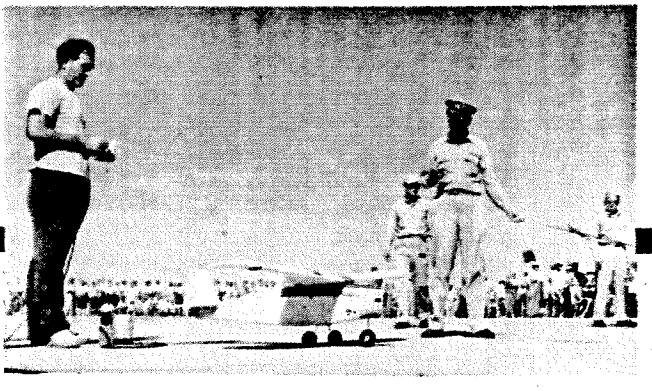
WALKER

—the man of many wonders

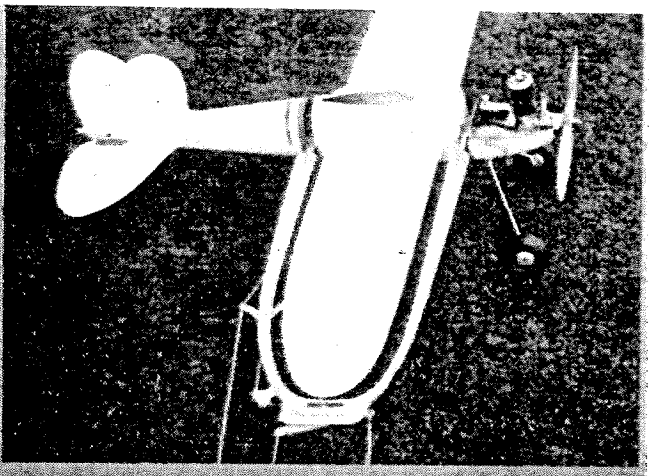


Many-time winner of U.S. radio control championship, Walker starts take-off with 1950 entry; Jim's R/C stunt lawnmower (below) has amused thousands and is popular part of his show. The power mower can turn on dime, runs between JW's legs.

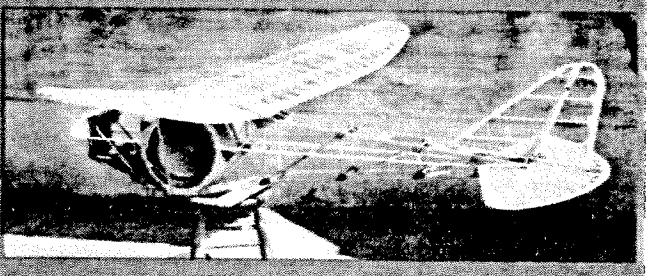
Jim utilizes trailer for his flying demonstrations; his "tractor" is sleek Buick Skylark here at Mitchel AFB.

Although Jim Walker of Portland, Ore., did not invent the model airplane, he has done more to popularize air-modeling than anyone else in the world. While his contributions to the sport are many, probably his greatest was the introduction of control line flying, or U-Control as he called it. Yet we must not overlook the countless thousands of modelplane fans who started out with one of Jim's A-J gliders or rubber models. Or the fellows who went into radio control because the peerless model pilot from Portland made it look like so much fun.

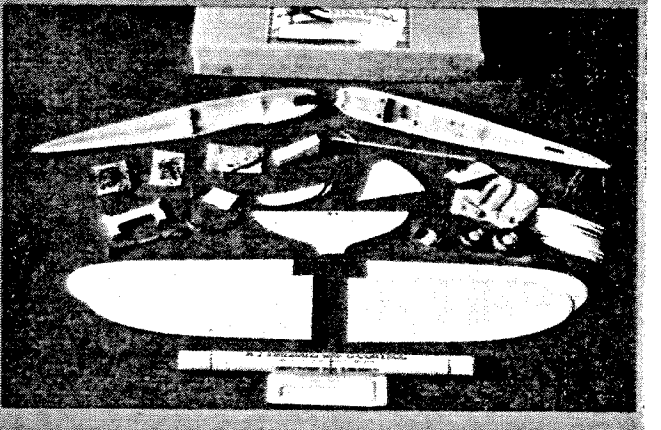
On further thought let's agree that Jim Walker's major air-modeling contribution is and has been that he makes the hobby-sport look like real fun . . . watch Jim perform at his one-man air show. He convinces everybody that here's a guy who's having a swell time.



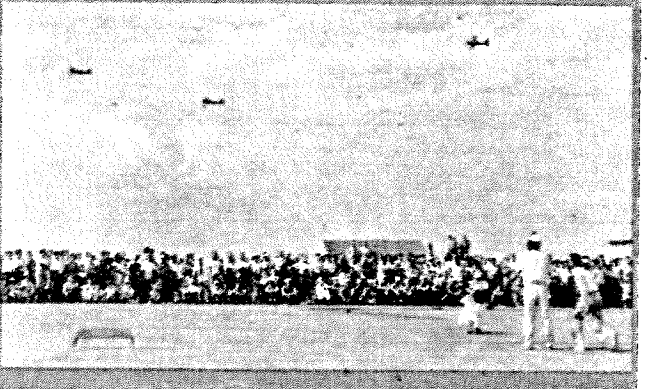
Among Walker's many fascinating projects: U/C ship that barrel-rolled. Wing and fuselage center revolved.



Jim's sonic-controlled glider received world-wide publicity. In country cow's moo jammed the receiver!



Not only did "Mr. A-J" invent U-control, he made the first prefabricated kit. Here, an early Fireball.



Walker's greatest crowd-pleaser: flying three U/C Fireballs at once. His helmet (see upper left) guides one.

MIDDAY throngs at meet see (top, left) cleared free flight area and end of U-control runway with tiny circles for A/2's. Top, right scene is portion of speed circles; stunt was flown at far right. U-control area was ½ mi. long.

BEAUTY event entries included John Janesik's O&R 23 powered "Pete" (A) and O&R 23 Polish fighter (B) by Bill Hawkes. John's from NYC, Bill from Phila. Half-A speedster (C) is Baby Spitfire job by Dick Distefano, Brooklyn.

Mirror's 5th Fair

■ Biggest one-day meet of its kind in the world is the New York "Mirror's" annual Model Flying Fair held at Grumman Airport, Bethpage, L. I. This June's competition saw exactly 1,000 entrants flying for more than $12,000 in prizes which included a two-year scholarship to the Academy of Aeronautics, NYC.

The meet is restricted to the first thousand who sign up. Those who register but do not appear by 8 A.M. the morning of the meet are replaced by "post entrants." So vast an operation is the MMFF, it actually functions as six separate meets, each under the jurisdiction of a contest director, with Tom Herbert of White Plains, N. Y. serving as the overall master-mind as far as the modeling side of the occasion is concerned.

In addition to top model builders from 19 states, Canada and DC, the Fair offered to the spectator an outstanding full-scale show which included a sailplane stunt act by Capt. Kim Scribner, national soaring aerobatic champ, Rodney Jocelyn, 1950 international stunt champ, and Bob McComb—McComb flying a special PT-17 and Jocelyn a rebuilt and reworked Great Lakes. Unusual but refreshing sights included clown acts, trick bicycle riding, a crack high school band and daylight fireworks. But for the modelers, the competition which began at 6 A.M. and ran till 3 P.M. was the thing.

An unusual feature of the meet was the special handicap system set

WINNER of Air Trails award in B speed event is William Goodhart, N. Y. C., 119.4 mph in face of 35 mi. wind.

FIRST entrant in line morning of meet was John Thompson, Bronx, N. Y., who arose at 1 A.M. to get credentials at 6:03 A.M. Other "early birds" in registration line (rear).

JETEX original flyer shown with its builder John Janesik who also entered "Pete"; "Mirror" pioneered in A/2 free flight and speed contests.

SECRET entry was the AT-6 (D) by group of Manhattan modelers who refused to give names. Amazing! Such c nice job. Frank Lashek, Sea Girt, N. J., built the B-24 4-Bantam "Ford's Folly". It's one he worked on with 9th AF.

SWEET scale job was this "Ike" by Eldron R. Thorn of Mamaroneck, N. Y. Ship is result of 5 months' work. Sponsoring "Mirror" estimated 250,000 saw big contest and air show with best in models, best in real stunt ships.

up in an attempt to equalize flying between advanced experts and less experienced entrants. So well did this work, most of the hot-shot contenders dropped out of 1st places. Few gripes were recorded.

In the face of a 35-mph wind, Henry Struck, Hamburg, Conn., took the Pan American PAA-Load's Open A event; B open winner was Corser, B-Jr. & Sr., Wilkenson (see photo); A-Jr. & Sr. was Anthony D'Alessandro, Philadelphia. First-place beauty prizes went to Vinnie Pollizzotto, Brooklyn, and George R. Adams, Phila. Howard Thombs, Warren, Ohio, walked off with the stunt event by amassing 994 points under the MIRROR's very tough stunt rules. Thombs stunted two ships at once, reportedly Di-Does, for hundreds of added points.

William J. Prechtl, Bronx, N. Y., took the 2-year, $1,400 aviation scholarship; Ernest Barth, West New York, N. J., got a Grumman aluminum canoe for sportsmanship award after cracking up his fine Beauty entry; Alonzo Carver, Point Pleasant, N. J., did 141.73 mph in the "gale" to get first in jet speed. Class A, B, and C speeds were 105.43, 119.4 and 122.9 mph respectively racked up by Donald Morgan, Bloomfield, N. J., William Goodhart, N.Y.C., and Joseph Mahonchak, Passaic, N. J.—in that order. William K. Underhill, Glen Ridge, N. J., was first in D speed; the half-A speed flying was topped by Dave MacRoberts, East Aurora, N. Y.

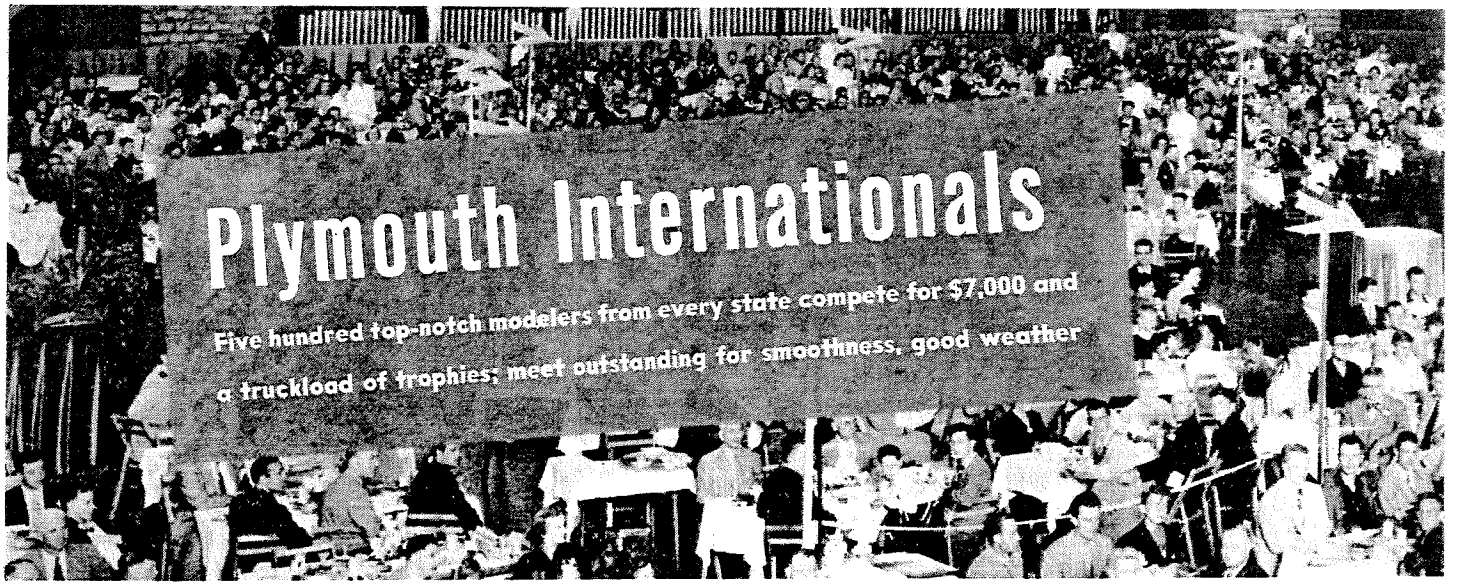
Other first-place winners were James G. Schenck, Pittsburgh, Pa., radio control; Theodore Grzeszczak, Jersey City, N. J. A 2 free flight; John J. Radigan, Cleveland, Ohio, Cl. A free flight; Jarves Lopez, Brooklyn, N. Y., Cl. B free flight; and Edward Ritter, Bloomfield, Pa., Cl. C free flight.

Following its policy of awarding no straight cash prizes, nor any overall championship, the MIRROR presented a variety of awards including $300 television sets, week-ends at resorts, 8-hour flying courses, scores of trophies, a truckload of kits, engines and accessories, fur jackets, 15 Benrus chronographs, rifles, savings bonds, power tools, plus many more.

GRUMMAN Field, site of meet, shown at 6:15 A.M. with registration line formed, other modelers coming on the double. Entries held to 1000.

PAA-LOAD winners included (from lt.) James Wilkenson, Central Falls, Ri; Jack Greenspan, Brooklyn, NY; Larry Corser, Jr., Cortland, NY; Murray Feigenbaum, Brooklyn, NY.

STUNTERS Lou Andrews (lt.) and Leon Shulman compare notes. Leon flew "Wonder Bread Special." Lou placed 3rd



Plymouth Internationals

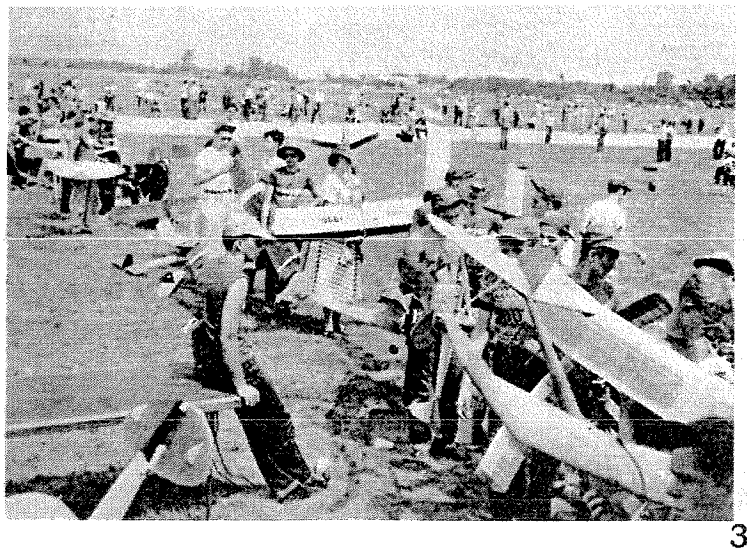
Five hundred top-notch modelers from every state compete for $7,000 and a truckload of trophies; meet outstanding for smoothness, good weather

Victory banquet was held on Bob-Lo Island, famous recreation park on the Detroit River. Hour-long boat ride was first for many flyers.

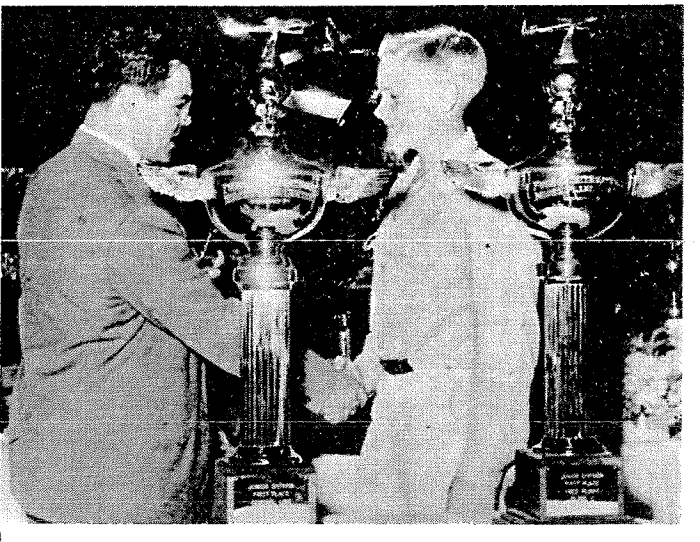
Examining semi-scale Navy Carrier demonstration model are B. K. Steele, Plymouth; Lt. John Burton, USN; R. C. Somerville, Plymouth.

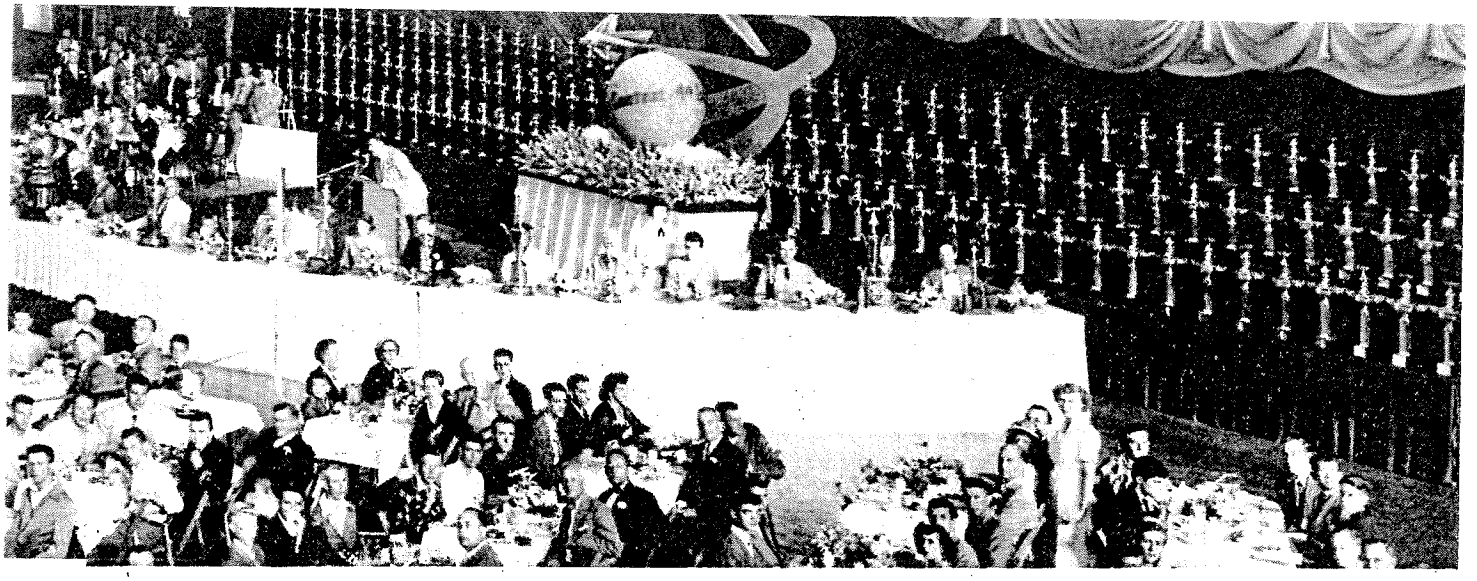
Gas and rubber models that landed in Lake St. Clair near Selfridge were retrieved by Air Force helicopter and returned to contestants.

Processing lines at gas model events flown off AF's Selfridge Field moved rapidly. Note Mom in line holding place while Junior flies.



Warren Bartlett, jovial contest director, awards first place flying scale trophy to junior Jack Hudspeth who flew big Beechcraft G175.





More than 1,200 contestants, parents and officials attended the dinner as guests of Plymouth to witness presentation of the 127 trophies.

■ Considered the finest contest of its type and size in airmodeling history, the Plymouth Motor Corporation's fourth International Model Plane Meet held in Detroit late in August brought together 500 outstanding model builders from all sections of the country. Every entrant was under 21, and a special class for Freshman flyers—those under 12—was run off.

When the six-day meet had ended top honors in the form of perpetual high-point trophies went to Fred W. Sage, III, Independence, Mo., in the Freshman class; Dick A. Modler, Dayton, Ohio, top Junior; Ronald Plotzke, Detroit, Mich., high Senior contestant; and Theresa Grish, St. John, Ind., high-point girl flyer.

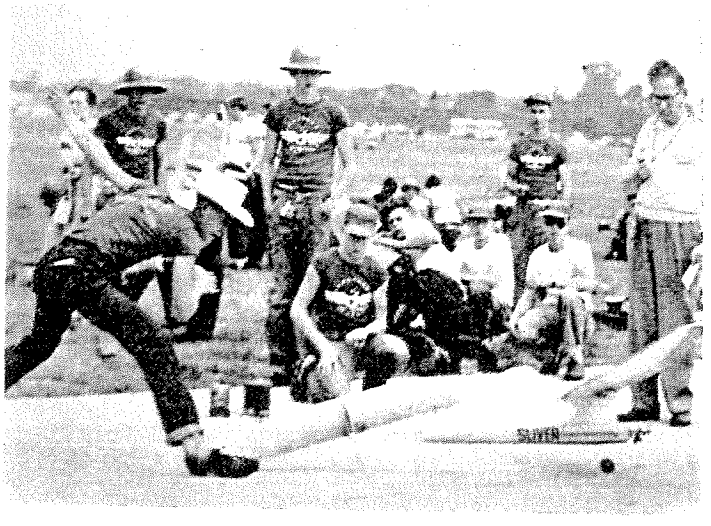
Other perpetual trophies were awarded David C. Lefebvre, Seattle, Wash., in the flying scale event (Dave flew an AT- Spirit of St. Louis), Harold C. Reinhardt, Elizabeth, N. J., who won the Air Trails trophy for his superb stunting; Donald R. Zipoy, Minneapolis, who captured the jet speed prize. Special prizes included a team racing trophy to Arthur E. Scholl, Milwaukee; style and beauty award for team racers to Richard N. Rigney, Long Beach, Calif.; and the Sportsmanship trophy to Ralph N. Smith, E. Orange, N. J.

Flyers were headquartered in the Fort Shelby Hotel in downtown Detroit and for the first two days of the contest were transported by bus to Selfridge Field. There for the outdoor rubber and gas model events timing tables were set up on flat-bed trailer trucks so in event of a wind shift the operations area could be changed quickly.

The remaining four days of the Internationals were spent at Detroit's Belle Isle amusement and recreation park on an island in the Detroit River where 10 control line circles were set up. Indoor flying was run off in the State Fair Grounds' Coliseum the first day of U-control; shuttle buses ran continuously between the two contest sites; the only bad weather occurred toward the close of one day's U-control activities. For a period the following morning, the circles were soggy, but they soon dried out. Except for that all flying was under the best of circumstances.

Evidence of the "grand manner" in which the Internationals was run off is indicated in the presentation of awards which took place in a big field house on Bob-Lo Island, an hour's boat ride down the river from Detroit. To many of the flyers this was the biggest treat of the meet since quite a few confessed they'd never been on a boat before.

Bob L. Brawner, Phoenix, Ariz., gets his national record-holding job "Sliver" away, but the tail surfaces decide to stay home and rest.



Youngest contestant trophy goes to Gregory Wald, Minneapolis. A. H. Paterson, Plymouth v.p. makes the award. Mr. Wald is 5 years old.

Aero gloss facts

AEROGLOSS COMES FROM THE MOVIE CAPITOL OF THE WORLD WHERE BEAUTY IS AT A PREMIUM. WHAT IS MORE NATURAL THAT AEROGLOSS, THE MOST BEAUTIFUL DOPE OF ALL, SHOULD ORIGINATE IN THAT KIND OF ENVIRONMENT.

THEN TOO AEROGLOSS HAS MUCH TO OFFER IN HIDDEN VALUES → IF YOU COULD ONLY KNOW WHAT WE HAVE LEARNED THROUGH CAREFULLY CONDUCTED TESTS — BUT THEN SPACE IS SO LIMITED THAT YOU WILL HAVE TO BE CONTENTED WITH ONE TID BIT OF VALUABLE INFORMATION AT A TIME → CUT OUT THESE BITS OF INFORMATION FOR YOUR FILES.

THERE ARE NO OTHER DOPES THAT ARE FUEL PROOF OTHER THAN AEROGLO
IT IS TRUE, THERE ARE MANY PAINTS
ARE FUEL PROOF — KITCHEN PAINTS,
FOR HOUSES - BUT NO OTHER DOPE
NOW HERE IS WHAT WE LEARNED
ABOUT A TRUE DOPE: THE AIRPLANE
ENGINEERS DEVELOPED DOPE BECAUSE
THEY NEEDED A POWERFUL, FLEXIBLE TYPE OF
MATERIAL THAT WOULD TIGHTEN UP AGAINST
THE SURFACE - IT HAD TO BE STRONG ENOUGH
TO WITHSTAND FLIGHT LOADS WITHOUT FAILI
PAINT OR LACQUER WAS DISASTROUS EN
TO THE BIG PLANE MAN. DOPE, AS VALUABLE
AS IT IS TO HIM, IS OF GREATER VALUE TO YOU.

IN SCALING DOWN FROM A FULL SIZE
AIRPLANE TO A MODEL, IT MUST BE REMEMBER
THAT THE THICKNESS OF DOPE DOES NOT SCALE AN
DOWN! THIS POWERFUL SKIN THEN BECOMES
PROPORTIONATELY MANY MANY TIMES MORE
POWERFUL & IS AN EXTREMELY IMPORTANT
STRUCTURAL ADDITION! THINK IT OVER — GET
THE PICTURE CLEAR — IF DOPE IS GOOD FOR
THE BIG PLANE, IT IS A HUNDRED-FOLD BETTER
FOR THE MODEL!!

WATCH FOR OUR NEXT AD - SOMETHING OF BIG
IMPORTANCE ABOUT FUEL-PROOFING!

ALL OF AEROGLOSS PRODUCTS ARE HOT-FUEL
PROOF, NAMELY- THE C7700 CEMENT, PLASTIC
BALSA, CAR PRIMER, BALSA FILLERCOAT, & THE
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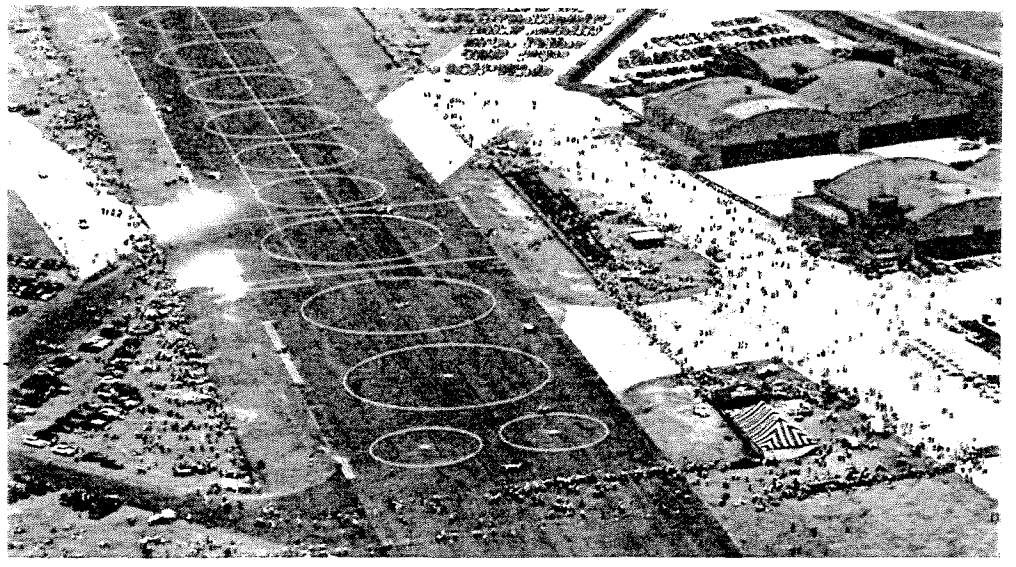
447 N. FORD BLVD. LOS ANGELES 22, CALIF.

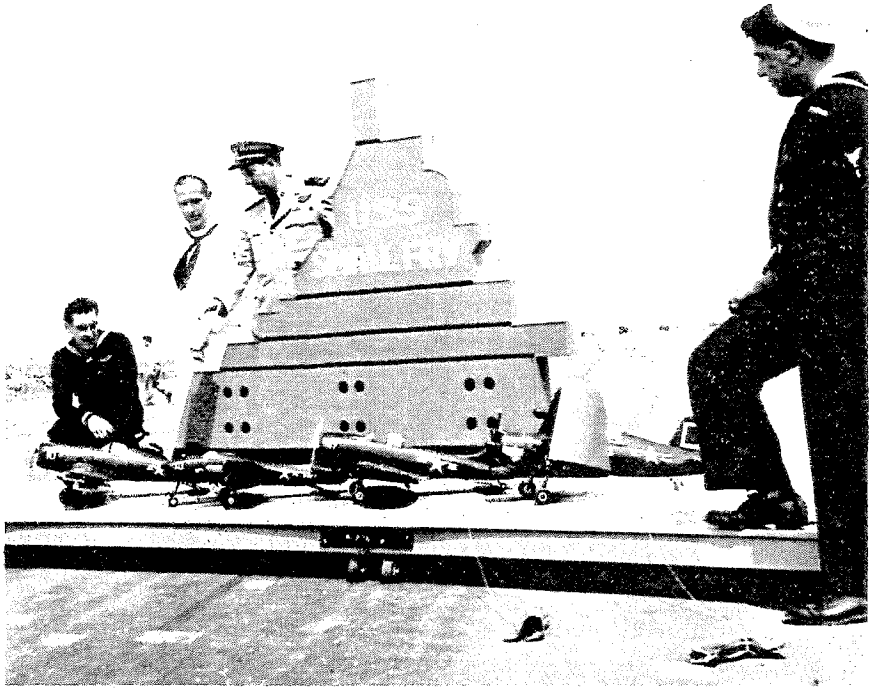
Mirror, Mirror . . . .

Fair-est One of All

World's biggest one-day contest is New York *Mirror's* sixth Model Flying Fair attended by 250,000



Early morning aerial photo of control line section of Mirror meet at Grumman Field, Bethpage; spectators few at this hour. Free flight area began at bottom of picture.

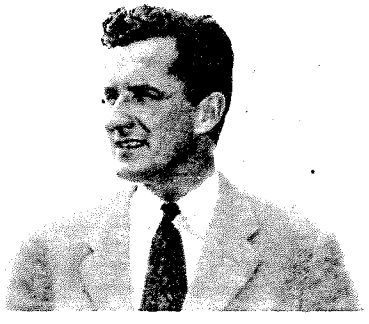


Among entries in Navy carrier event were these fine models including a Corsair featuring folding wings by George Adams of Philadelphia. Winner was S. Calhoun Smith flying AD-2 Skyraider presented in June '51 "AT". Lt. John Burton, USN, ran event. Structure folds.

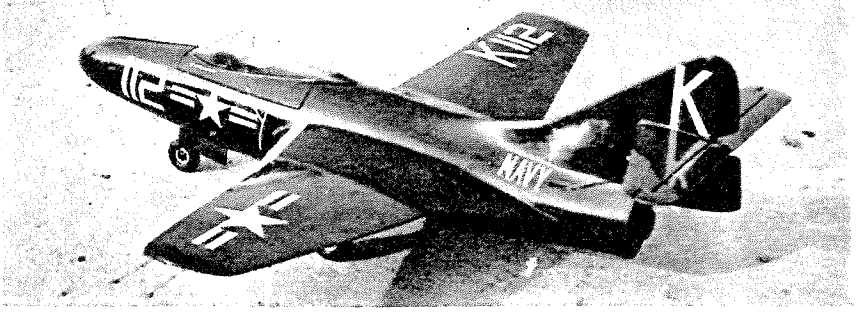
■ With a registration of 1,248 and a flying entry list held down to 1,000, the New York *Daily Mirror* ran off its sixth Model Flying Fair and air show at Grumman Field, Bethpage, L. I. June 3 before one of the largest gatherings ever at an air affair.

For the modelers the meet began at 6:10 a.m. and ran until 3 p.m. when competition in 20 events ended. After a full-scale airshow and automobile dare-devil driving demonstration, the model awards, totaling $10,000 and ranging from TV sets and aluminum canoes to model kits, trophies and home work-shop equipment, were presented.

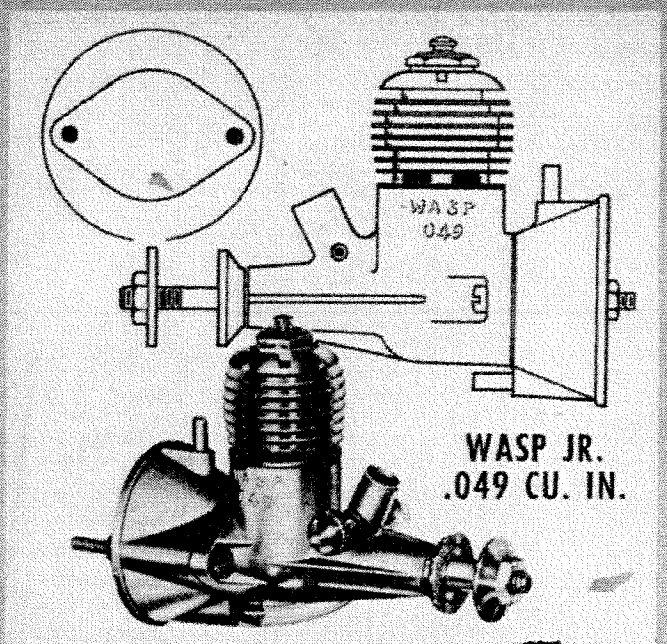
The youngest contestant was 5-year-old Donald Shulman of Linden, N. J., son of the famed designer-flyer Leon Shulman. Only five feminine flyers participated; several of these were members of the 35-"man" team from the Montreal Model Flyers. Charles Bothner, 22, Rutherford, N. J., established a new open class jet speed mark of 150 mph plus. From the spectators' standpoint the most interesting events were beauty (all models had to fly) and the Navy carrier event.



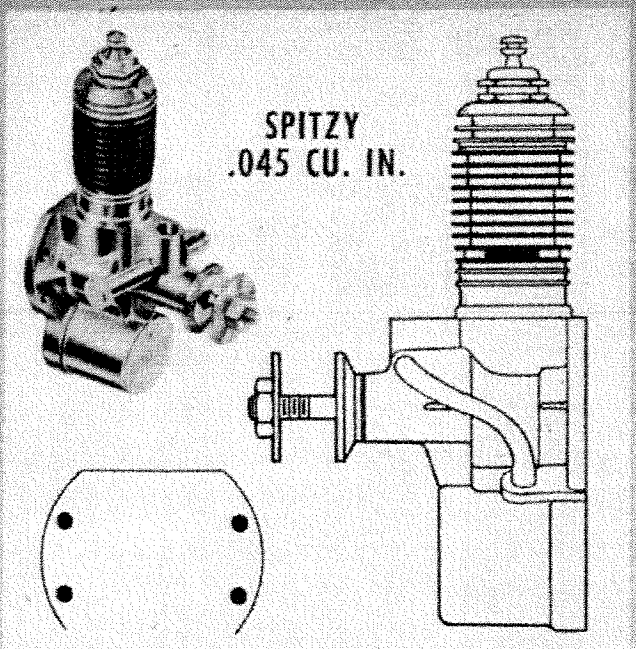
PAA Capt. Charles Blair, first to cross North Pole in single-engine plane, was onlooker.



Jet-powered model Panther won beauty 4th place for Frank Lashek, Sea Girt, N.J. Dyna-Jet job has made many successful flights; is fairly close to scale. All entries had to qualify in air.



WASP JR.
.049 CU. IN.

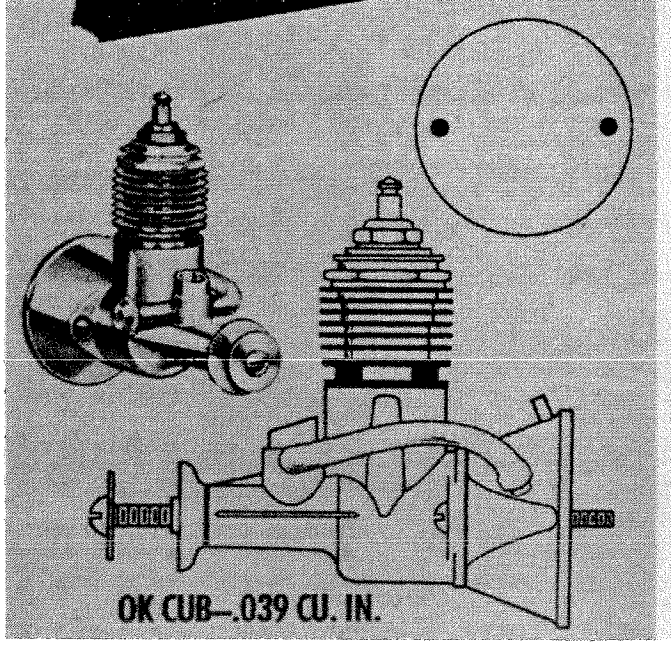


SPITZY
.045 CU. IN.

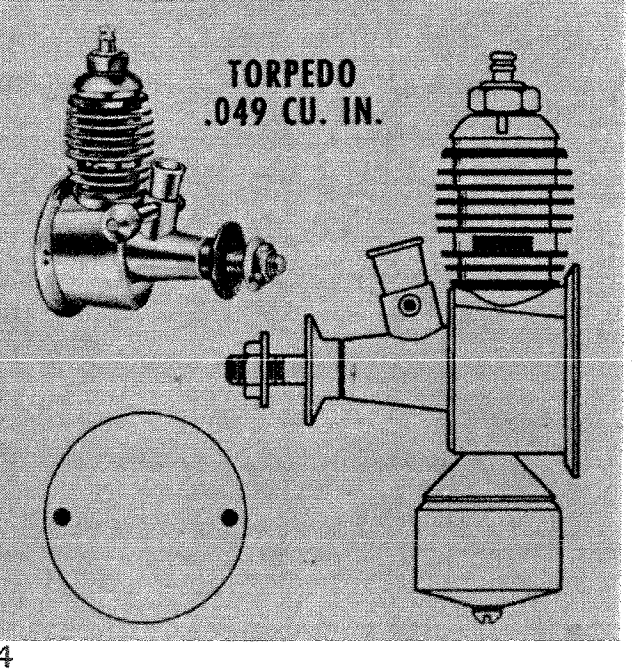
...then came the Revolution

■ Large ignition-type model gas engines costing more than twenty-five dollars appeared on the market in 1932. Few modelers could afford them; they were difficult to install in an airplane and operate. But now there's a breed of engine not much bigger than a tube of lipstick, selling for around five dollars or less and so simple that a boy of ten can easily learn to operate one. At the same time the amazing power of these mini-motors will produce model flight performance to hold the interest of the old experienced modelers. Such changes took place in many steps, some large and some small.

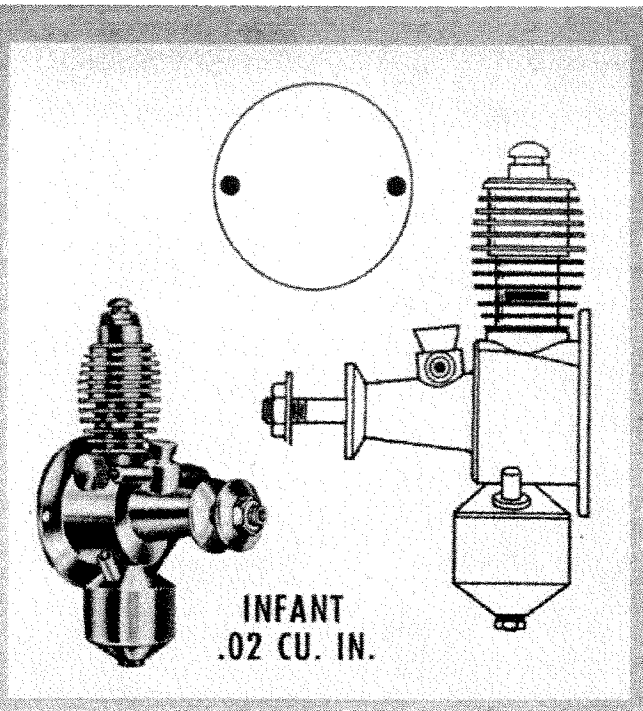
This latest engine revolution began in December 1948, but the stage was being set long before then.

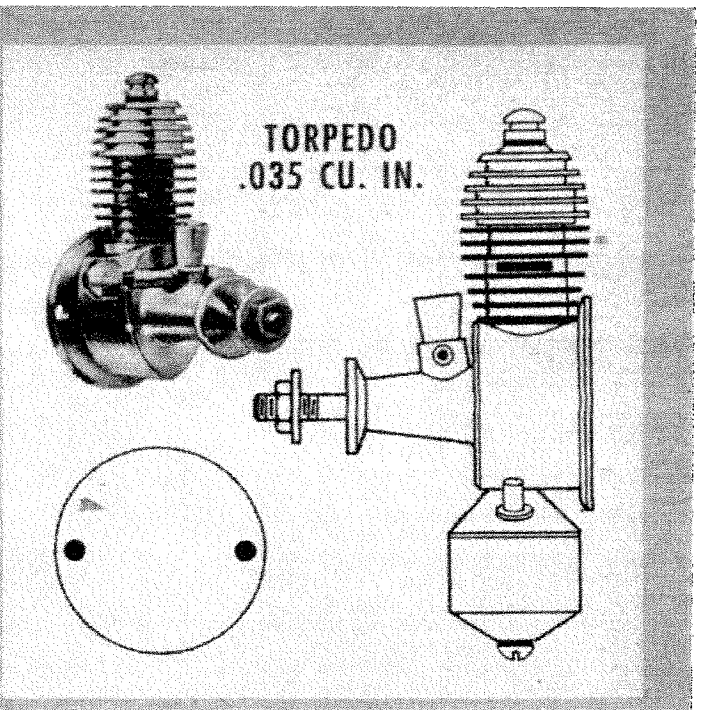


OK CUB—.039 CU. IN.



TORPEDO
.049 CU. IN.



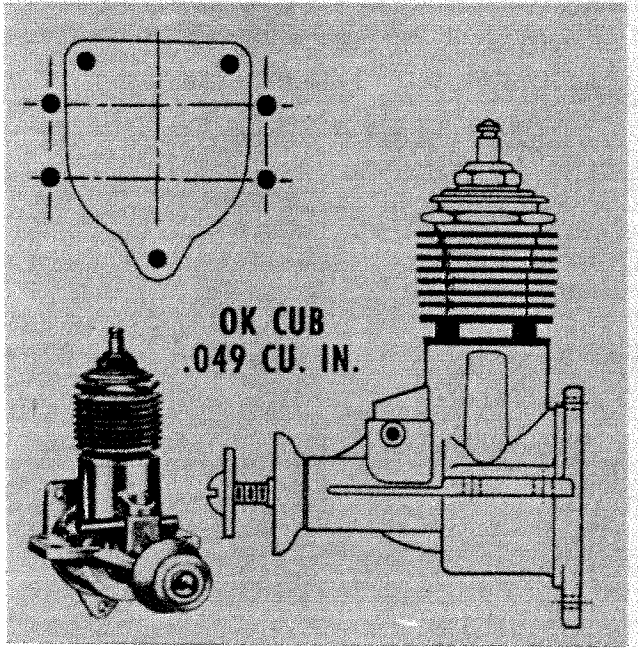


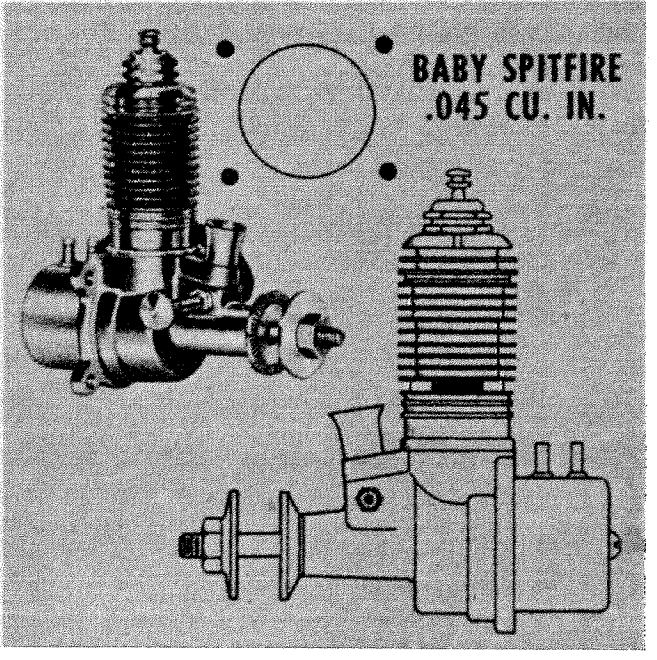
Agitation started when Micro-Built Inc., of Danbury, Conn., put their Arden Glow Plug on the market. This caught on quickly but did not produce outstanding performance until it had been in the hands of modelers for more than a year. Glow engine fuels continued to improve and more glow plugs were developed till a good ignition balance was established.

Herkimer Tool and Model Works was one of the first to come out with a beefed-up "Hot Point" engine designed specifically to operate on glow fuel. Glow plug engine operation produced more power with less weight due to elimination of the ignition system and caused a trend away from the large .60 displacement engines toward the .29 class. During this same period the carbon dioxide engine (CO_2) appeared on the market. These operate on the principle of a compressed air or steam engine. Campus Industries of Philadelphia built their little Campus A-100 with a ⅛" diameter piston. This produced sufficient power for a small rubber band model and attracted many of those builders.

A larger CO_2 was built by Herkimer Tool and Model Works with approximately ¼" bore. This engine would handle small free flight ships and attracted another group of modelers to the small engine field.

Observing the above conditions, members of the K&B Manufacturing Co. *(Continued on page 36)*





Revolution

(Continued from page 35)

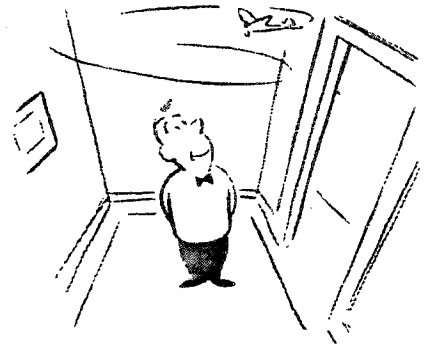
foresaw the possibilities of a small glow plug engine. After considerable research and experimenting their Infant engine appeared on the market in December, 1948. It was developed by Lud Kading, (the K of K&B) a thirty-four-year-old modeler working for the company. He started out in gas models in 1935 and became interested in engines since he was foreman of a machine shop. Now the father of two, he still maintains an interest in building and flying models as well as designing and manufacturing engines.

A good part of the brainwork in manufacturing and presenting small glow engines to the public goes to John Brodbeck (the B of K&B) who has been an active modeler since 1936. The Infant was a very small engine with slightly more than ¼" bore and overall height, including tank, no bigger than a kitchen match. Free flight fans picked this up quickly and some interest was created in G-line pylon flying.

Next to join the revolution was Charles Brebeck and his Herkimer Tool and Model Works. This outfit had developed the larger CO_2 engine and also produced the first commercial glow plug engine. Brebeck decided on a larger engine (.049 displacement) and called it the Cub. Large production facilities and an engine suitable for control line flying boosted our revolution to a full-scale war on large model engines.

With the introduction of the Cub, midget engines had become permanently established among modelers, and other manufacturers appeared on the scene. Mel Anderson Manufacturing Co. came out with the Baby Spitfire, a lightweight engine with good performance. This met with immediate success and other manufacturers joined the mini-motor ranks. A recruit of last summer is the Atwood Manufacturing Co. with their .049 Wasp.

Most companies go whole hog when



they once get started. For example, K&B now has three engines in the Half-A class. Herkimer has produced two Cubs in the Half-A group and two others slightly larger, but still in the miniature engine class. Mel Anderson has also produced a Spitzy engine in addition to their original Spitfire. Considerable competition is going on in this group for better performance and lower prices, and each engine appearing on the market has many new improvements. More are in the works.

These midget engines are like hordes of grasshoppers. They just can't be ignored. A.M.A. established a Half-A class (.049 displacement) in free flight in their 1950 rules. This might have been called Quarter-A, since Class A includes engines up to .19 displacement. At the time this ruling was established there were more .049 engines on the market than the .09, so the smaller class was accepted.

Many local meets throughout the country have cooked up their own special events for small engines. One very novel example was a so-called Philadelphia "Rat Race" in which speed, beauty, stunt and scale were all tossed into one event. The 1950 Mirror Meet took another step when they had a Half-A speed class; engines up to .074 were accepted. Both engine performance and interest among modelers has reached a new high in Half-A and it is far ahead of all other contest events.

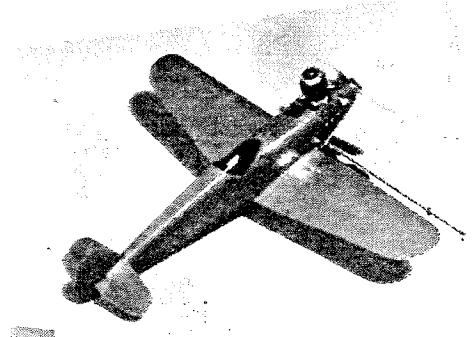
The Half-A engine holds its greatest attraction to modelers in low cost and ease of model construction. It is now possible for the average devotee to build a Half-A gas job and fly for several weeks for the price of a larger engine. Glow fuel is quite expensive and is a major expense to control line modelers. Hot fuel resistant paint and dope required on a model glow plug ship is also expensive and may cost several dollars for a large plane. Improvements in propellers, fuel, glow plugs and engine design have increased power to the point where solid balsa Half-A sport planes, that are so easy to build, fly quite well.

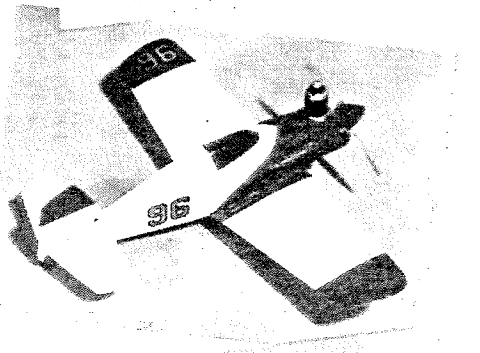
How SMALL Can You Get ?

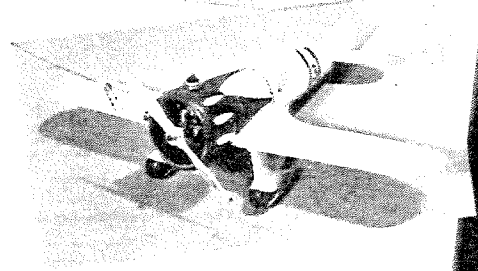
● Cub-powered "Baby Porpoise" is started by John Wright (left) at meeting of half-A advocates.

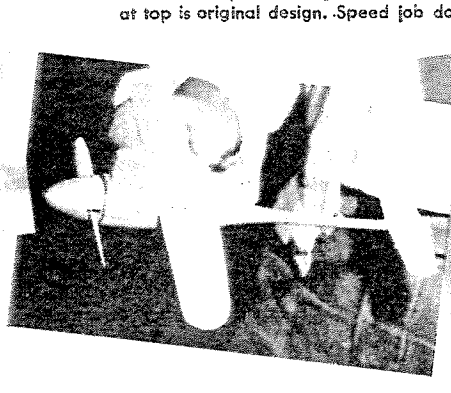
WHEN it comes to aeromodeling, the answer to how small can you get is pretty darn tiny. Take the advent of the new half-A engines. You think they just qualify for free flight? Don't let a control line fan hear you say so!

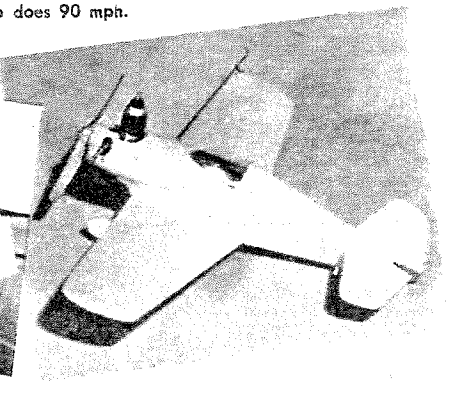
It probably started when someone took a 75c Monogram prefab "Speedee-Built" rubber-powered scale kit and installed an Infant, Spitfire or Cub engine. Then the boys were really off. These models showed up at a Linden, N. J., club meeting. Counterclockwise from left: Me-109 by Edward Book; Monogram Midget Mustang by Jack Sellers; Wedell Williams by Harold Beebe; Cub-powered 90 mph speed job by Bob McKay; another Monogram Long Midget by George Lieb. Lieb's powerplant is an OK Cub. Unusual shape of cylinder is due to some judicious (?) grinding to reduce weight. Plane does 55 mph. The Linden Model Aircraft Club flies these ships on a single 9-foot line. A pylon is mounted in a bucket weighted with rocks and sand.







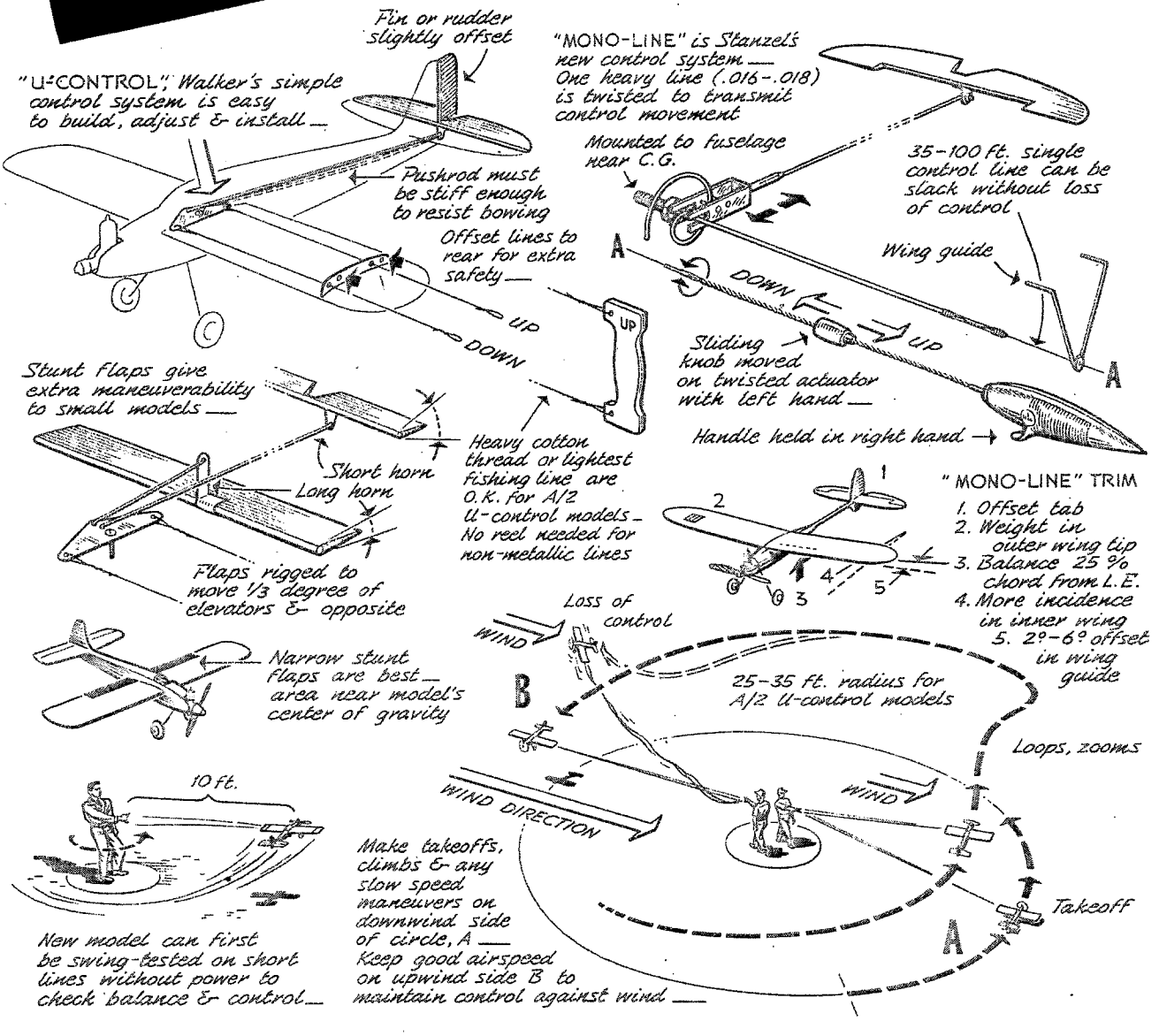




●Scale and speed racing models shown here; model at top is original design. Speed job does 90 mph.

Elementary Modeling

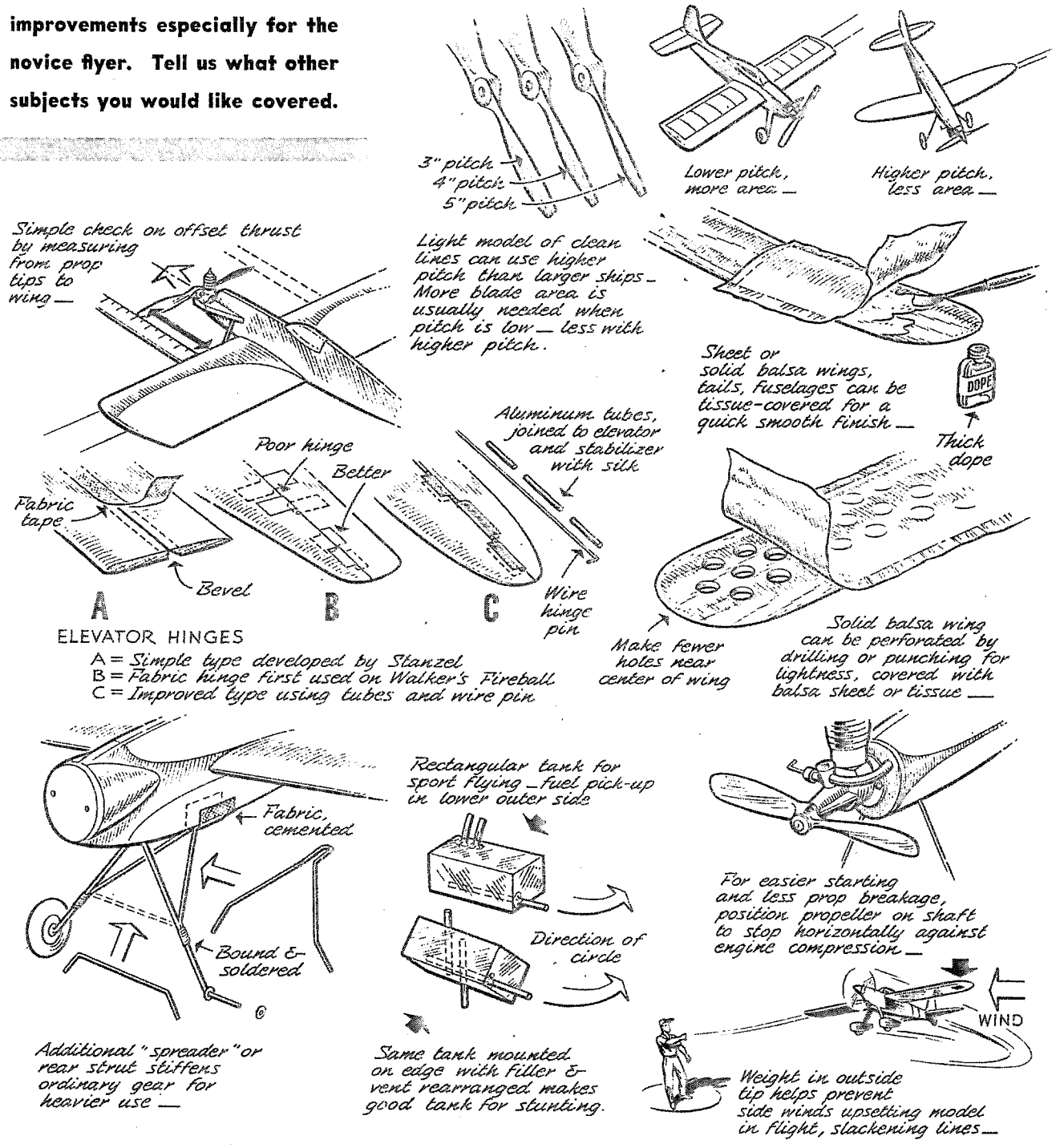
half-A Control-line



Though the intriguing Half-A control-line models are leaders in popularity, particularly among beginners in modeling, they are not without their shortcomings. With engine displacement reduced to a small fraction of the size we have been accustomed to in the past (a Half-A engine is only *one-twelfth* the displacement of a Class D .60 engine!) there is a corresponding reduction in power. The smaller, lighter ships that result are more at the mercy of the winds than the larger ones and have little of the very "solid" feel we associate with larger, more powerful control jobs. An inexperienced modeler with a new Half-A control ship is wise to wait for calm weather. Follow the wind diagram carefully for proper operation.

Jim Walker's "U-Control" and the new Stanzel "Mono-Line" are the control systems in use nowadays. U-Control, with its inherent simplicity, is foolproof; it utilizes two tether lines to handle, movements of which are transmitted to a pivoted bellcrank, thence to hinged elevator. The lines must be kept taut, however, and such methods as outward offset engine thrust line, outward offset rudder tab, weight in outer wing tip, more incidence in inner wing panel, and rearward location of control line wing guides are resorted to in various combinations to maintain line tension. These many "tools"

Adjusting, flying tips and model improvements especially for the novice flyer. Tell us what other subjects you would like covered.



can be used to extreme, causing a crabbing flight attitude which is neither efficient nor desirable. An untested model should incorporate perhaps two of these wrinkles for a safe test flight; reduce them as much as the flight attitude indicates you can get by with.

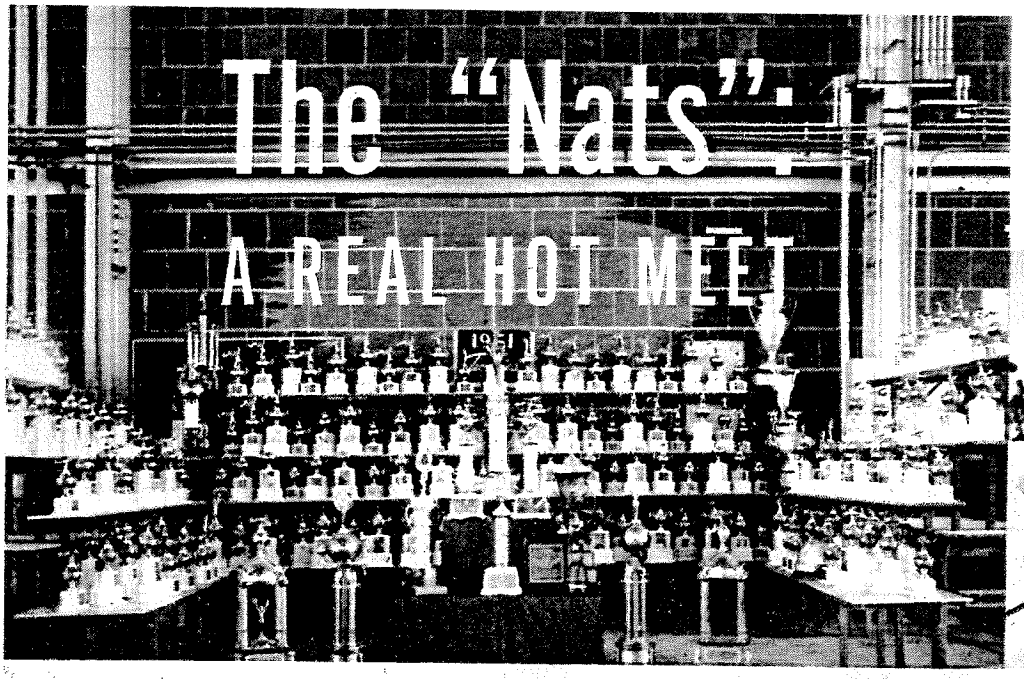
Half-A models can be flown on very lightest casting line or heavy commercial cotton thread. Only the lightest wire lines need be used. Heavy threads can be wrapped around the handle, while metal lines require use of a reel to prevent kinking or curling.

Mono-Line flying presents two outstanding advantages: longer lines can be used—up to 100 ft. radius—and full control is maintained even if the line should become slack. When short lines are used, .016" dia. steel wire is specified, and when length is increased to 100 ft., the diameter is increased to .018". Smaller or larger sizes of wire affect control; don't use stranded or braided "cables."

It is best to balance U-Control models fairly nose-heavy, somewhere near the wing leading edge. Mono-Line ships should balance about 25% of chord from leading edge. Selection of woods, type and extent of paint job, wheels, propellers, etc. affect balance greatly. Improper balance of a finished model can often be corrected with lead weights.

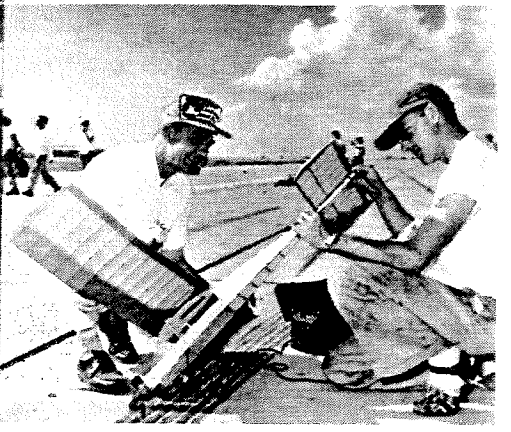
The "Nats"—

A REAL HOT MEET



With 27 separate events, mostly broken down into Jr., Sr., & Open Classes, the Nationals offered more than 200 awards (above) including trophies, color drawings of Navy planes, the impressive collection of AMA perpetual trophies & PAA cash. National championship honors went to Paul Simon, 18, of Detroit Balsa Bugs whose club also won top group rating. Herold M. Harter, sec. of The National Exchange Club, presents Paul (below) with Exchange Championship trophy.

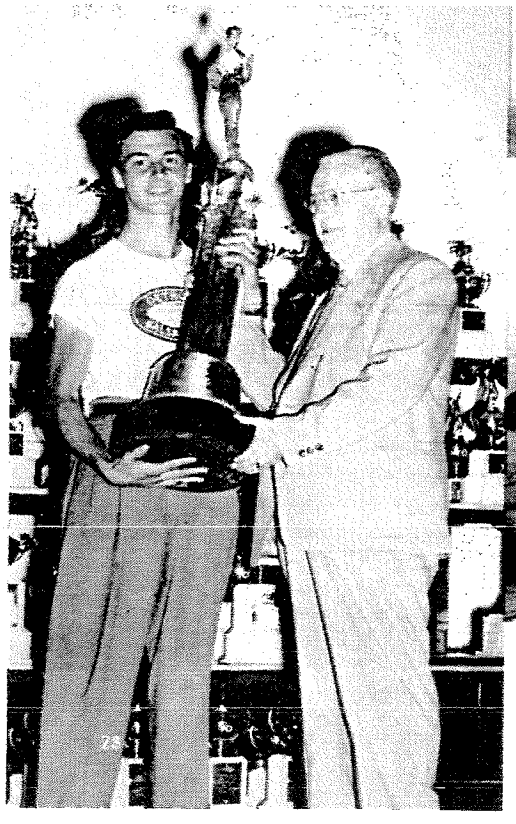
Dallas (Daddy of PAA-Load) Sherman flew from Tokyo. Cl. A PAA-Load of Roy Benson, Texas City, Texas, gets eye.



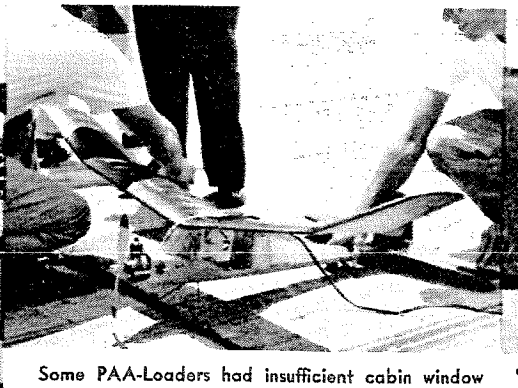
■ One of the best run National competitions of all time, the second Dallas championships were long on quality, a bit lower on quantity (630 entries). Distance and that certain element known as the Draft took their tolls. High praise went to CD Maurice Teter, a top-flight modeler himself, and his hard-working crew of contest officials from the various Exchange Clubs of Dallas.

Indoor microfilm flying places figured prominently in determining the national champ, Paul Simon, 18, Detroit, who walked off with top honors and the Senior age group title with 163 points.

Gene Jackman from Oklahoma City



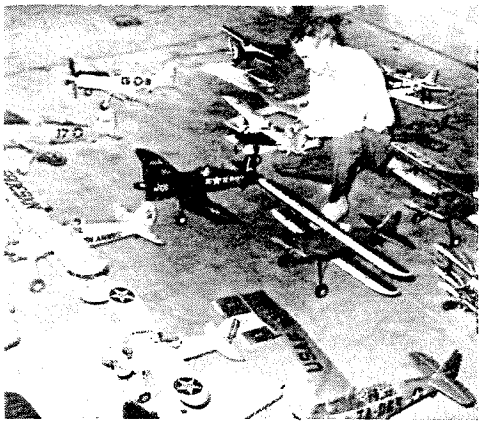
Majority of models in all events were conventional. One exception was this fine flying wing towline glider by Harry Robertson, Phoenix.



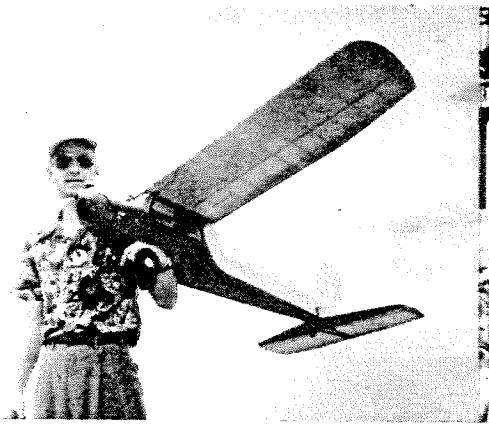
Some PAA-Loaders had insufficient cabin window area, required changing. Not so this super-visibility model flown by Robert R. Osburn, Texas City, Tex.

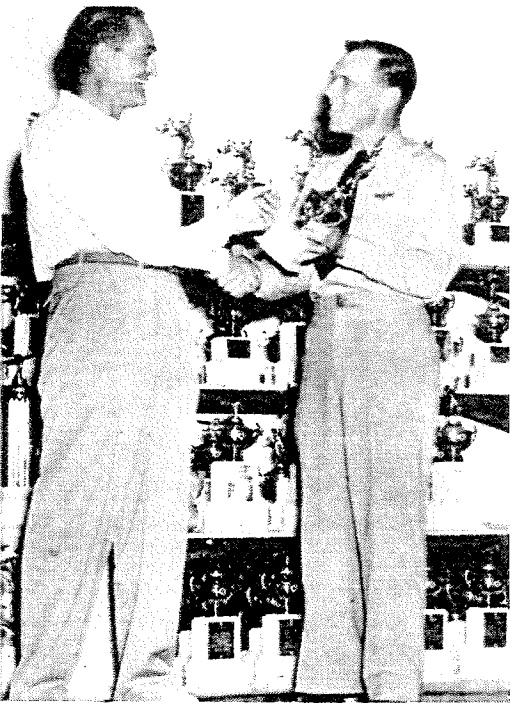
"I flung my glider into the air, it came to earth, etc." Ray Good of Chicago gets off a good heave in outdoor event.

Hard-working contest director Maurice Teter of Dallas and crew of Exchangites aid fine job. He inspects flying scalers.



R/C runner-up was Howard T. Bonner, Los Angeles. He used Citizen-Ship equipment, plus own devices. Data on his doings scheduled for early "AT" report.



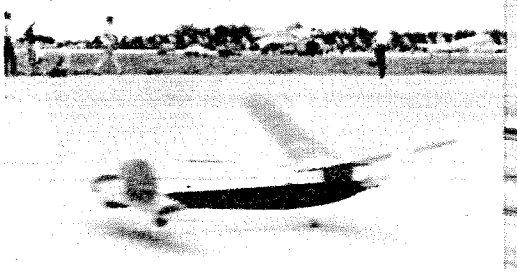


Jim Walker accepts trophy from Capt. H. R. Nieman, CO, Dallas NAS; Jim won R/C, 3rd in R/C bombing.

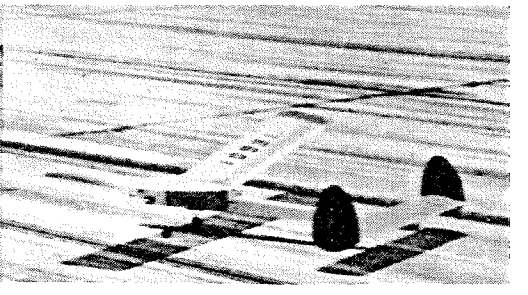
won Junior title and was pushing Paul closely with 158 points for the overall championship crown. Don Tune, Los Angeles, was Junior runner-up with 139 points. Bob Bienenstein from Detroit with 109 points was Open Class champ; AT's Dick Everett was close on his heels with 104 points; Otto Heithecker was runner-up in the Senior class with 104 points.

Bienenstein, Simon and Heithecker flew for the Detroit Balsa Bugs club. With the help of Steve Benovich and Ronald Nowicki they cinched the club crown with 556 points, 253 more than the next nearest group, that of Oklahoma City.

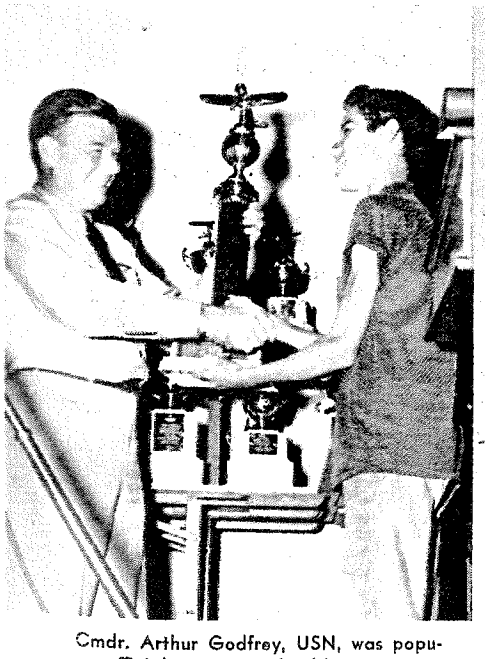
More pictures on next four pages!



Henry ("Pogo Hank") Cole's multi-purpose Half-A job on a take-off. Ship flew as PAA-Load & Clipper Cargo; many free flights did likewise, also ROW'ed.

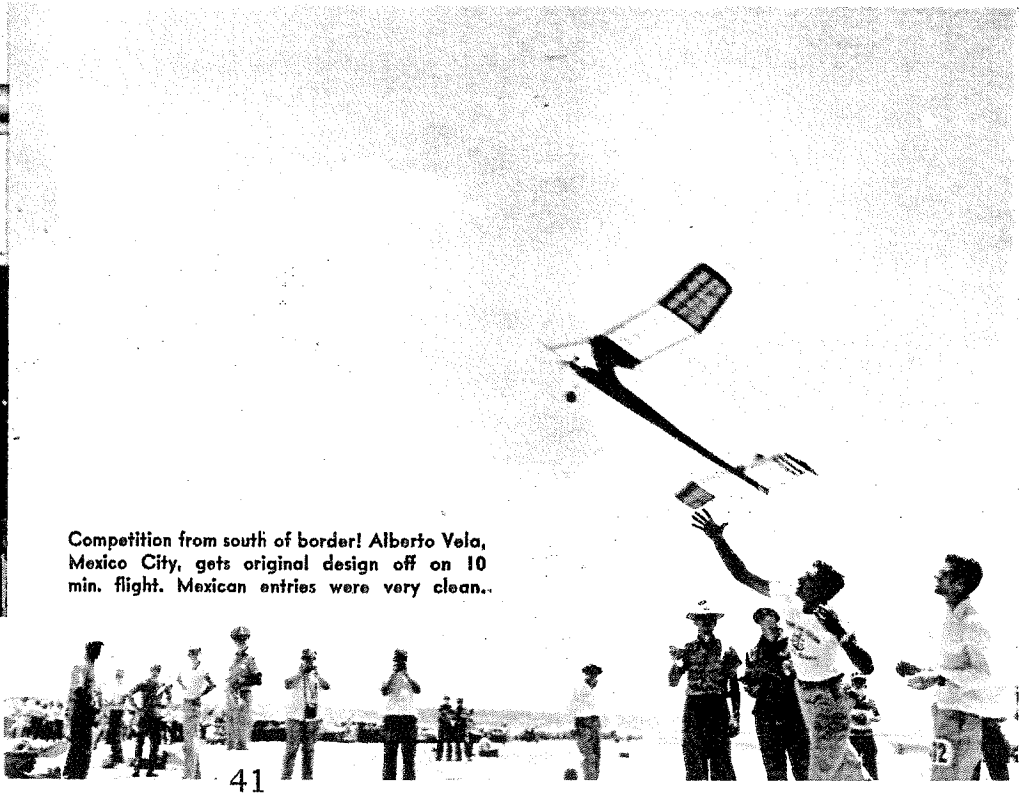


Top-place 8½ oz. ship, 14 oz. load ship in Clipper Cargo. LaMott Randolph, Dallas, did 40.4 sec.; Wasp.



Cmdr. Arthur Godfrey, USN, was popular official at meet, judged beauty event. G. Jackman, Okla. City, was Jr. champ.

Competition from south of border! Alberto Vela, Mexico City, gets original design off on 10 min. flight. Mexican entries were very clean..



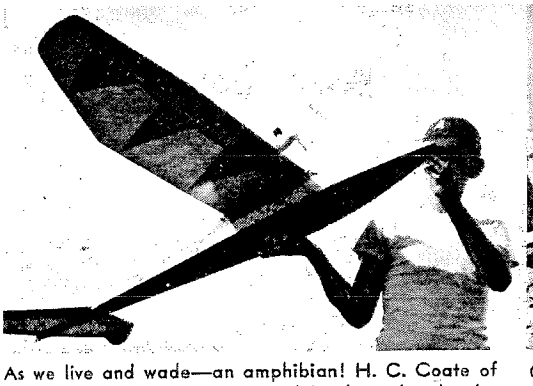
THE "NATS": A Real Hot Meet

Most popular event at 1951 Nationals was rise-off-water competition for free flight models. Flown as a combined engine class, small jobs proved they could hold their own against B's and C's. Top time went to Dan Lutz, Los Angeles; model did 18:44.4.

■ One good reason for the popularity of ROW flying was the fact that contest officials set it up to take place on a day when there was no other free flight activity. Thus, all the F/F fans could get in semi-leisurely flights and the control line and R/C crowd could drop by for a look-see. Harry (8-Ball Club secretary) McCall of Cleveland ran off the water flying. Fellow 8-Baller "Red" Hilligas handled all other outdoor free flight events on the remaining days of the meet.

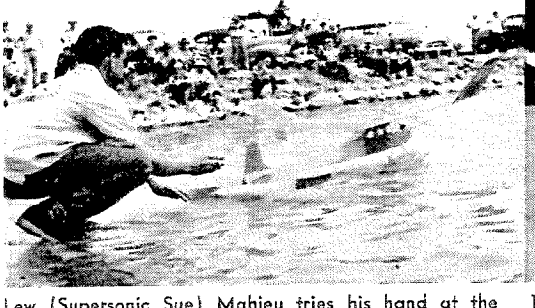
As a change from the '50 hydro events which were flown in the face of a stiff breeze, this year's contest had ideal weather. In fact, some contestants were heard to complain because the water was too calm—proving that there is no pleasing a model builder.

Bill Lofland, Abilene, Texas, took Junior hydro with 4:11.8 and Edward (row, row that boat) Mate of the Chicago Aeronuts swam off with Senior honors—11:27.0.



As we live and wade—an amphibian! H. C. Coate of Dallas brought this one out. Didn't place, but he deserves a medal for trying something a bit different!

Cooperation is the word in hydro flying. Gary Kirst, Springfield, Mo., fires up. Took 2nd in Senior; total time, 6:44.4.



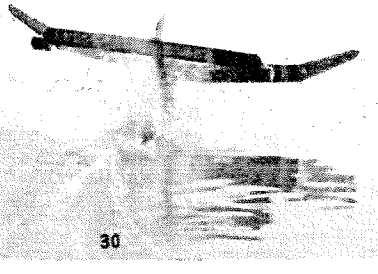
Lew (Supersonic Sue) Mahieu tries his hand at the dunking contest. Sorry to say, Lew didn't do so good on this attempt—his float dug in and he had to swim.

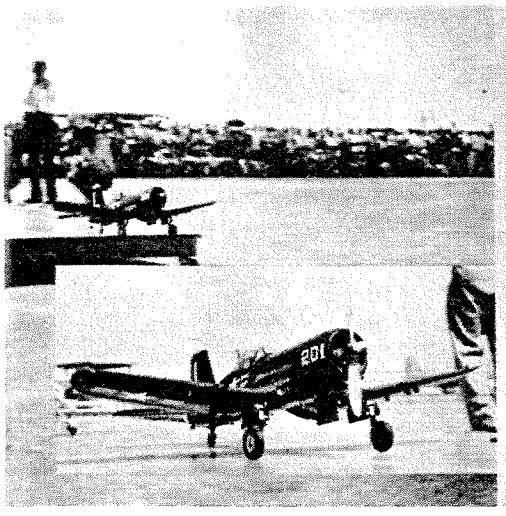
This one baffled many until they learned it was Frank Ehling's way of worrying competition and just a doggone hoax.

Oops! Stubbed my toe. Ken Tyson drained this one out and went on to win 4th in Jr. From Houston, Tex.

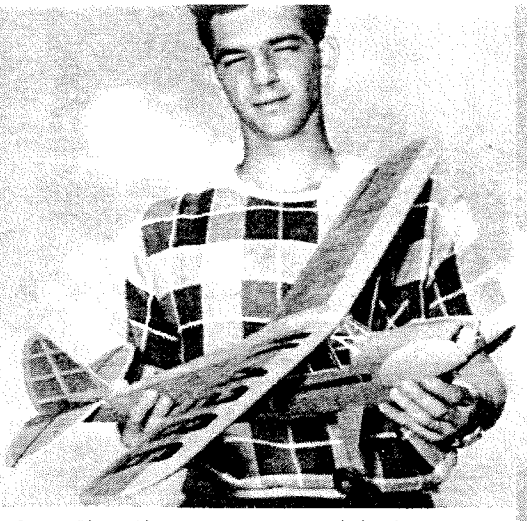
How do you like that for follow-through? Don Tune, L. A., shows how to take a 3rd in junior event. Total time, 2:59.4. Stab floats glued to sub rudders.

How to adjust models and remain cool. An AF entry demonstrates. Navy had boat to retrieve models; some swam.





Here's CPO Abbott's Corsair making qualifying flight off the miniature Navy carrier.

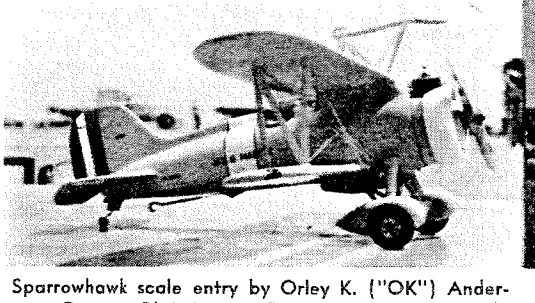


Open Class Champ Bienenstein with his Interstate Cadet rubber scale winner; flew over 9 minutes.

Wayne Schindler, L. A., was fourth in R/C. Here he's h.l.-ing cross wind.

■ Technically speaking the '51 meet was no world beater. However, the quality of the workmanship and the consistency of flying indicated most entrants came better prepared than usual. A great many service men participated; their building time is necessarily limited and they can not always build as many models or in as many categories as they might wish once they don a uniform, since barracks space is at a premium and constant moves dictate small, collapsible craft.

A better deal for the flying scalers is obviously needed. In the rubber division, lightweight sparsely-doped contest-construction types compete against heavily doped and beautifully finished entries. Control line multi-engine men compete against scale stunters scaled down for the competition. Ideas on the subject should be sent to AMA hdqtrs. in Washington.

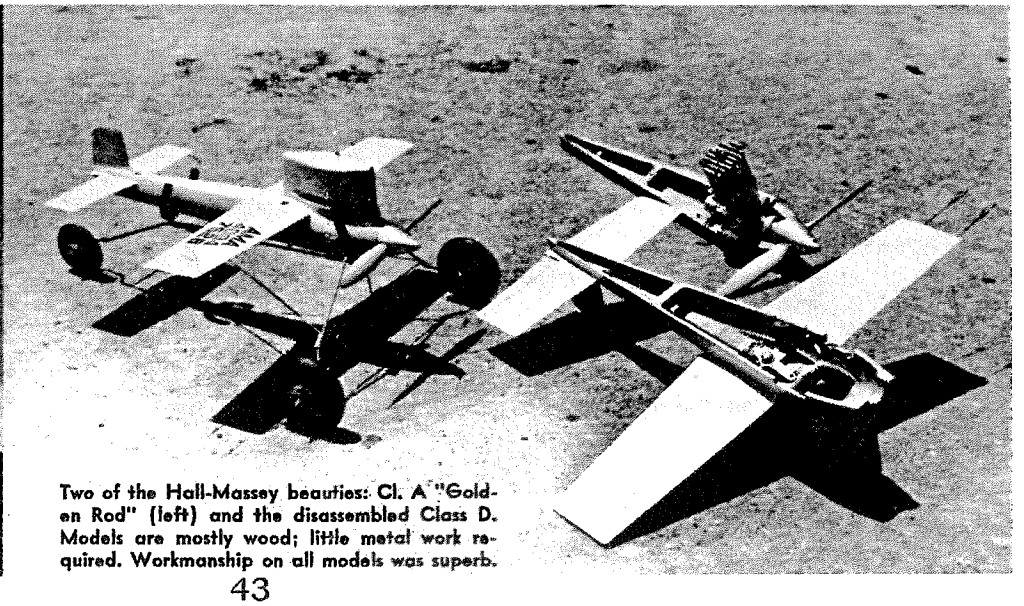


Sparrowhawk scale entry by Orley K. ("OK") Anderson, Corpus Christi, won Testor Beauty-Best Finish.

Into the wild blue yonder goes Ed Stoll's rubber powered flying scale L-5. Ed, Detroit, was 3rd in Open.

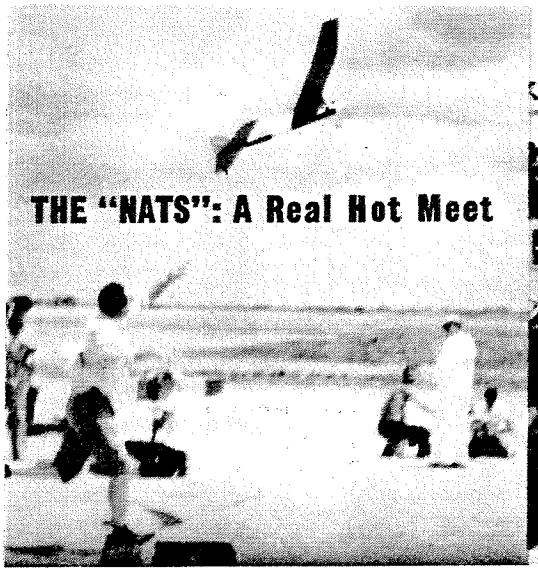
Hank Cole cranks up with Oakland Cloud Dusters' specially made winder.

William Fernandez, Englewood, Cal., checks timer action on Half-A PAA-Load.



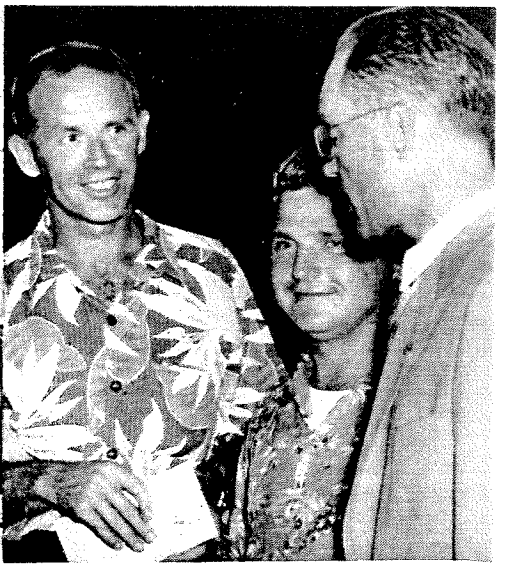
Two of the Hall-Massey beauties: Cl. A "Golden Rod" (left) and the disassembled Class D. Models are mostly wood; little metal work required. Workmanship on all models was superb.

THE "NATS": A Real Hot Meet



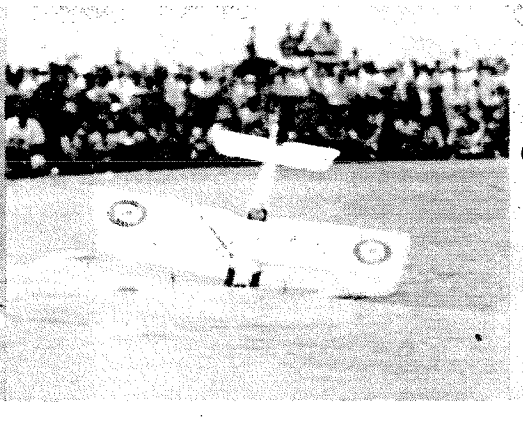
Sal Taibi, the old free flight master, Long Beach, Cal., gets his Cl. A winner off to a 10-min. flight. Model had metal engine mount with spinner ring.

A member of top-place Championship club, the Detroit Balsa Bugs, was winner of Berkeley Novice Award, Otto Heithecker, runner-up to Senior age champ (and Nat. Champ) Paul Simon, also of BB's.

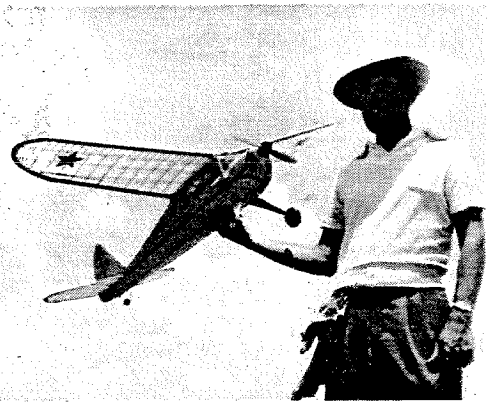


Western writer Dick Everett (left) looks happy as he collects PAA-Load & Clipper Cargo cash from PAA's George Gardner. Ted Grzeszczak, N. J., center.

One of the best-looking stunt entries was this semi-scale Stuka by Don Still, Alta Loma, Texas. Model is scheduled to appear in AT in plan form shortly.



This was crashing finish to Navy's carrier event! Bob Lutker, Ft. Worth, took first with this white S.E.-5. Flew fine with 2 speed engine control. Motor stopped on circle's far side, ship hit wires.

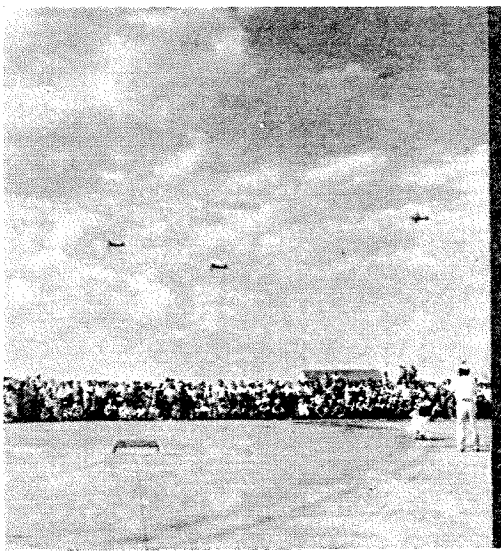


Ain't that a purty baby? Gordon Bourland, Jr., Ft. Worth, has been flying this original since 1938, now Forster .29 powered. Not a scratch for past 2 years!

Dennie ("Hogan") Davis with his beautiful PAA-GAN job which was lost O.O.S. on first official. Dennie has promised to send plans to "AT."

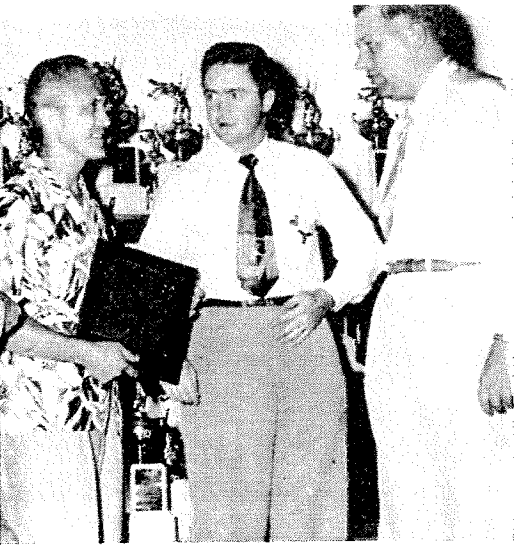
Top time in towline gliders was established by Dick Everett with 13:42 flying an original entry. Other times were quite good, too. Here's odd-shaped job flown by Keith Tucker, Visalia, Cal. Note tow stick.

Top in c.l. flying scale: CPO John K. Abbott, USN, Corpus Christi (left). His Corsair got 50 points, also 3rd in Carrier. Navy's John Burton (right).

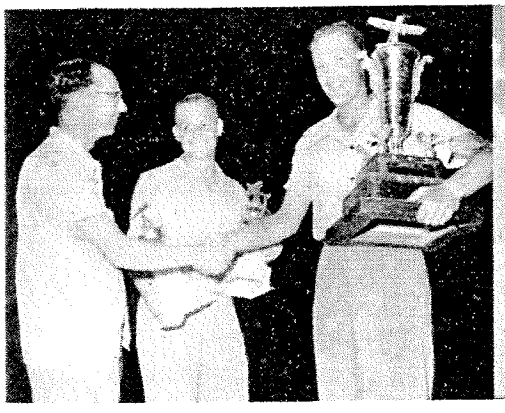


Now, how about that? Jim (the characters' character) Walker demonstrates how to fly *three* models at once. Center ship is attached to rotating pivot atop helmet.

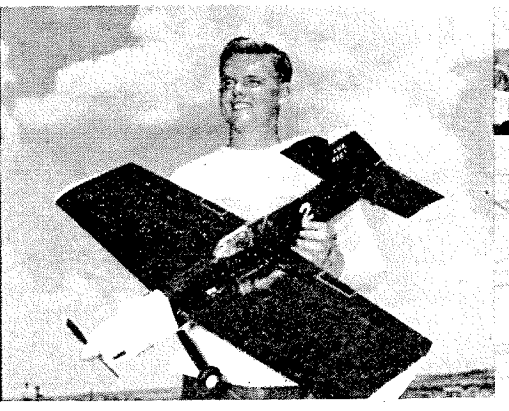
A fast moving fellow. L. Herbert Davis was 4th in A senior speed, 1st in B with 125.78 mph and first in D with 148.76 mph to cop Air Trails' Kulick Trophy. Herb, Birmingham, won jet (142.63 mph).



"June" Pierce Sportsmanship Memorial Award to Carl Goldberg (lt.). Navy's Ass't. Sec. for Air, J. F. Floberg (rt.) & Jim Pierce awarded.



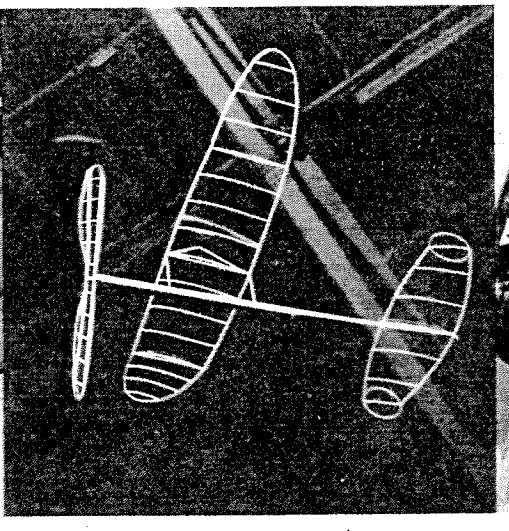
"AT" Ed Al Lewis (left) awards Air Trails Perpetual Trophy to Carl (Babe) Hall and Pat Massey for taking Class D open speed with 146.69 mph with their "Golden Rod."



Another neat stunt entry was this blue and white job, an original built by George Aldrich, Edinburg, Tex. Power is Fox .35; wing area is 498 sq. in. George took fourth in the senior division with 552 points.

Bob Dever, Dallas, gets wind check in Jr.-Sr. PAA-Load on one of his flights which won him 2nd with 3:34.8 —1.8 sec. behind Mike Cook, Ohio.

Two grand chaps: Keith Storey (c.l. director at meet) presents F.A.S.T. club's team racing trophy to Bob Lutker who flew course in 11:42.2 at average of 57.5 mph.

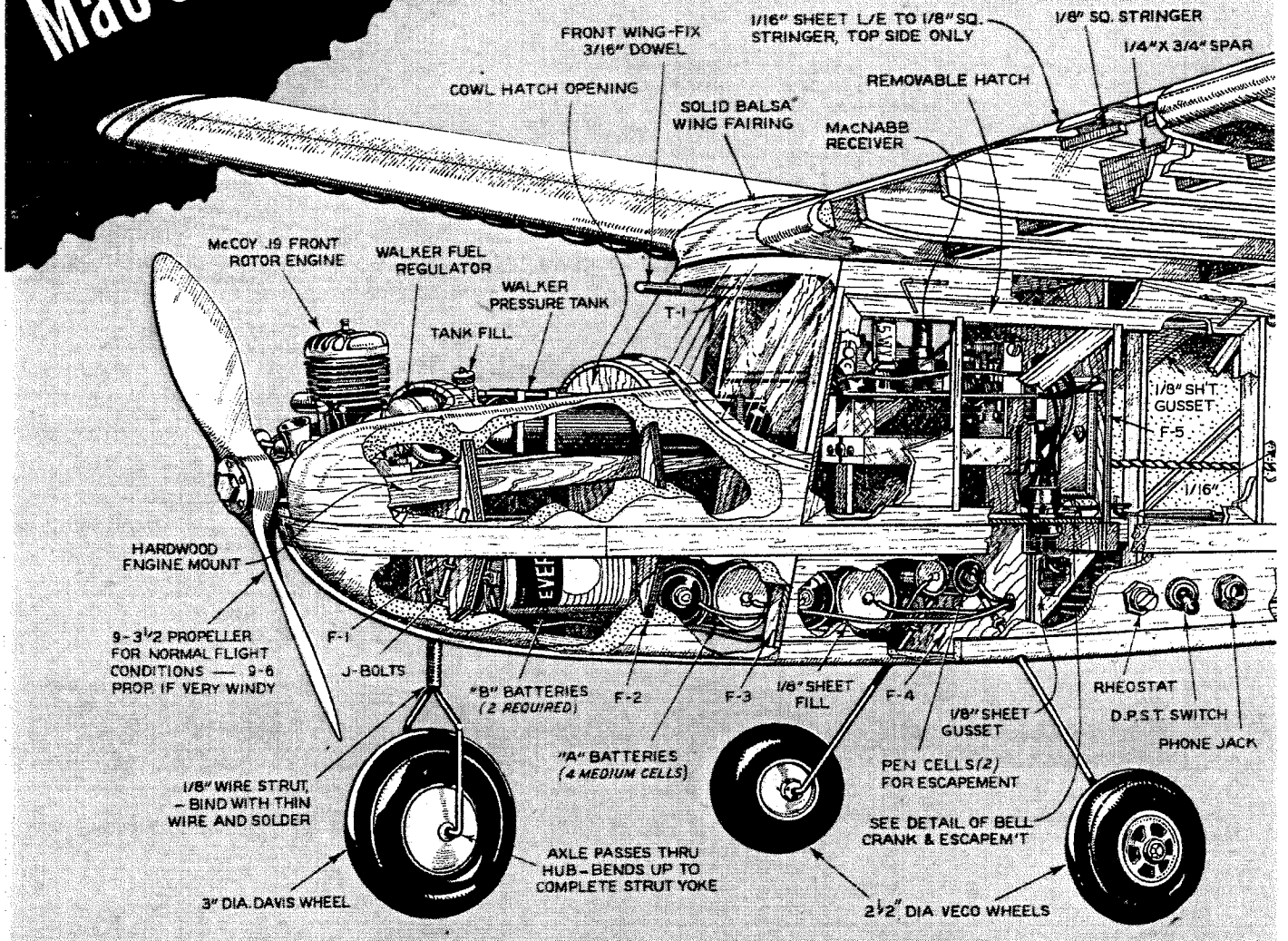


Helping rack up points towards his Open Class Championship is this hand-launched stick model belonging to Bob Bienenstein. Wing area is 149 sq. in. Indoor events in Will Rogers Coliseum, Ft. Worth.

THE END . . . THE ABSOLUTE END! Bob Day, Orlando, Fla., typifies average contestant as 6-day Nats neared end. See you next year!

Mac's ROBOT

All the fun and satisfaction of radio control flying is yours with this proven design; Citizen-Ship transmitter-receiver operates on license-free band, so no "ham" ticket is needed.



■ This model is the third in a series. Here we trace the design and flying rather than detailing the construction, which is standard. Four of these *Robots* were built, three using the 50-54 mc. equipment and #4 using the MacNabb "Citizen-Ship" radio.

By FRANCIS McELWEE

The original design, the *Radart*, was exactly the same size although slightly heavier and used a .29 for power.

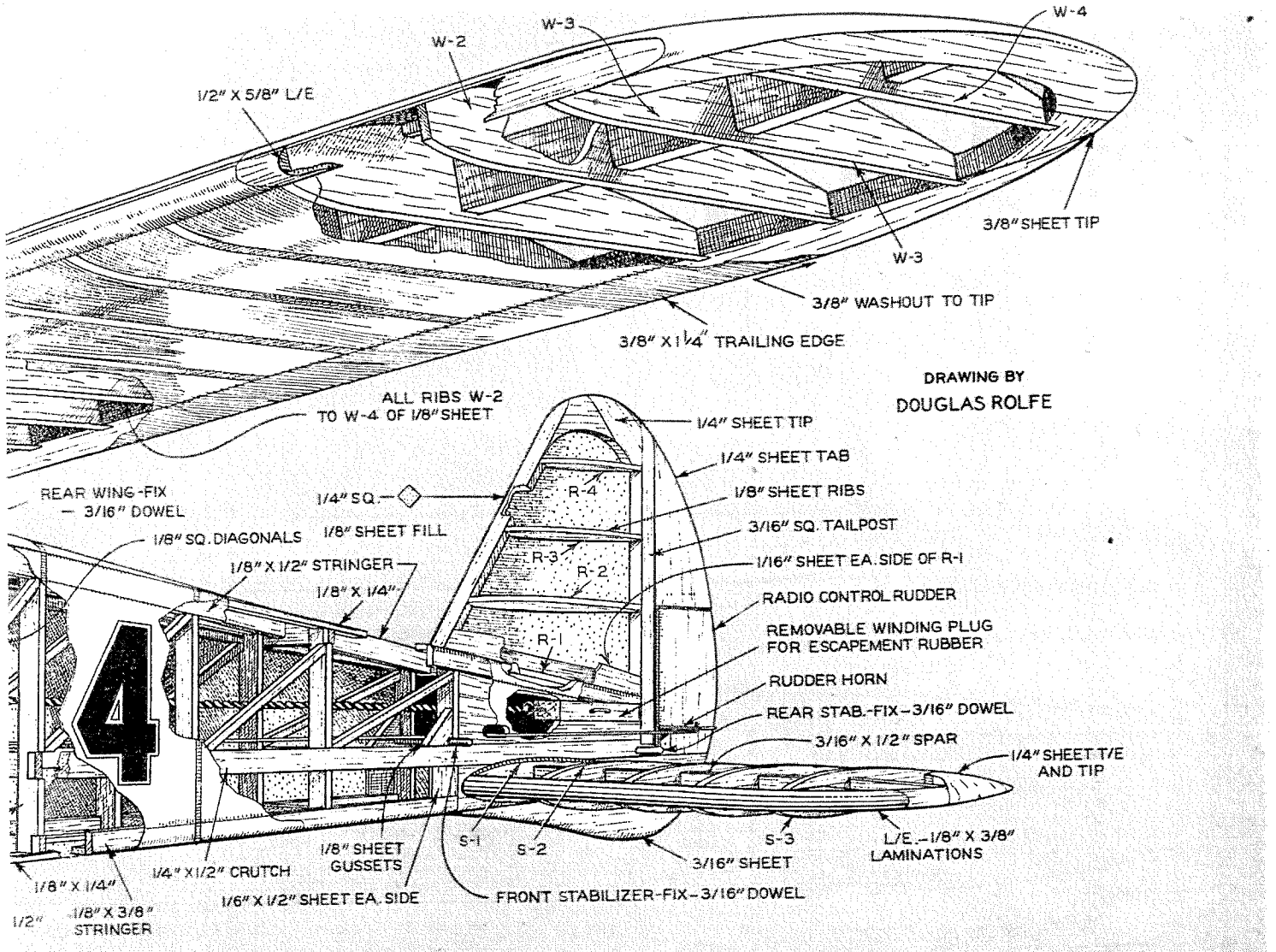
The .29 engine, however, had too much power and had to be slowed down and inefficient propeller used. Many times the engine would lean out in the air causing a high-angle climb which makes control under power, especially in a wind, extremely difficult. Another feature was built-in downthrust, and in the glide the fuselage was at a steep angle, making landings rough and helping break many props.

In the *Robot* the same thrust, wing and tail incidence are used, but all the downthrust is in the engine itself, with the wing but slightly positive, so the plane glides with a slight nose-high attitude, making for good landings. Also the tricycle gear helps here and saves many props.

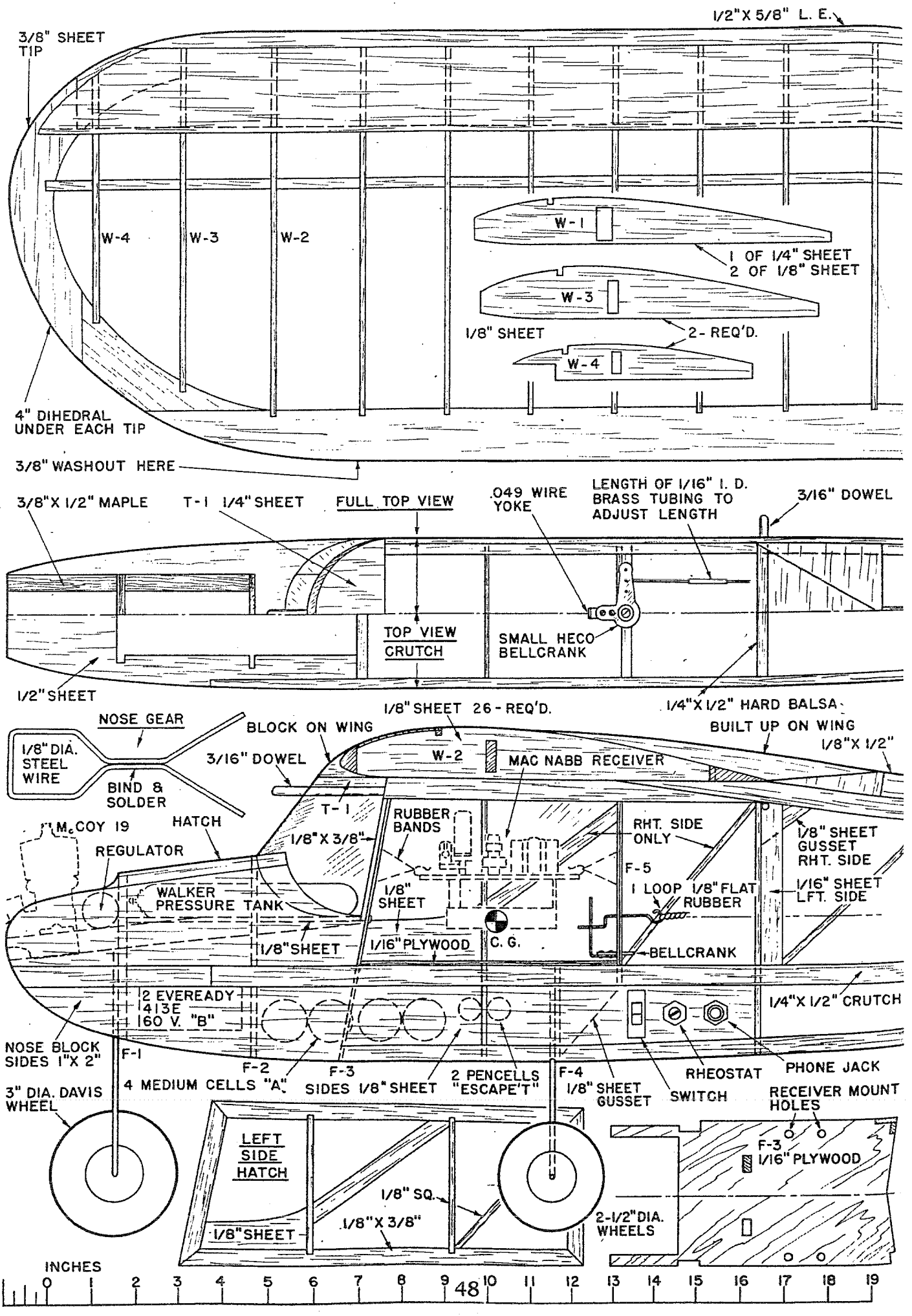
The weight was kept to four pounds and powered by a front rotary McCoy .19.

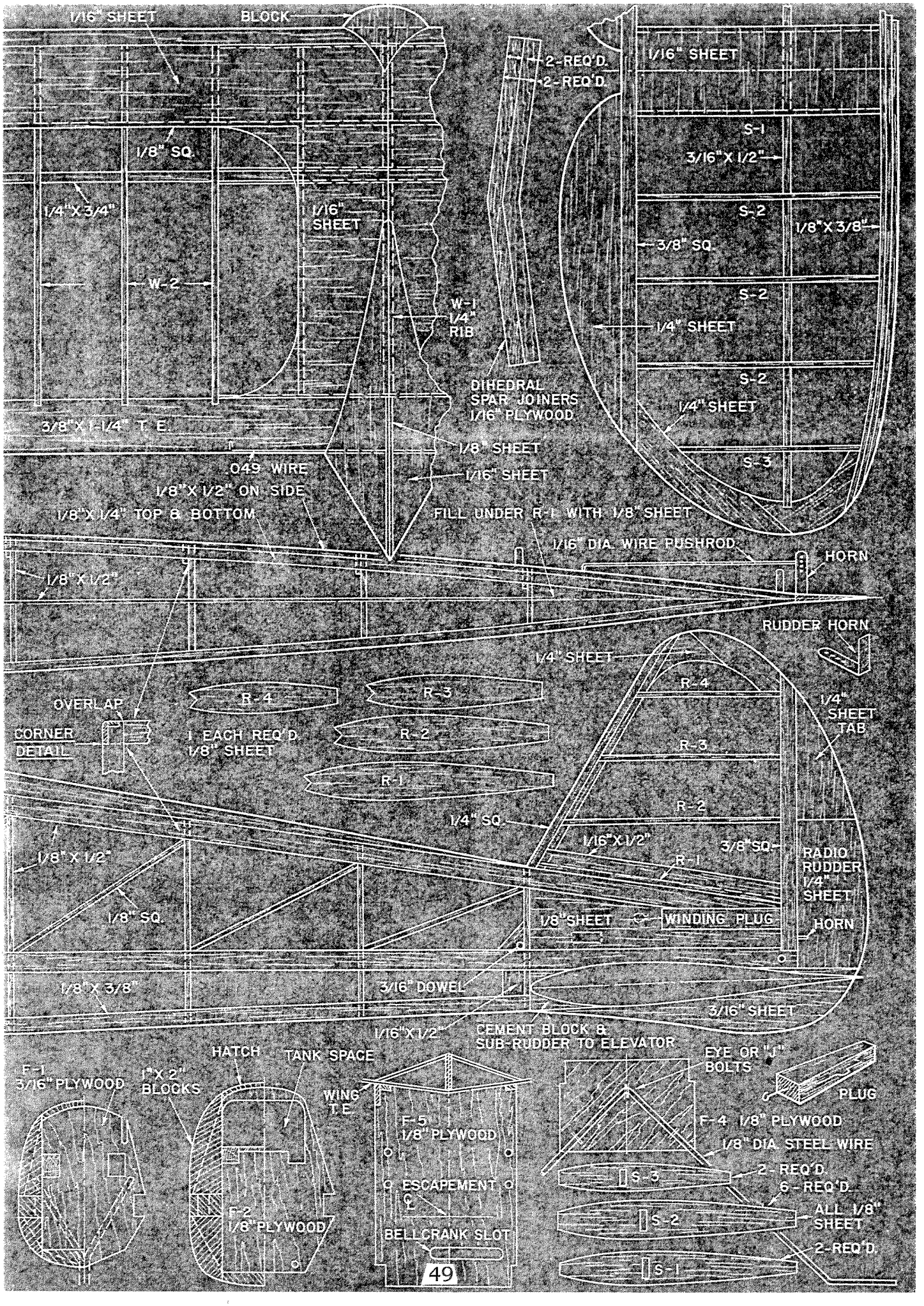
The Walker pressure tank and regulator works beautifully, and runs up to twelve minutes have been made with the .19. The McCoy will hold any needle valve setting throughout the flight, regardless of how rich it is sent off. Starting reliability with a minimum of flips makes flying more enjoyable and gives more time to spend on the radio end.

The model has beautiful straight flying characteristics, yet will turn very readily with the rudder. No side thrust or trim tab setting was used, and turns both right and left are easily made—although the "rights" tend to be more pronounced. If rudder trim is needed for straight flight, use the radio rudder and offset it in the turn needed. The turns will be fairly equal in both directions as compared to using a trim tab.

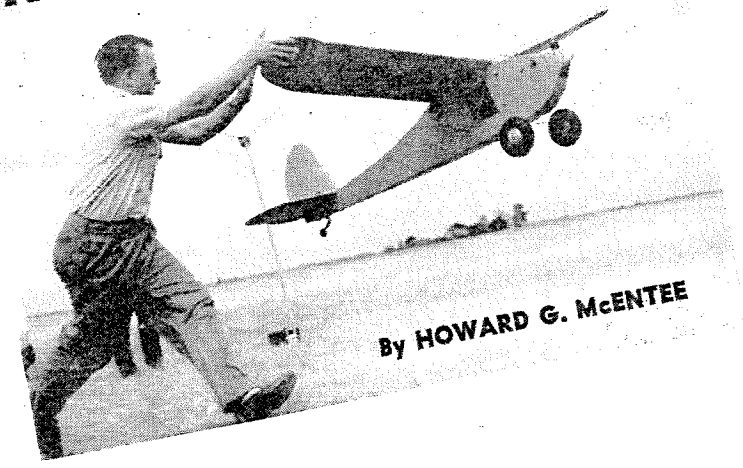

W-4
W-3
W-2
1/2" X 5/8" L/E
3/8" SHEET TIP
W-3
3/8" WASHOUT TO TIP
3/8" X 1 1/4" TRAILING EDGE
DRAWING BY
DOUGLAS ROLFE
ALL RIBS W-2
TO W-4 OF 1/8" SHEET
1/4" SHEET TIP
1/4" SHEET TAB
1/8" SHEET RIBS
3/16" SQ. TAILPOST
1/16" SHEET EA. SIDE OF R-1
RADIO CONTROL RUDDER
REMOVABLE WINDING PLUG
FOR ESCAPEMENT RUBBER
RUDDER HORN
REAR STAB.-FIX-3/16" DOWEL
3/16" X 1/2" SPAR
1/4" SHEET T/E
AND TIP
L/E.-1/8" X 3/8"
LAMINATIONS
REAR WING-FIX
— 3/16" DOWEL
1/4" SQ.
1/8" SQ. DIAGONALS
1/8" SHEET FILL
1/8" X 1/2" STRINGER
1/8" X 1/4"
R-4
R-3
R-2
R-1
4
S-1
S-2
S-3
3/16" SHEET
1/8" SHEET
GUSSETS
1/4" X 1/2" CRUTCH
1/8" X 1/4"
1/2"
1/8" X 3/8"
STRINGER
1/16" X 1/2" SHEET EA. SIDE
FRONT STABILIZER-FIX-3/16" DOWEL


4


1/2"X 5/8" L. E.
3/8" SHEET TIP
W-4
W-3
W-2
W-1
1 OF 1/4" SHEET
2 OF 1/8" SHEET
W-3
1/8" SHEET
2- REQ'D.
W-4
4" DIHEDRAL UNDER EACH TIP
3/8" WASHOUT HERE
3/8"X 1/2" MAPLE
T-1 1/4" SHEET
FULL TOP VIEW
.049 WIRE YOKE
LENGTH OF 1/16" I. D. BRASS TUBING TO ADJUST LENGTH
3/16" DOWEL
TOP VIEW CRUTCH
SMALL HECO BELLCRANK
1/2" SHEET
1/4"X 1/2" HARD BALSA
1/8" SHEET 26 - REQ'D.
NOSE GEAR
1/8" DIA. STEEL WIRE
BIND & SOLDER
BLOCK ON WING
3/16" DOWEL
W-2
MAC NABB RECEIVER
BUILT UP ON WING
1/8"X 1/2"
T-1
McCOY 19
HATCH
REGULATOR
1/8"X 3/8"
RUBBER BANDS
RHT. SIDE ONLY
1/8" SHEET GUSSET RHT. SIDE
F-5
1/16" SHEET LFT. SIDE
1 LOOP 1/8" FLAT RUBBER
WALKER PRESSURE TANK
1/8" SHEET
1/8"SHEET
1/16" PLYWOOD
C. G.
BELLCRANK
2 EVEREADY 413E 160 V. "B"
1/4"X 1/2" CRUTCH
NOSE BLOCK SIDES 1"X 2"
F-1
F-2
F-3
F-4
4 MEDIUM CELLS "A"
SIDES 1/8" SHEET
2 PENCELLS "ESCAPE'T"
1/8" SHEET GUSSET
SWITCH
RHEOSTAT
PHONE JACK
3" DIA. DAVIS WHEEL
RECEIVER MOUNT HOLES
LEFT SIDE HATCH
1/8" SQ.
1/8"X 3/8"
1/8"SHEET
F-3
1/16" PLYWOOD
2-1/2"DIA. WHEELS
INCHES
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19


1/16" SHEET
BLOCK
1/8" SQ.
1/4"X 3/4"
1/16" SHEET
W-2
2-REQ'D.
2-REQ'D.
W-1
1/4"
RIB
DIHEDRAL
SPAR JOINERS
1/16" PLYWOOD
1/16" SHEET
S-1
3/16"X 1/2"
S-2
1/8"X 3/8"
3/8" SQ.
S-2
1/4" SHEET
S-2
1/4" SHEET
S-3
3/8"X 1-1/4" T.E.
1/8" SHEET
049 WIRE
1/16" SHEET
1/8"X 1/2" ON SIDE
1/8"X 1/4" TOP & BOTTOM
FILL UNDER R-1 WITH 1/8" SHEET
1/16" DIA. WIRE PUSHROD
HORN
1/8"X 1/2"
RUDDER HORN
1/4" SHEET
R-4
R-3
OVERLAP
CORNER
DETAIL
1 EACH REQ'D
1/8" SHEET
R-2
R-1
R-4
1/4"
SHEET
TAB
R-3
R-2
1/4" SQ.
1/16"X 1/2"
3/8"SQ.
R-1
1/8"X 1/2"
RADIO
RUDDER
1/4"
SHEET
1/8" SQ.
1/8"SHEET
WINDING PLUG
HORN
1/8"X 3/8"
3/16" DOWEL
3/16" SHEET
1/16"X 1/2"
CEMENT BLOCK &
SUB-RUDDER TO ELEVATOR
HATCH
TANK SPACE
EYE OR "J"
BOLTS
F-1
3/16" PLYWOOD
1"X 2"
BLOCKS
WING
T.E.
F-5
1/8" PLYWOOD
PLUG
F-4 1/8" PLYWOOD
1/8" DIA. STEEL WIRE
S-3
2-REQ'D.
6-REQ'D.
ESCAPEMENT
F-2
1/8" PLYWOOD
S-2
ALL 1/8"
SHEET
BELLCRANK SLOT
2-REQ'D.
S-1

Radio Control Round-up



By HOWARD G. McENTEE

Modeldom's most colorful event has an exciting past; here's an authoritative, updated report on R-C flying—past and present

■ Radio control of models is not new. Despite the idea of many model builders that R-C work was discovered around 1937 or 1939 with the holding of the first R-C event at an A.M.A. Nationals meet, the control of models by means of radio actually was an accomplished fact long before World War I. The early pioneers did not use model

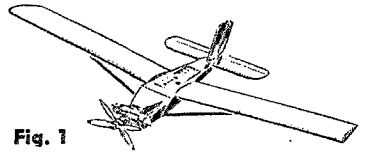


Fig. 1

airplanes, but instead worked mainly with model boats. The planes of that day were virtually 100% rubber-propelled, of course, and the hardwood-framed models had enough weight to carry without addition of radio apparatus.

Since the modern vacuum tube was not available in practical form before the First World War, the experimenters in older days utilized a cranky and unreliable receiver known as a coherer-decoherer. For transmitting the principal element was an induction coil, operation of which was invariably accompanied by crashing sparks and fireworks of all kinds. Ranges reached were only a few hundred yards, but yet it *was* Radio Control.

During and after World War I, experiments in radio control of airplanes—not models, but the equivalent of today's lightplanes—were quite successful, and some slight use was made of these aircraft as target planes.

Radio control of model planes, however, began in earnest soon after the development and marketing of reliable miniature gas engines, and progress was so rapid that the Radio Control Event was added to the Nats schedule in 1937. This was the 10th National Meet at Detroit and half a dozen R-C models were entered. While three

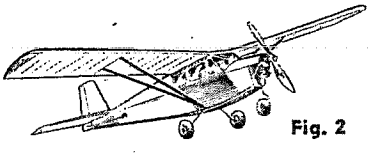


Fig. 2

of the ships managed to get off the ground, two crashed immediately after take-off. The only really successful entrant was Chet Lanzo; his plane (Fig. 3) was a simple stick model with an open fuselage built in crutch shape, and the 9 foot wing mounted on a wire "pylon." Power was furnished by a Baby Cyclone engine and the airplane weighed 5¾ lbs. ready to fly.

After checking the possibilities of aileron, elevator, and rudder

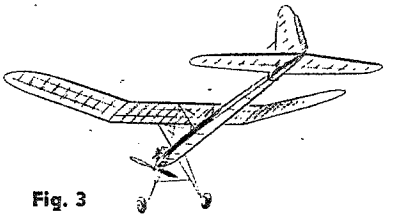


Fig. 3

controls, Lanzo settled upon rudder only as the most practical, possibly starting a trend that continues to this day. The complete control installation weighed only 1¾ lbs., a phenomenally low total in a day when most R-C men felt 5 or 6 pounds was the irreducible minimum. The complete control equipment may be seen in Fig. 8; the long balsa tray containing the entire receiver fitted between the two fuselage members; second from lower right is the tiny 45V B battery, which had a life of only about two weeks, whether you used it or not! Batteries fitting into the fuselage in front of the receiver, and the rudder motor and gears were just to the rear.

The radio system operated in the

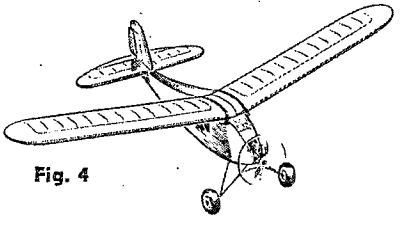


Fig. 4

80-meter (3.5 mc.) Amateur band, and the receiver often responded to signals from Amateur transmitters several hundred miles away! The motor was geared down and linked to the rudder; if allowed to operate steadily, the rudder would turn alternately right and left. It could be stopped at the straight-ahead position, or at any intermediate degree of right or left turn up to the full range of motion, and thus acted as a slow-motion motor driven sequence control.

The 3-tube receiver included an oscillating detector and two audio amplifier tubes; unmodulated pulses from the transmitter caused an audio beat note when received

Out to Launch: Photo, top, shows Walter Good launching *Big Guff* at Minneapolis Nationals. Brother Bill's at xmtr (see feet?)

by the detector, this audio note serving to nullify the high C bias of the amplifier tubes and thus causing a sensitive relay to operate on the resultant increased plate current. Tuning was critical, but Lanzo made many successful flights with the system. The plane flew nicely and control was good enough to win the Event, netting Chet two trophies and an engine.

In the summer of 1937 a group of radio men led by Ross Hull of

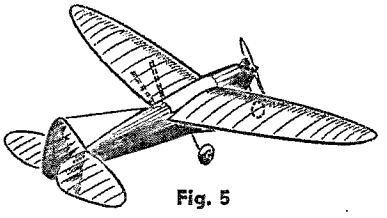


Fig. 5

the American Radio Relay League began active experiments in the Radio Control field, and the equipment they developed left an indelible print on R-C work that is still felt today, some 14 years later. Their original work was done in Connecticut and large model gliders were used almost exclusively. They decided at the outset to confine operations to the Amateur 56 mc. band, and 95% of R-C work today is still done on the

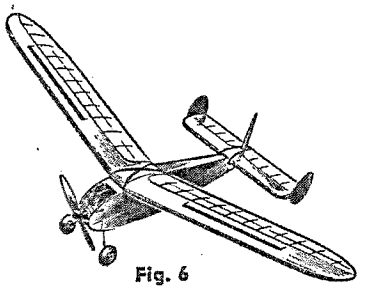


Fig. 6

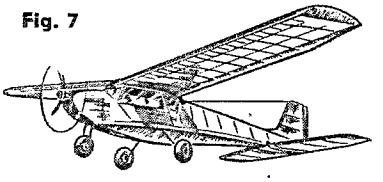
present equivalent band, 50-54 mc. Their greatest "masterpiece" was development of the magnetic escapement to operate their rudder surfaces; here again, probably at least 90% of R-C planes flying today utilize an escapement in some form.

The Connecticut group originally used 2 and 3 tube receivers, but felt the need for something lighter and simpler. This "something" they helped to develop in 1938; it was the forerunner of the RK61 tube so popular at present. Another collaborator, Clinton DeSoto, formed a concern shortly after that which dealt exclusively in radio control apparatus, the first firm to specialize in the new field, in which it is still actively engaged today.

Hull and his co-worker, R. B. Bourne, had planned to enter a high-performance model soaring glider at the annual glider meet in Elmira, but rules technicalities prevented this. However, the sleek 16-foot model made many successful exhibition flights.

As the 11th Nationals rolled around, the R-C boys had great hopes for their various systems, but unfortunately the R-C Event was the victim of that uncontrollable factor—windy weather—which has plagued R-C contest flyers right up through 1950! The only ship to fly was that built by Walter Good, and it cracked up shortly after take-off. Walt had had the same airplane at the '37 Nats where he gave a successful demonstration of his equipment on the ground, but didn't attempt a flight. The same plane and radio

Fig. 7



equipment were used in 1938—in fact, this plane, shown in Fig. 4, is the same used by Good right up to and including his win at the 1947 Nats in Minneapolis!

We should probably say it's an "equivalent" plane, for the original 8-foot *Big Guff* received a new fuselage in 1938, new tail surfaces in 1939, and new landing gear in 1947, plus various motors along the way. It is still in good flying condition as this is written, and has become so famous in R-C circles that it is to be offered to the Smithsonian Institution as an addition to their model collection. *Big Guff* has a deep and spacious fuselage to carry any required radio gear and total weight runs about 8 lbs., depending upon the equipment carried.

Walter Good was joined in 1939 by his brother, Bill, a licensed radio Amateur, and the Goods have been a famous team ever since.

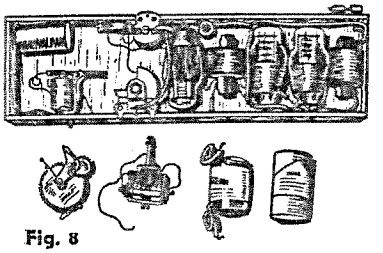
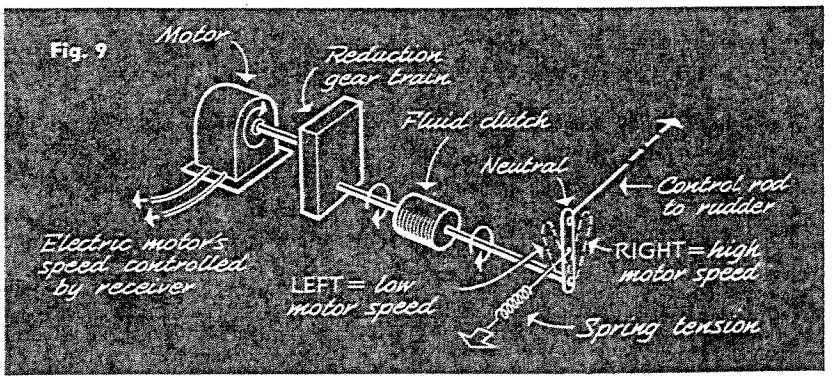


Fig. 8

Several other interesting planes appeared at Detroit that year, one of the most awe-inspiring being the "model" built by DeSoto. Of semi-scale design, this cabin job had a 14-foot span, weighed about 28 lbs., and was powered by a special Forster twin-cylinder engine which developed nearly one horsepower. Four separate receivers using RK62 tubes were fitted, connected so that one radio channel each was used to give right or left rudder, and up or down elevator. Though he didn't fly the monster at the meet, DeSoto was awarded second place after he had demonstrated that this equipment was fully workable.

In 1939 at the 12th Nationals, again held in Detroit, the first demonstration of what radio control could really do was given by the Good brothers, who made turns at will, figure 8's, and ended with a landing only 100 feet from the take-off point. This flight clinched first place for them. Although the *Big Guff* carried twin-channel equipment for actuating both rudder and escapement (it was, in fact, fitted with twin-channel apparatus from 1937 through 1940), only the rudder channel was ever *(Continued on page 52)*

Fig. 9



R-C Round-Up

(Continued from page 51)

used in competition. Walter had developed a single tube super-regenerative receiver using a type 30 tube—a battery-operated triode—in 1937, and this was later produced commercially. In 1939, the type 30 tube was replaced by the RK-42, a triode of the same type, which had a more economical filament.

This same year several other builders, among them 2nd place winner Joe Raspante, gave convincing demonstrations that R-C model flying had really grown up. There were eleven entrants.

In 1940 the Nationals moved to Chicago, and the Good brothers again topped all comers with a very convincing demonstration, using exactly the same plane and radio equipment they had employed in 1939. Their task was made more difficult by the fact that their transmitter was stolen the day before the radio event, forcing them to toil through the night at a Chicago radio laboratory to build the transmitter that was to put them in first place again the next day.

Also, this same year another contestant, C. H. Siegfried, now well-known in R-C circles, placed high. "Siggie" took second with a large monoplane carrying a complex-sequence-selection control system which he operated by means of a telephone dial at the transmitter. Only a single radio channel was used, but the control unit in the phone enabled high-speed selective operation of rudder, elevator, motor speed and motor cut-off; moreover, right or left movement in any desired degree could be had.

In 1940 there were again about a dozen entrants in the National Meet, and almost all of them flew and collected at least some points.

The last prewar Nats was the 14th in 1941, still in Chicago, and at this meet a newcomer took over first place, using a control system not seen previously. Jim Walker, though well-known for his work in U-Control, topped the field of 26 entries, flying a very attractive 7-foot-span tricycle-gear monoplane, a rather small size in relation to radio planes normally flown up to that time. Walker's control utilized an ingenious fluid clutch, driven by a motor that was directly controlled by the receiver, and the result was what is termed proportional control. In other words, the rudder surface could be made to follow exactly the movement of a control at the transmitter. The rudder would move either right or left at any instant, and to any degree selected by the operator as he moved the ground control stick.

Though better means have since been found to do the same job, the elements of Walker's 1941 system are shown in Fig. 9. If the electric motor were operated at medium speed, the fluid clutch would tend to rotate the control arm toward the right, and spring tension would be adjusted just to counteract this, thereby holding the arm in the center, or neutral position. If motor speed were decreased, the spring action would predominate, thus giving left rudder; increased motor speed would produce various degrees of right rudder.

Control of the motor speed was a tricky proposition, but Walker had the system balanced to perfection, and made some fine flights, while demonstrating beautiful control in taxiing on the ground. A second radio channel was utilized to operate a two-speed timer on the motor.

Several other flyers with complex controls appeared at the 1941 meet, including Siegfried with his rotary selector system. A group of modelers from Purdue University brought a 12-foot-span ship which carried a 14-tube superheterodyne receiver! Audio-selection made possible the use of five control movements, but the ship was kept grounded by windy weather.

The war years saw great strides in radio control, though not in the model field, since R-C flying by civilians was banned. Many thousands of radio-controlled target planes (Fig. 1) were used by the Armed Services as an aid in gunnery practice. They included the OQ series, no larger than some of the planes flown at the Nationals (and, in fact, originally developed from civilian R-C model planes by Reginald Denny, the movie actor, who had a great interest in model aviation—remember the Dennymite engine?), and larger jobs all the way up to radio-controlled B-17's used as gigantic guided missiles.

The first postwar Nats at Wichita in 1946 saw a rather small gathering of contestants who were somewhat hampered by freakish weather conditions. However, the radio boys put on a good event, and, in fact, outshone a group of Service men who were on hand to demonstrate the Army target planes. Jim Walker again came out on top, nosing out veteran R-C contestant Siegfried who was second.

Walker flew a neat semi-scale ship, equipped with tricycle gear and illustrated in Fig. 2. He had improved his proportional control system a great deal since winning with it in 1941; two radio channels were used, ending up in RK-61 receivers in the plane. Full control of elevator and rudder was available, but Jim usually flew with proportional rudder and motor speed controls (the latter accomplished with a two-speed timer) and obtained very fine results from this combination.

In 1947 at Minneapolis, the Good brothers returned to active Nationals competition, as did Chet Lanzo. The Goods won handily this time, as one after the other of the veterans, including Siegfried, Lanzo, and Walker, suffered various mishaps. The latter was ahead in points up to the last day, but then had a disastrous crack-up which could not be repaired in time to finish the meet. The Goods were still flying old reliable *Guff* but had only a single receiver in their plane. All the radio equipment they used was of commercial manufacture built from their own designs. They had a new gimmick, a thermal motor cut-off, that enabled them to stop the motor at any chosen time.

Some new faces appeared at this meet, notably a group of modelers from Indianapolis, who, though they were attending the meet "just for experience," still managed to take third place. These flyers, Joe Hughes, Vic Brown, and Gene Foxworthy, have done very well since; Foxworthy was third at the 1948 Nats, and won that event in 1950 (Fig. 6).

With the move to Olathe in 1948, a real top grade radio event was seen. Fourteen entrants actually made official flights, though many more were on hand. Both winners Jim Walker and runner-up George Trammel put on breath-taking exhibitions which included consecutive loops and other complex maneuvers made possible by the fact that both had full rudder and elevator control.

Walker flew a new ship of shoulder-wing design (Fig. 5), and incorporating what might be called a pulse-selection system. Only a single radio channel was required, the receiver being connected to an ingenious selector unit driven by a small electric motor. Practically instantaneous selection of rudder and elevator movement in several degrees could be had; motor speed control was also included.

Second place winner Trammel flew with what should be termed the "poor man's proportional control." In place of the complex motor-drive units employed in the past by Walker and others to operate the control surfaces, George had developed very simple and lightweight "actuators." He had these fitted to rudder and elevators, and by use of dual-channel radio equipment could really make his plane perform.

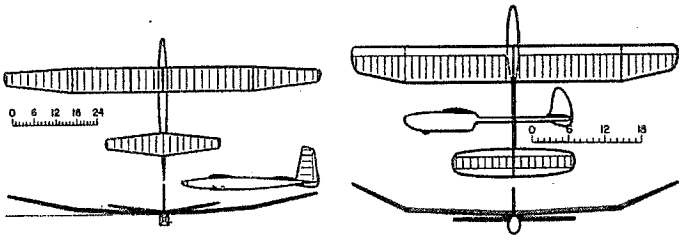
The R-C Event in 1949 at the 18th Nats in Olathe was notable for the fact that Walt Good at last entered a new design in the competition! His *Rudder Bug*, with which he took first place, was a big success, and as seen in Fig. 7 is a very attractive design, with many features intended expressly for R-C flying. As usual, Good used rudder only, escapement-actuated, but he flew with the same smoothness and sure touch that had enabled him to do so well with *Guff* in the past. A new note was added, in that he used what is now generally called a "Beep-Box"—a motor-driven transmitter control box which "remembers" the proper sequence for operation of the escapement.

Second-place winner was Paul Johnson, who had flown in his first Nats the year before. Paul used a sort of semi-proportional control which gave him instant left, neutral, or right, with no sequence involved, though there were no intermediate positions available.

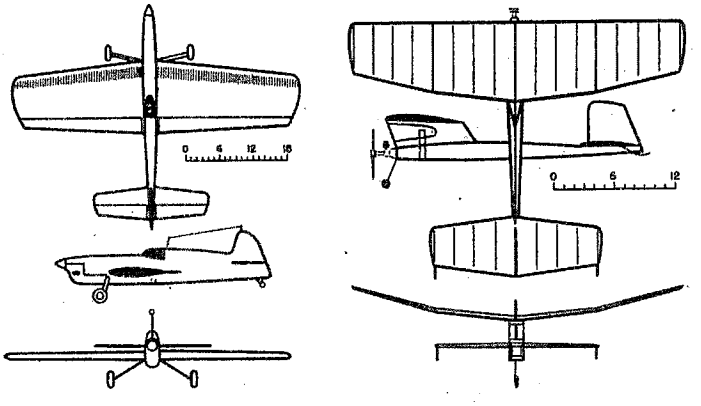
Bringing us right up to date, the 19th Nationals at Dallas had the biggest radio event ever—about 40 entrants! This meet saw the first use of equipment in the so-called "Citizens Band," which equipment can be operated legally by anyone without the need for possessing an Amateur license. Gene Foxworthy used the 465 mc. equipment in his ship, with escapement operation of rudder only, to win the event. In addition to 465 mc., and the 50 mc. Amateur Band used by most of the other entrants, an experimental 27 mc. transmitter licensed to the A. M. A. was in operation. Several flyers tried it out, and Jim Schenck, using this transmitter and a Beep-Box, took second place; he flew a *Rudder Bug* with escapement-operated rudder. 1950 saw the first flying of the Navy-sponsored Radio Control Bomb Dropping event, won by Schenck.

This brief coverage of the Radio Control Events at the Nationals will serve as a progress outline of model plane R-C work in this country. Though we have covered only the Nationals, there have been R-C events at hundreds of other meets since 1946. On the East Coast, the huge Flying Fairs put on by the New York Daily Mirror have always featured the Radio Event, and in the West such meets as the All-Western Open serve to keep the radio boys in practice. Between the two coasts, the interest has been just as great, with especially active groups in Chicago, Pittsburgh, Kansas City, and elsewhere.

Air-Model Design at the *Nationals*

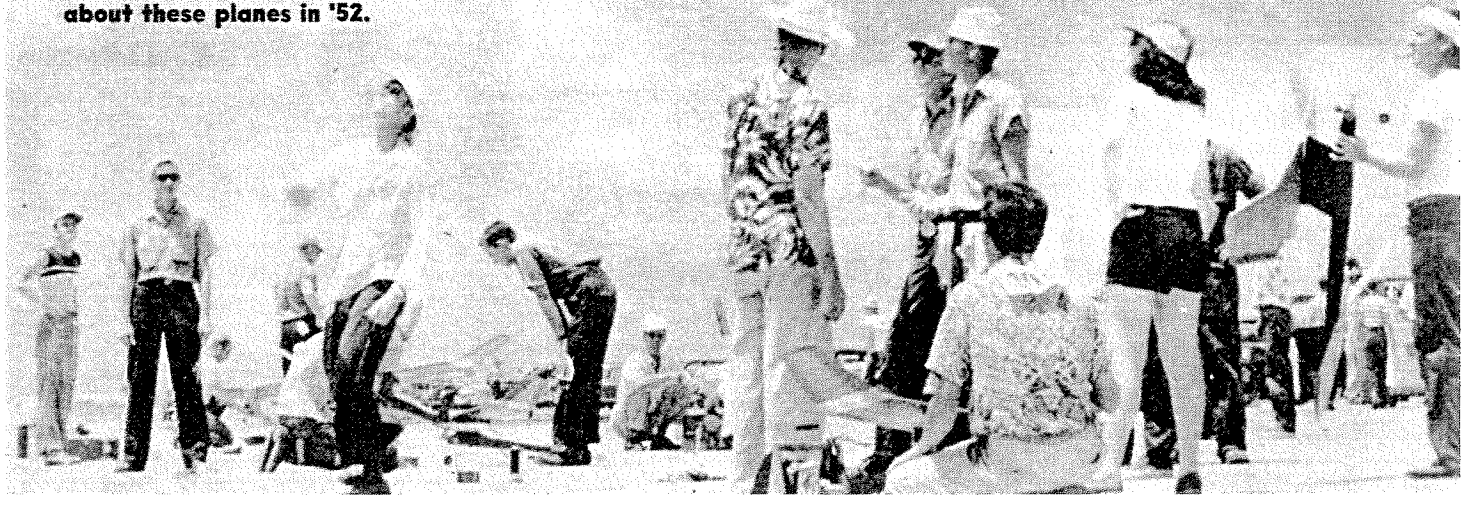


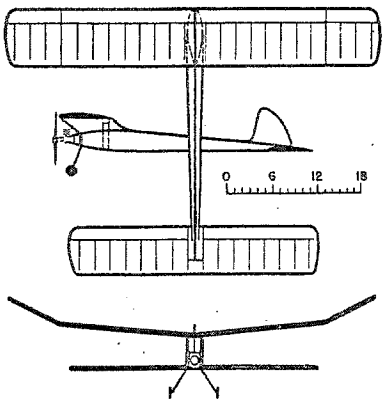
Short coupled, sheet-covered fuselage job was Frank Ehling's 22 oz. towliner (left). Flexible wing to absorb launching and landing shocks. Tow rudder used; dihedraled stab clears ground on landings. Flat bottom airfoil; ribs 1" apart. Dick Everett's huge pod-boom towed, glided superbly; 51 oz. Gott. 602 on wing thinned to 8% for stab. Spruce boom, balsa pod, sheet rudder.



George Aldrich's stunt model looked sleek enough to be a team racer, flew almost as fast. All surfaces built up. Additional moment arm of 1 or 2" suggested for extra smoothness. Frank Ehling's "Payoff" PAA-Loader had low aspect ratio wing, stab. Thin wing section & single wheel made model fast. Straight under power, glides tight left. Dips once after power cut.

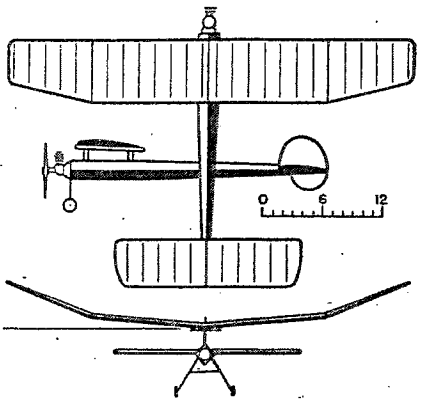
Proving ground for new modelplane designs, the annual National Meet always brings out the best ships by America's leading designers. Here's a collection of outstanding entries gathered by AT's air-model design team. You'll be hearing more about these planes in '52.





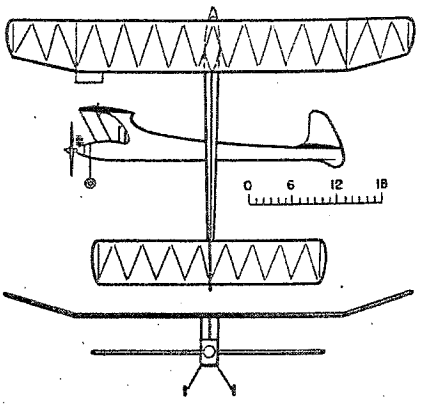
Paul Gilliam's "Payday" had clever cabin layout: large stab permitted dummy positioning where fuselage could be streamlined to advantage. Two wheels, smooth take-off.

Chicago's Ed Mates flew this diamond fuselage with Airco wing and stab combo. High angle of frontal float results in fast take-off. Model established brand-new AMA record.



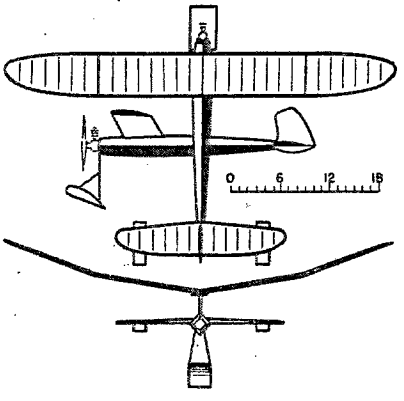
Interesting Half-A non-pylon model by Sal Taibi, ex-Brooklyn Skyscraper. Diamond fuselage. Stabilizer tilted for turn. Wt., 5 ounces. 12% wing section, 8% stabilizer.

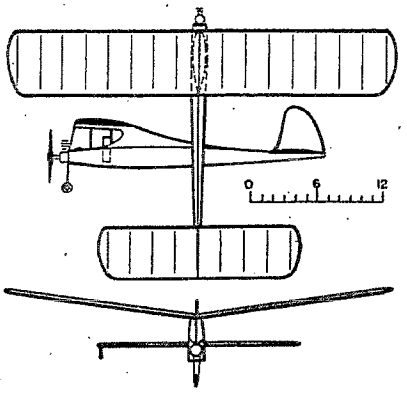
Wayne Schindler flew this promising Half-A PAA-Load Compact design. Thin wing and tail section; clean fuselage. One wheel and skid used. Design won numerous meets.

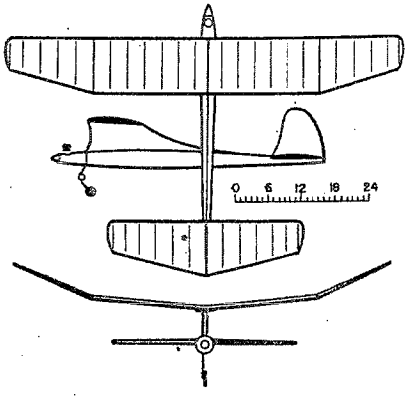


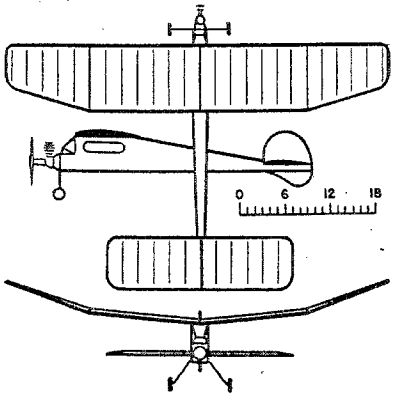
Dennis Davis' "Mini PAA-GAN" featured "Hoganamic" warp-free wing, stab construction. Low dihedral, large stab combine with long moment arm for good glide.

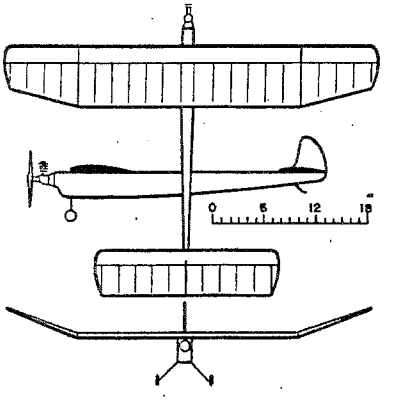
Sal Taibi's "streamlined machine shop." Features machined motor mount, cowl and spinner ring. Planked round fuselage. Shock-absorbing gear. Thin profile pylon fuse.

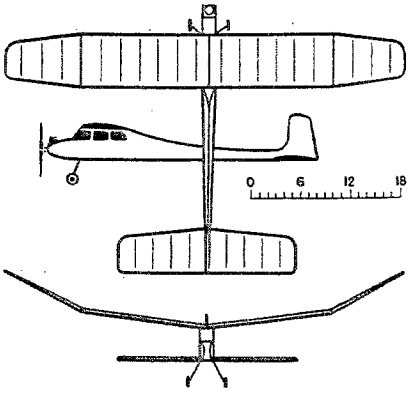












Taibi's C1. A winner. Simple cabin, sheet sides. 360 sq. in. wing, good glide. Arden .099 with plastic prop; terrific climb. 11% original section, 8% stab. 3rd in ROW.

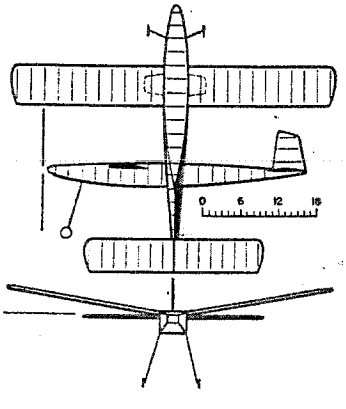
Entry by Unknown Flyer. Shoulder wing with detachable surfaces. Fuselage built in jig, covered with 1/32 in. sheet. Prop from 1¾ x 2 x 20 in. blank; 24 strands ¼ in. T-56.

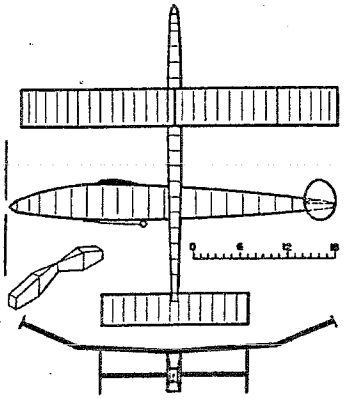
A Ted Grzeszczak design: PAA cargo. Carried 15 oz. for 38 sec. when it hit antenna of Navy truck. Placed 3rd with 11 oz. on previous flight. Sheet balsa fuselage, thin wing.

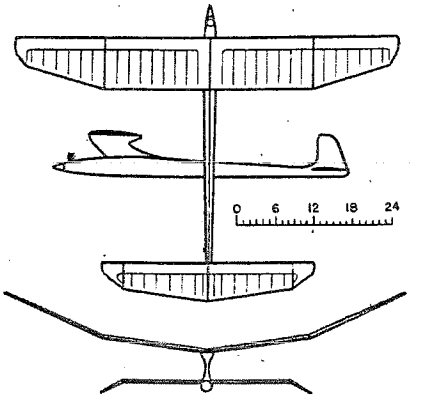
W. A. Teague, Jr., flew this smooth rubber job. High-pitch prop worked well on 20 strands of 3/16 in. Dunlop, 48 in. long, non-tensioned. Prop 1¼ x 1½ x 18 in. blank.

Lew Mahieu's fine Half-A for standard free flight—or as PAA-Load. Named "Zuina" (I'd zuina win than not!) Quarter-size version of big model. Smooth flying job.

One of most beautiful was Alberto Vela's stable free flight. Arrow-like climb, excellent glide. Typical of Mexican entries: extreme tail moment arm and generous dihedral.

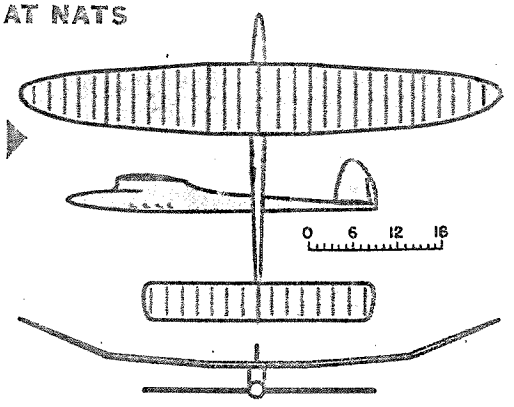


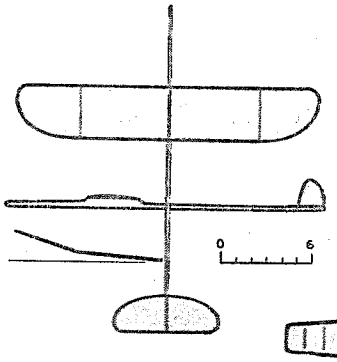




AIR-MODEL DESIGN AT NATS

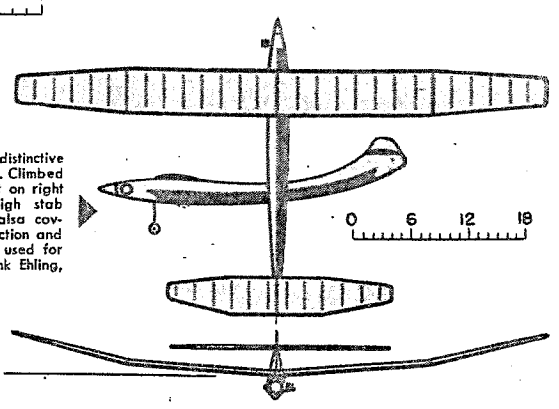
Wayne Schindler's towline entry was outstanding for its very flat glide. Model was free flight Cumulus fuselage and wing with balsa nose! Side hooks used for straight or slight-right towing launch. Model glides to the left. Fuselage covered with sheet balsa, nose is solid balsa. Had NACA 6409 wing section and Clark Y stab. Schindler is noted for consistent gliding

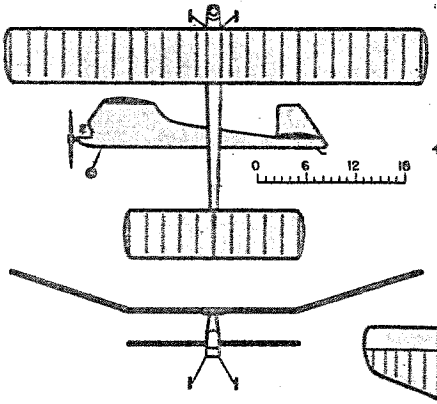




Another design by AT's Dick Everett—a model with very slow glide. This "El Lobo" placed 2nd indoors, 2nd outdoors. For outdoors weighted .87 oz., indoors, .83 oz. Tail shortened 3 in. for indoor flying.

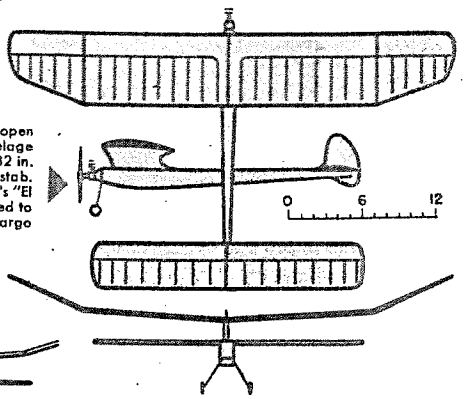
Ted Grzeszczak's "Slowpoke" with a distinctive upswept fuselage was lost on test flight. Climbed to left, glided to left. Slight wash-out on right wing half. Engine side-mounted. High stab worked out well. Fuselage was sheet balsa covered for front 1/3rd. Thin 6% wing section and 8% stab combination. Froom spinner used for cowling. Ted is flying partner of Frank Ehling, both of Jersey City, N. J.

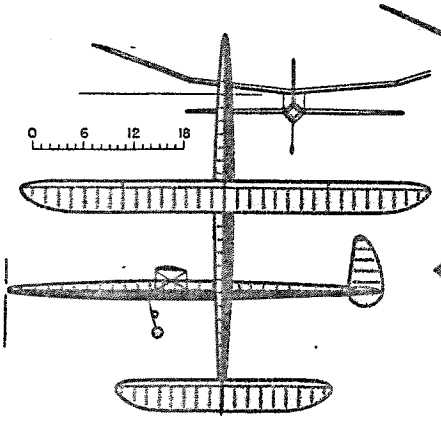




This is Ernie Shailor's very successful Class B free flight which has won numerous big meets, including the Nationals, and has set numerous Michigan state and U. S. records. Ernie hails from Detroit. Simple, straightforward design. Two-wheel gear for assured take-off. Moderate tip dihedral and normal tail moment arm combined with moderate stab area add up to quick recovery. Fuselage outline gives pylon effect with more pleasing cabin-like lines. Model will appear in detailed plans in forthcoming issue of Air Trails or new Air Trails Annual.

Everett again! This time his "El Gobo" which took open event with 22:05. Weight, 5½ oz.; sheet balsa fuselage sides. Wing and stab leading edges covered with 1/32 in. sheet balsa. Gott. 602 on wing thinned to 8% on stab. Used Torp, 6/3 Top-Flite prop, Ultraglow fuel. Dick's "El Cargo" version was similar model with 10 inches added to span. That job placed third in Pan American's Cargo event carrying 11 ounce load.





They're getting longer by the minute! Some unsung hero had this job entered in the outdoor rubber event; sorry to say we missed his name. Anyhoo, it's a long nose affair that flew smoothly and required no downthrust. Prop block was 2 x 3 x 18 inch block and the model was powered by 24 strands of ¼ in. T-56 brown rubber. It flew in the Unlimited Rubber class with weight of 13 ounces. Gear was used for landing purposes only; the bend in the single wire gear for spring purposes. This year's Nats saw quite a few of the Cole-type "Pogo Stick" designs.

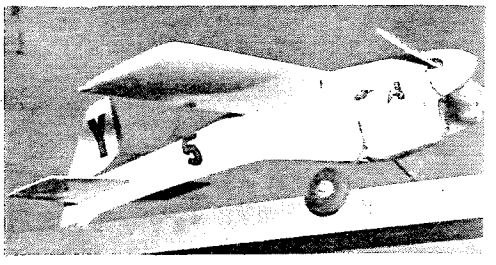
5th INTERNATIONALS

■ The best Plymouth International Model Plane Contest ever held, and one of the best run meets of all time, took place in Michigan late in August when 514 of America's best aeromodelers under 21 gathered to compete in the auto concern's 5th annual invitational tournament.

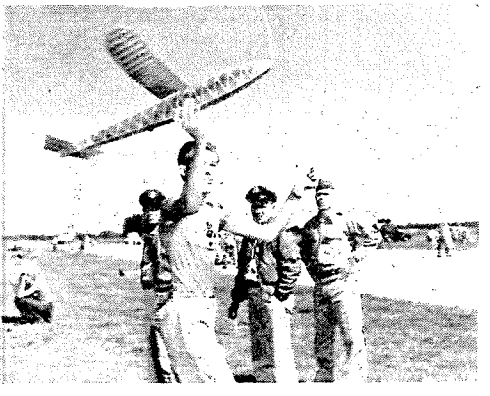
When the four-day affair was ended, 15-year-old Dick A. Modler of Dayton, Ohio, emerged as high-point champ of all age classes. Competition was divided up into 3 categories: Freshmen, not yet 12; Juniors, 12 to 16; and Seniors, 16 to 21 years of age.

Awards at the victory dinner included $4,725 in U.S. Savings Bonds, 93 first, second and third place trophies plus the famous Plymouth Perpetual Trophies. The gala affair was held on Bob-Lo Island, a recreation park in the Detroit River which the contestants reached after a memorable excursion boat ride. Plymouth's reputation for providing outstanding flying weather held good again for free flight events at the USAF's Selfridge Field and the U-control at Detroit's Belle Isle Athletic Field.

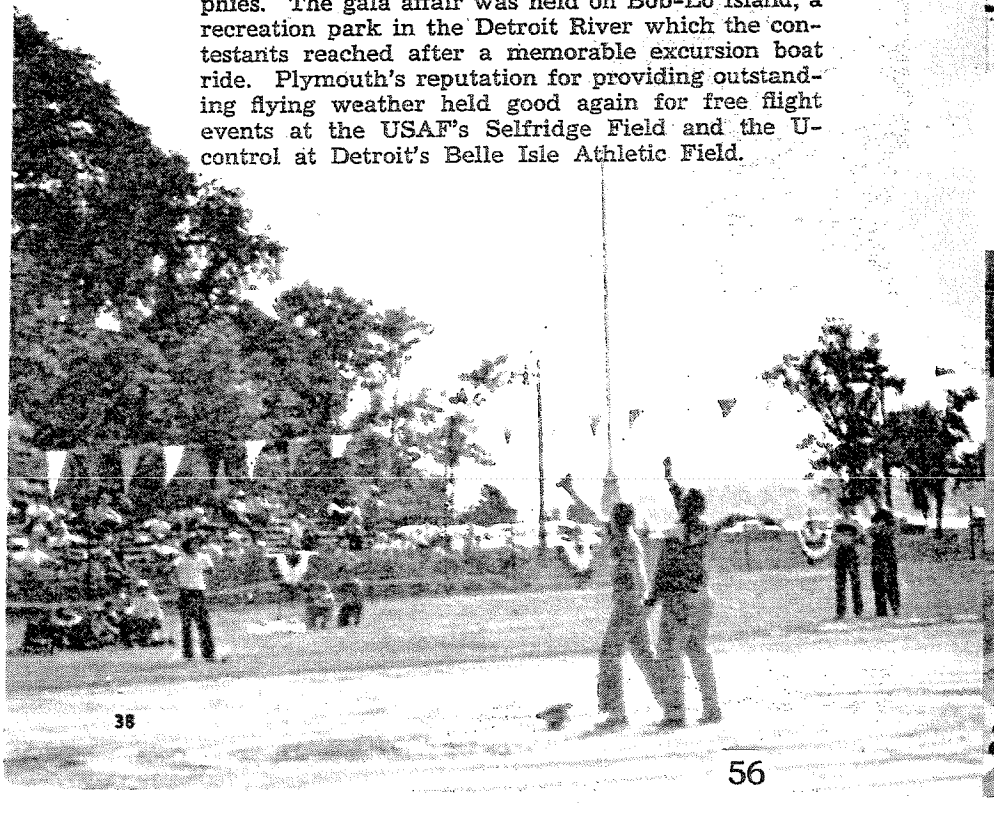
Modelers never had it so good. Each entrant was sponsored by local Plymouth dealer with trip and all expenses paid. Here bus picks up contestants each A.M. for transport to flying site. (Below): Slick team racer by Gordon Bone, Atlanta, Ga., was indicative of many fine T/R's.

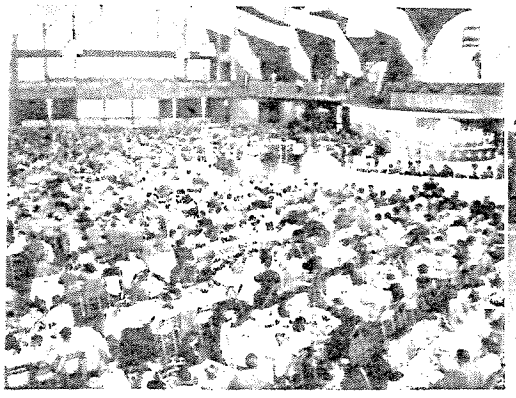


Air Force interest in F/F events run off at Selfridge Field is shown by trio of officer pilots watching rubber job launch (below).



Line-up of team racers (below) suggests how colorful event was with no two models looking alike. Race dominated by Quest and Key kit jobs, both designed by Keith Storey who directed event. Keith reported Bob Mastrovitch, Fords, N. J., used Key to win 1st. Combat event (lt.)

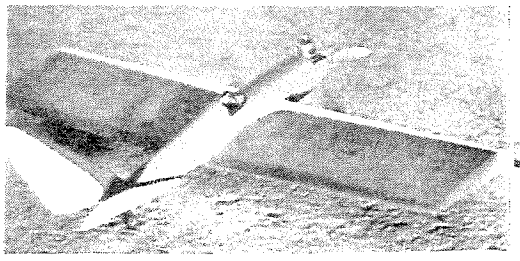




Section of recreation building at Bob-Lo Island where 1,500 contestants, officials and Plymouth dealers ained and saw presentation of awards. Trophies displayed on huge rotating table. Stunt model (below) entered by Jerry Seracuse, '8, Denver. 42 sq. in. V-tail; 380 sq. in. wing; Fox .35 engine.

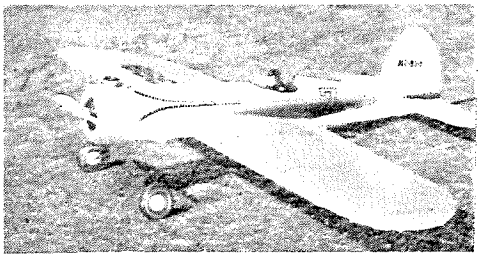
Contest officials gathered with MATS' Pfc. Tom Baker of Kings Mt., N. C. after Tommy broke FAI world record for model jets with 1132 mph) flight by 4-pound model. AF "loaned" Tom. AMA's Russell Nichols, rear left; Plymouth contest manager, Warren E. Bartlett, kneeling left; George "Curley" Clingman, front, rt., U-control director, plus aides.

Air Trails' Perpetual Stunt trophy goes to 18-year-old George Aldrich, Edinburg, Tex., left. George racked up 329 points under stringent, fair juaging. Al Lewis, AT Ed. makes presentation. Slick 400 sq. in. Fox .35 stunter (below) was entered by Harold "Red" Reinhardt, '50 winner of AT trophy.

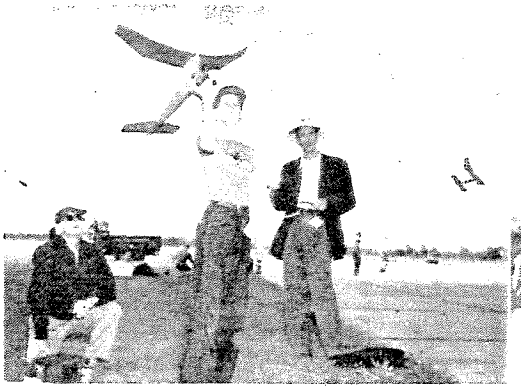


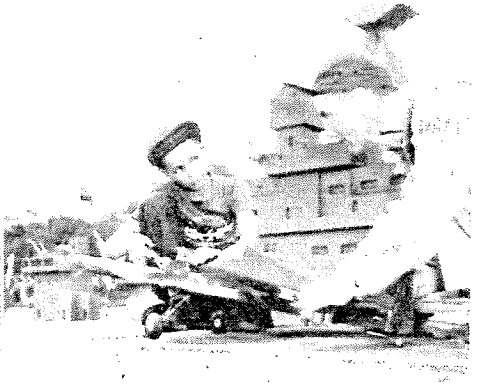
Fifth in Jr. jet (121.99 mph) taken by Robert Heyde's enclosed Dyna-Jet job (below). Hackensack, N. J. Ship has done 150 mph.

David Lefebvre, Seattle, Wash., won top honors in U-control flying scale with AT's Spirit of St. Louis. Dave did complete stunt pattern; later creamed ship.



Contestant gets set in Navy Carrier event which was won by Valgene Hayworth, Sedalia, Mo. Lt. Cmdr. John Burton conducted.

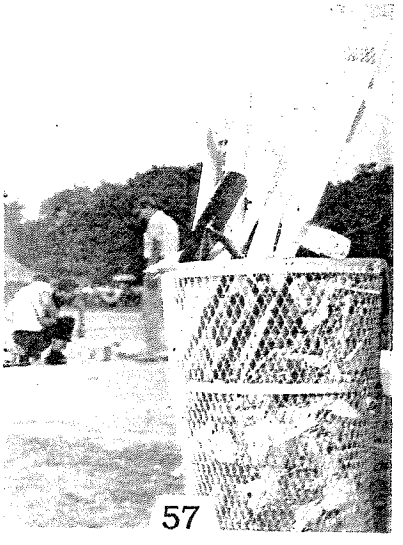




Winners (back row, from lt., below): Dick Modler, high point & Jr. champ; Janyce M. Wood, 15, Pittsburgh, Cal., girls' champ; Herbert L. Davis, 17, Birmingham, Sr. champ & high jet man (144.29 mph). Chris Hanson, 10, Midland, Mich. (white shirt) and Fred W. Sage, III, 7, tied for Freshman honors.

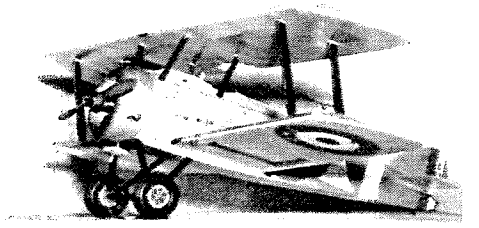
Opening shot in 5th Internats was "fired" by Tom Grubb (above) from Portsmouth, O., with his Cub .049 Half-A. Tom, first man to make official flight, did 1:31.8. Dad watches. Debris basket for washed-out combat entries does not deter Art Huyghue, Tuckahoe, N. Y. from firing up and trying.

"Look, *ma*, my nightshirt's too small!" says Johnny Clemens, Dallas, Texas, who announced model events. Actually John has on over-size official's shirt. Plymouth presented each flyer with colorful T-shirt, heimet and pilot's type cap for meet plus "Selected Contestant Plaque" for attending.



Clay Boatman's fine Boeing F4B4 fighter in repose & take-off. Clay (Cleveland, O.) 5th in Sr. 225 pts.

Sorry to say this excellent Douglas XA2D1 by Kenneth Schneider, Bellwood, Ill., didn't place in flying scale. Had beautiful finish, was a bit too heavy.

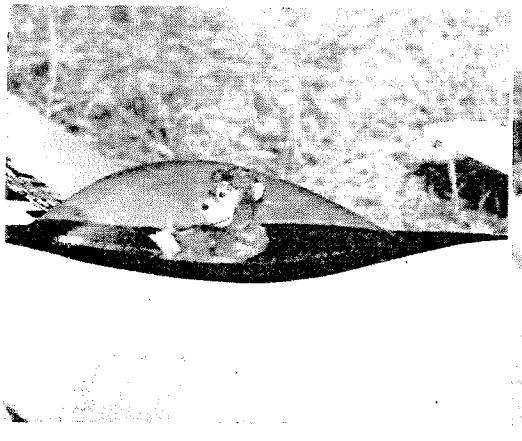


Another nice flying scale: a Camel by Don Schrello 18, Pittsburgh, Pa. AT ships like Tipsy Jr., Heath Midwing, Stearman trainer, Pitts were in majority

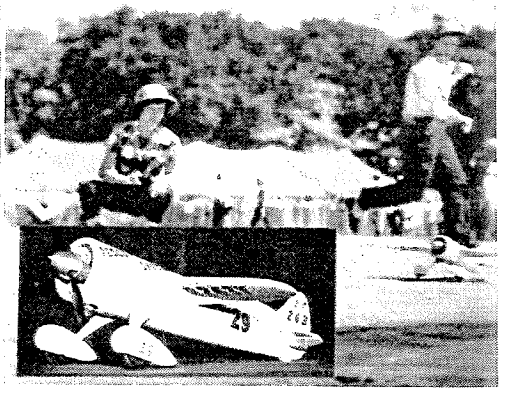
Off to a 10th place in Cl. A F/F goes Brian Hockin, Weston, Ont. R. Randall, Edmonton, 1st in team beauty, was only Canadian to win a top place.

Youthful contender gives old heave-ho to free flight. Shifting winds, gusts, difficulty with retrieving hampered some. Field open to big planes.

H. B. Heberling of Plymouth congrats stunt winner Aldrich and James C. Watson, Ft. Des Moines, 1st in jr. unlimited rubber, 679.2 sec.; 300 sq. in. wing. Keith (Korker) Storey, below, gets off quartette of team racers.

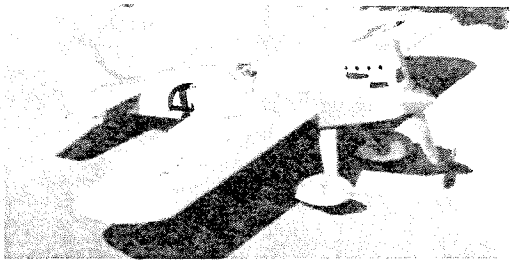


This guy was the calmest pilot in the contest. Moe, the stunting monkey, took top honors for making his competitors look like people. A real flying fool.

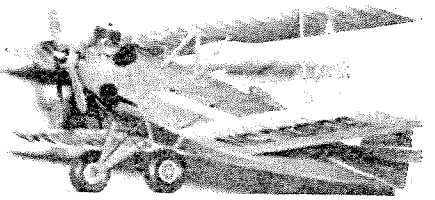


Pesco Special was entered by Sam Snyder and Patsy Blauer, Hutchinson, Kan., flying as team. Tiny job tried but didn't place, lost pant on landing.

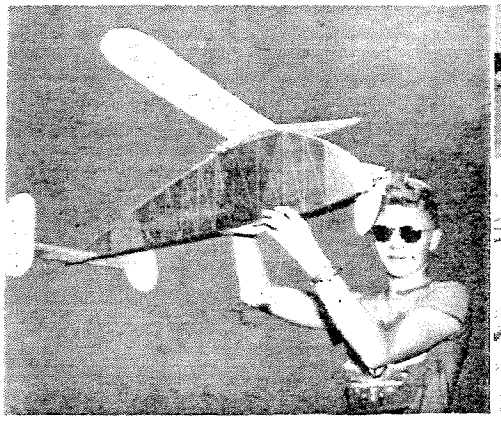
Joe Kubina, Detroit, cranks up in unlimited rubber. He ended up with 5th. in senior. 661.6 sec. Top rubber time by Carl Redlin, Detroit, 889 sec.



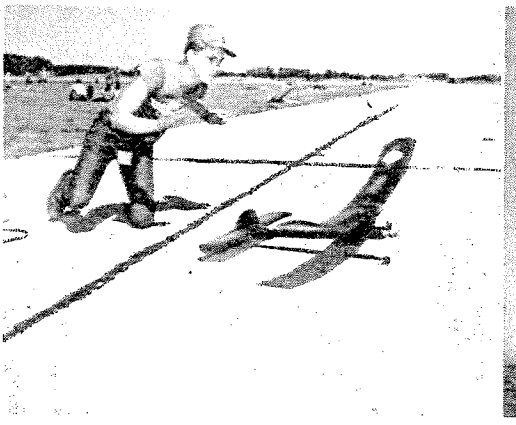
Clay Boetman (see F4B4 opposite) flew this like-like Fox 35 powered 365 sq. in. yellow and white stunter to an 8th in A-B-C-D stunt in senior division.



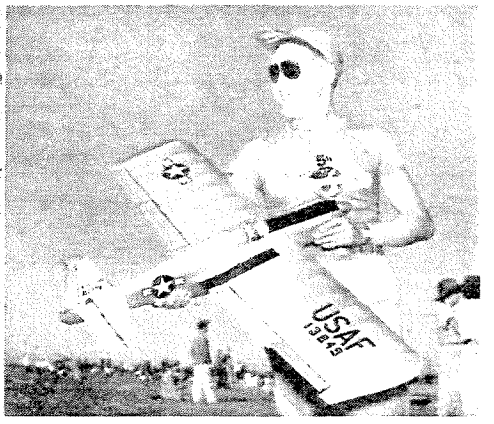
Fleet trainer from AT took 10th in sr. scale for F. Roberts, Bismarck, N. D. Scaler surprised judges with neatness, flyability.



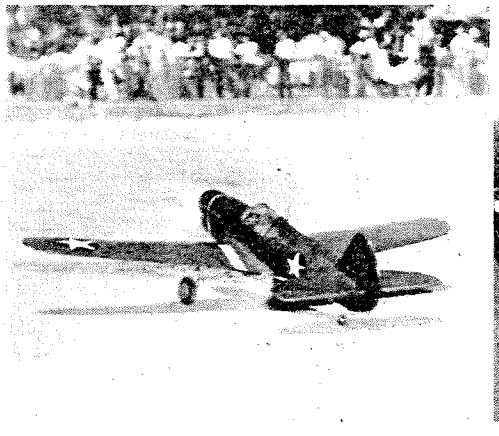
You name it! Deep, inverted-V fuselage rubber ship by Glen Ballou, Southington, Conn. Three foot fuse., 8¼" deep, 3 in. wide; 200 sq. in. wing.



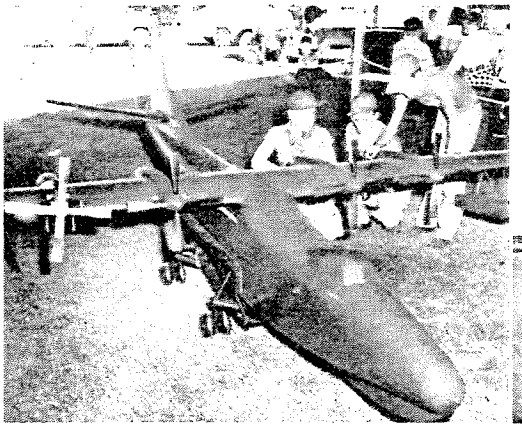
Nice take-off shot by one of the big crew of Plymouth photogs. Designs for most part were kit affairs; not much originality, but very clean models.



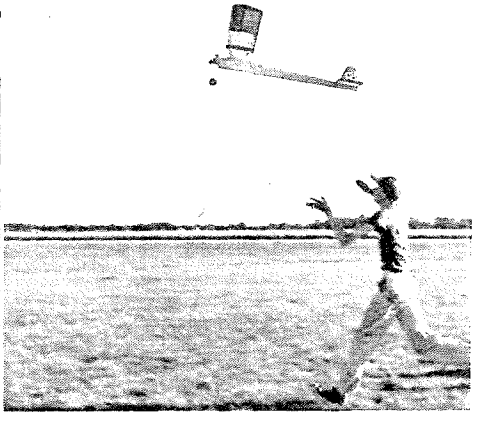
This stunt model got top appearance points. F-51 fuse, modified wing, instrument panel, radio. Stan Kwit, Chicago.



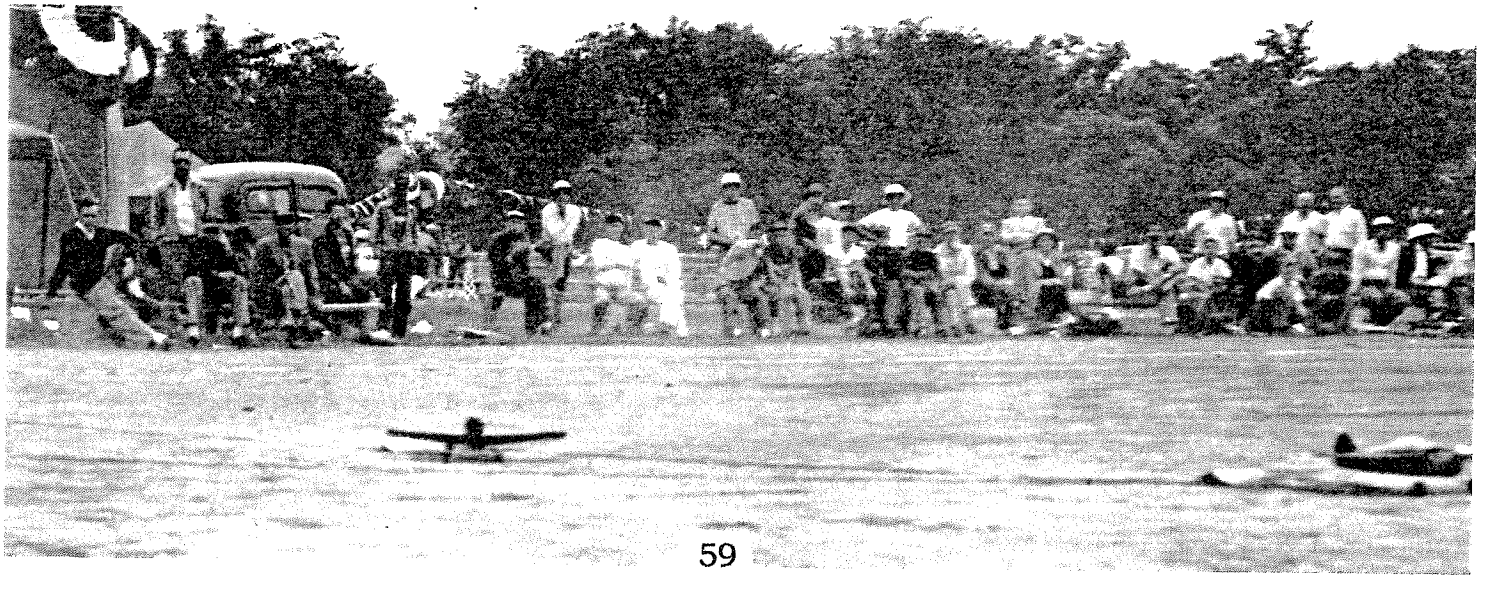
This P-40 was largest scale model flown at meet. Plymouth permitted any type scale model entered with result that scale event was bigger n ever.



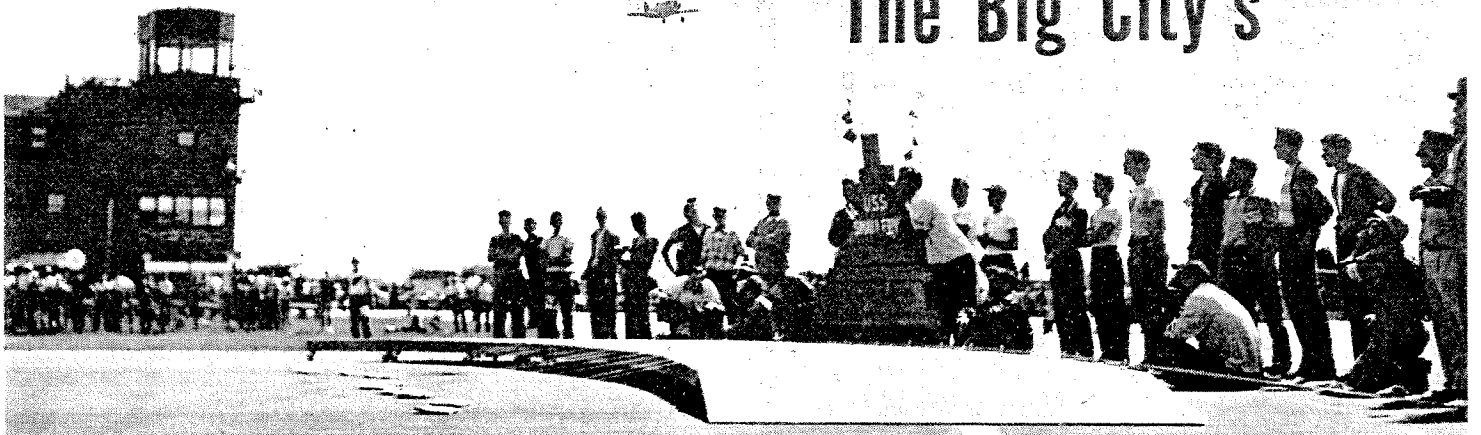
Dave Lefebvre, lt., scale champ, examines Convair R/C seaplane with K. Lightfoot, St. Paul, Minn., Ray Fry, Stow. O. XP5Y-1 model a Navy exhibit.



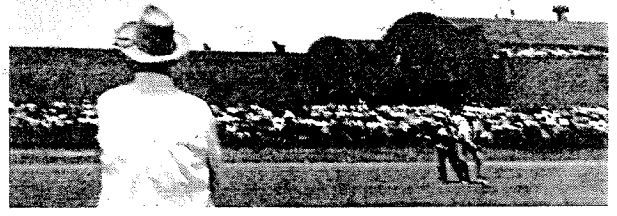
Meet's last flight. Unidentified contestant taking that one last fling before free flight events were closed down at Seifridge AFB.



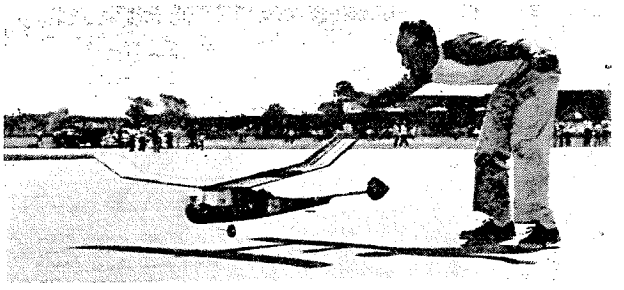
The Big City's BIG MEET



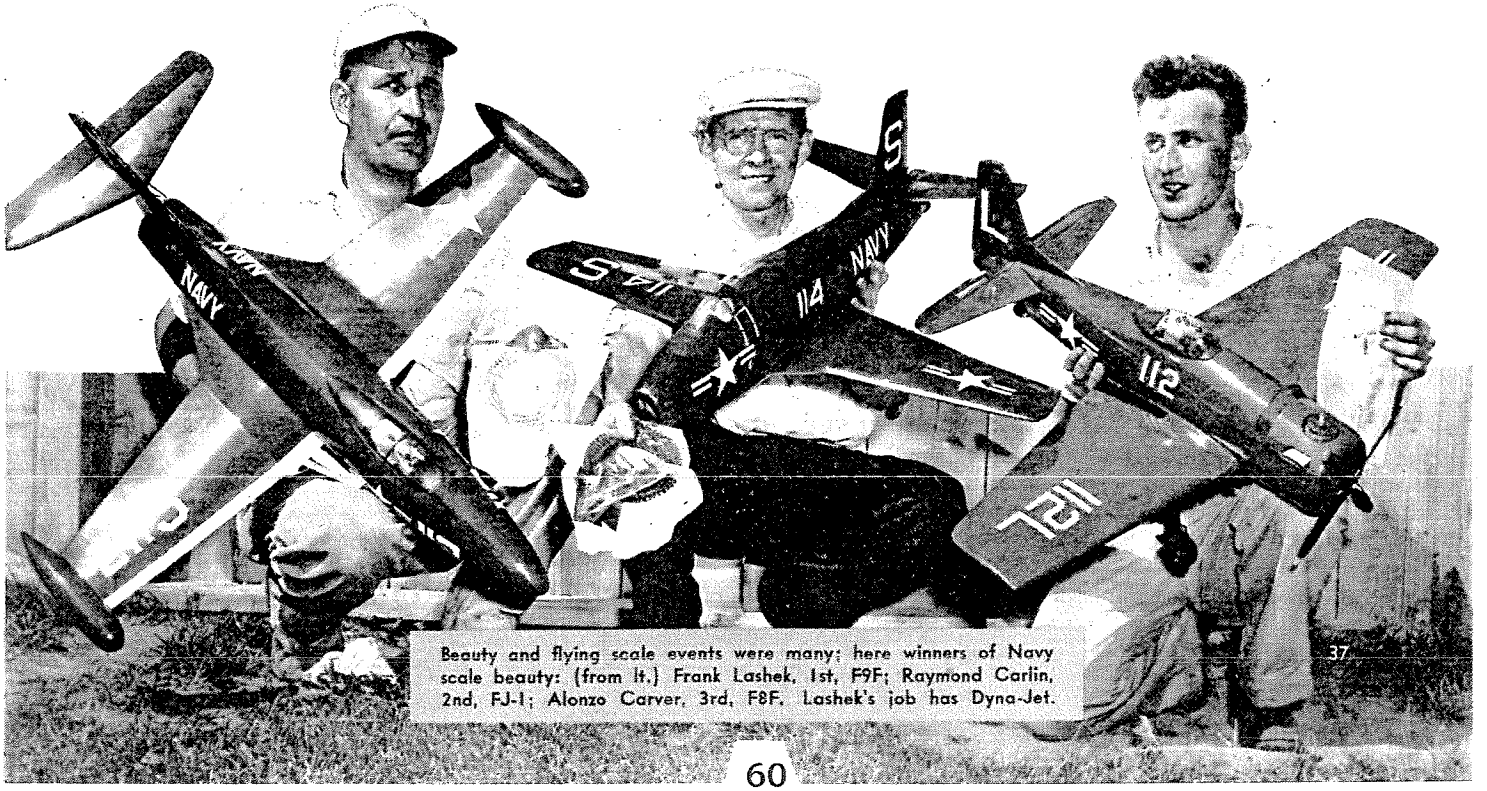
Each year the New York *Daily Mirror* conducts its Model Flying Fair; the '52 competition followed previous successes with 1,000 entrants, 250,000 spectators and $10,000 worth of awards. Models flew from 6 a.m. to 3 p.m., a full-scale air and auto show then entertained the crowd until the presentation of prizes at 5 p.m. Half the states in the country were represented, the Sleepless Knights club of Montreal came en masse. International record holder Gene (now "Airman") Stiles won Class A speed; Rod Jocelyn, 2-time U.S. aerobatic champ, performed in his modified Great Lakes—quite a meet indeed.



Combat flying and team racing provided thrills aplenty; Tom Deville, 19, of NYC, took top "dog fight" honors.



Sgt. Al St. Clair, Amarillo AFB, gets PAA-Load off; 21 AF'ers from Miss. and Texas competed, came in transport plane.



Beauty and flying scale events were many; here winners of Navy scale beauty: (from lt.) Frank Lashek, 1st, F9F; Raymond Carlin, 2nd, FJ-1; Alonzo Carver, 3rd, F8F. Lashek's job has Dyna-Jet.

We'd Like You to Meet...

More modelers whose designs you've read about for years . . . now for the men themselves

Charles H. Grant . . . When still a boy, Charlie built a glider big enough to carry him, flew it off the woodshed roof—family cook promptly resigned. This in 1910. One of the really early users of balsa, he pioneered large scale production of model planes—had built 80,000 by 1922, 200,000 by 1931. Produced very successful all-metal model for sale in '28. Has written hundreds of articles on model aviation engineering, edited both model and full-scale plane magazines. Author of two books on model design. Holds patents on model and large plane design—his Grant Flap used on Martin 404 Transport. Prefers engineering approach to any problem, has taught mathematics. Ran summer boys camp at which model plane work was featured. Member of Early Birds, Princeton Eng. Assoc., Fellow of AMA.

Curtis D. Janke . . . Sez he started modeling about 1925 through sheer congenital compulsion. Curt is a bookkeeper and musician by trade, has always specialized in indoor rubber modeling. Won Springfield Trophy in 1946, Class C Indoor Stick Record, 1939, many places in various meets. Proudest of his founding with Walter Erbach of the "Knights of the Double Ellipse", dedicated to perpetuation of indoor models. Though he fears this may be a lost cause, he hopes to revive a bulletin on indoor flying the group used to publish—indoor enthusiasts are requested to write him on this, c/o A.T. Has not been very active in building during the past few years, but still trying to perfect the "perfect formula" for microfilm. Not too satisfied with progress. Member of the Sheboygan Pirates Model Club.

William Thomas . . . Bill considers his serious model building really started in 1938 when his dad gave him a Scientific Streamliner kit and a Brown Jr. gas engine. Prior to that he had built numerous small rubber jobs. Designed his first gassie in 1939, and established Class A Junior F/F record of 1 min. 33.5 sec. in 1940. His postwar record making seems to have been concentrated on the wires, for he established four Senior speed records in 1947, and another in '48. However, he took firsts in both FF and speed at the '47 Plymouth Internats, where he copped the Senior High Point Trophy. He also got several firsts in speed at the Nats that year, to take the Novice High Point title. Bill is a plastics manufacturer (Thomas Products) and is unmarried. He's a member of Daytona Model Plane & Car Club, and Va. BrainBusters.

Ocie Randall . . . Here is another of those names you always see listed under "fellows who did all the work" at various meets, and other organized modeling activities. Ocie is a member of the Fresno Gas Model Club, California Assoc. Model Clubs, and edits the "Fresno Model News." Though he always seems to be involved in running meets, he has done plenty of flying too and has collected an impressive array of trophies, medals and ribbons. He is a city employee at Fresno, served in the National Guard in 1917. Says he started model building in 1927, while recuperating from a broken neck. Claims no records except a local duration time of 51½ min. in 1940. Ocie is married, has four children; the youngest, Carl, who is 20, is also successful modeler, was International Meet Champ, Senior Class D Gas in 1948.

H. A. Thomas . . . A free lance advertising artist, many of H.A.'s drawings appear in A.T., as have several of his designs, such as the Southerner and Courier. Lindbergh also inspired this modeler to make with the balsa—circa 1926 or so. H.A. spent considerable time in the Army Air Force, and holds a Commercial flying ticket. Was a barnstorming flyer in the Thirties. Always interested in scale models (remember his solid model series in A.T.?), was one of the pioneers in successful low wing model development, working with "Kingfish" Sadler. Claims no outstanding contest wins, but has taken many places in regional meets. An expert photographer, has huge file of model plane shots. Has tried most phases of model work but is now deeply interested in R/C. Is married and has two daughters, aged 5 and 9.

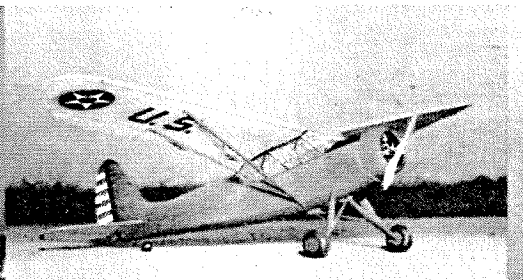
George P. Perryman . . . A kit from the "five and dime" store (the kit really *cost* 10c in those days) launched George on his model career in 1936. Since that time he has compiled an enviable list of wins, including two AMA records in Open Class E Towline glider, and three in Open Class E rubber. He was Southeast High Point Champ, 1942, '46, '49, Southeast Rubber Champ 1941-43 and '46, has qualified for three Plymouth International Meets. Though best known for his exploits with elastic power, George has some very successful gas designs to his credit; among them are Battleaxe, Revonooer, and Hardware Hound. Chosen Captain of the 1951 Wakefield Team, he placed 15th among the 50 entrants at Swedish Finals. Was in the Army Air Force for three years. Is a machine designer and draftsman when not flying models. Has wife Ernestine and two-year-old son, Steve. On the membership role of the Jaycees-Valley Model Club.

Walter A. Musciano . . . Few model builders, especially those interested in scale, need be told who Walt is, for his beautiful jobs have appeared in many issues of Air Trails and other magazines. Started modeling in 1930, after hearing of exploits of his Uncle, who was fighter pilot with Udet in World War I. Has never stopped building since—says he never will. A design draftsman for firm of Naval architects—also does model design work for kit makers. First business transaction in modeling was sale of built-up 10c kits to a department store for 50c (they resold them for several dollars each, but Walter was happy with the deal). Has always preferred scale and Wakefield types. Hopes to make a scale ukie top 150 mph. His "Classy Gassie" has won scores of contest places. Entered many contests pre-war; just builds and flies for pleasure now. Has done considerable full-scale flying. Married, has 5-year-old daughter Carolanne who can already fly control line.

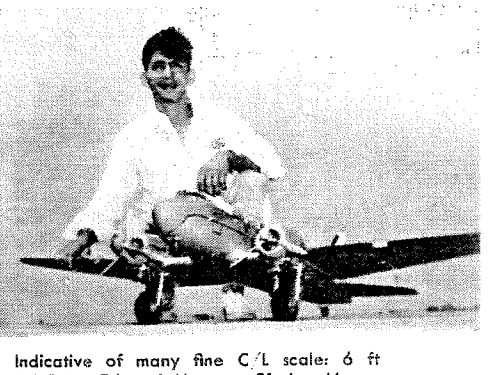
Picture Report on the *Nationals*

California's "Earthquake" Nats was very well run, produced some real high-caliber competition

Russ Nichols, AMA Director, presents the Testor Best Finish award to John Tatone, San Francisco, whose Tipsy Jr. was tops.



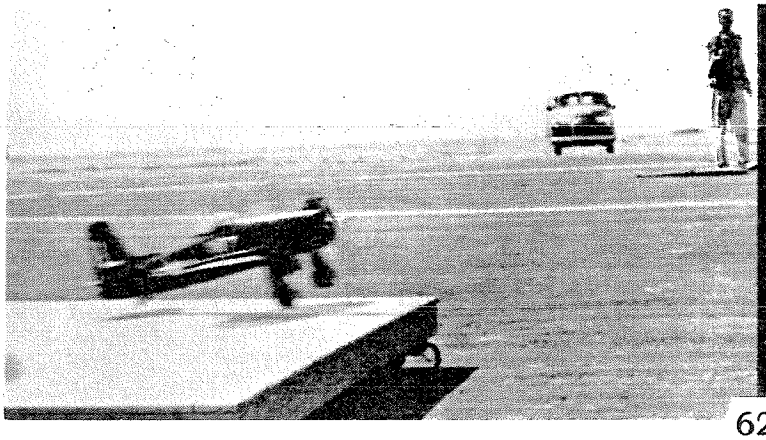
Delbert D. Swartz, Burbank, Cal., flew Wasp powered 0-49 in Half-A free flight scale; was formerly rubber job. Top points were 309 by Louis R. Culler, Torrence, Cal.

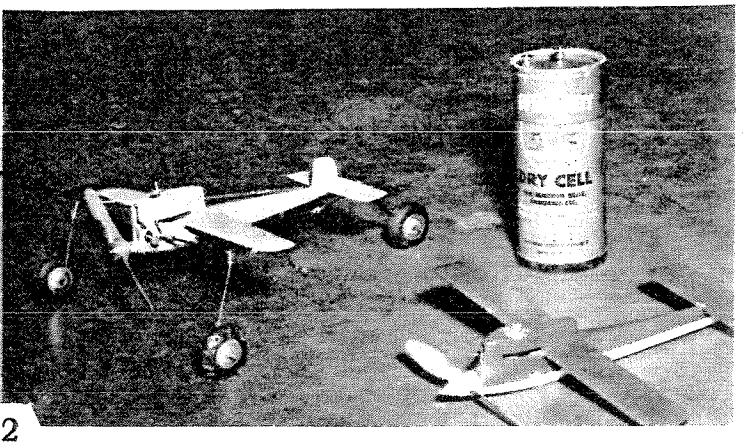


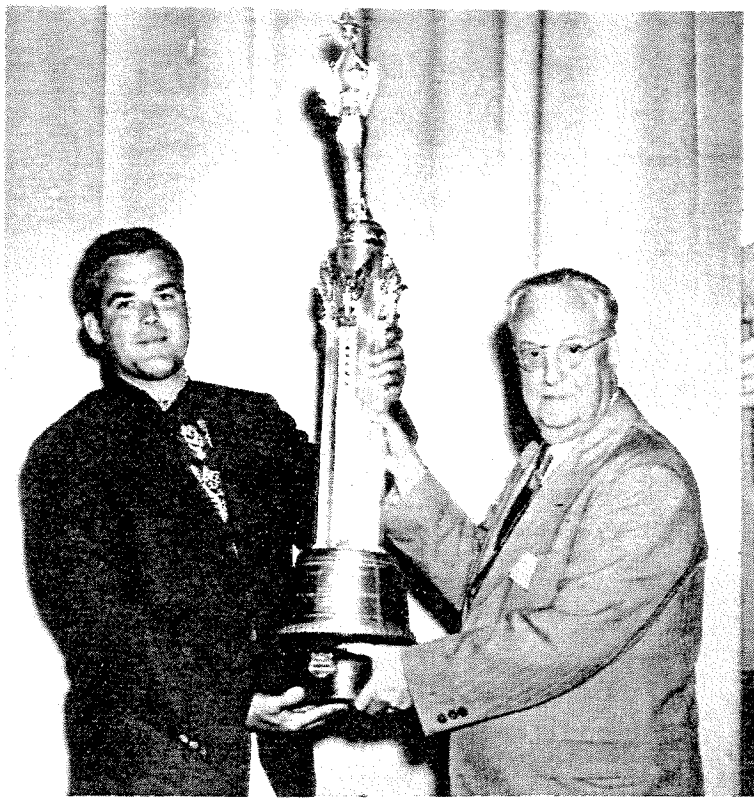
Indicative of many fine C/L scale: 6 ft DC-3 by Edward Morgan, 21, Las Vegas. Anderson .65's; has seats, passengers, lights.

Cal Smith gets F8F off model carrier deck; judges said model (see pg. 28) had most realistic take-offs, landings. Donald E. Yearout, Albuquerque, N. M., won with Corsair. Mr. and Mrs. Ray Randall took A/2.

Informal Half-A speed races run off nights in work hangar have become a Nats highlight. On dolly is reduced Golden Rod by Curtiss Stevens, Stockton, Cal., 8.5 in. span, Wasp. Other by Jimmy Hannah, Tuscaloosa, Ala.; 9 in. Wasp.







New National Champion! Joe Foster, Jr., 25, (left) San Jose, Cal., (512 pts.) member of Championship Oakland Cloud Dusters Club (1522 pts.). Presenting championship trophy to Joe is Herold M. Harter, secretary of National Exchange Clubs whose Long Beach club sponsored Nats. Runners-up to Cloud Dusters were Frisco Vultures (1520 pts.), the USAF's "L" team (1472), Thermal Busters (1460) and Inglewood Flight Masters (1455).

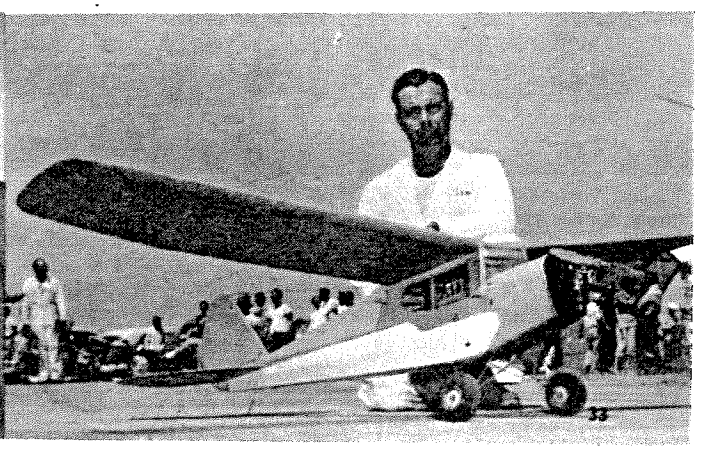
Senior Champion for 1952 is Barry Robertson, Pacoma, Cal., who racked up 331 points (left); junior top man was Don Puskarich, Oildale, Cal., 199 points. (Barry should not be confused with Harry Robertson of Phoenix whose tailless towline set new senior record.) Age champions, all from Cal. this year, were selected on new basis which pitted old against young.

Tommy Baker, shown with the Mrs., came from Wheelus AFB, Tripoli, to compete on AF team. Won three 2nds and 4th in speed, jet, stunt.

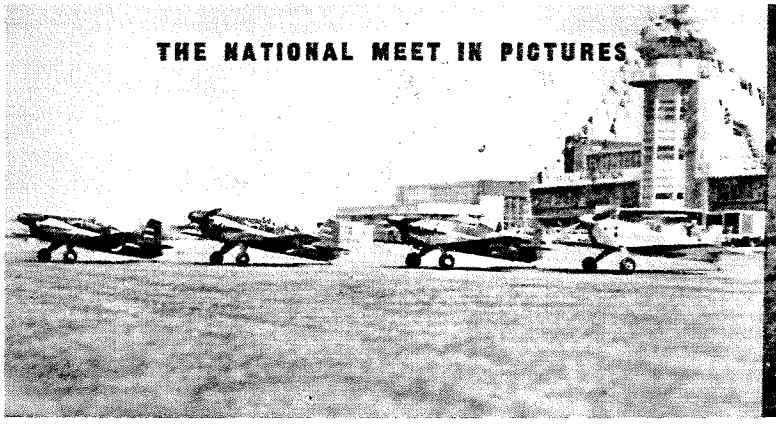
Call it what you will: the 21st National Championship Model Airplane Meet, the "West Coast Nationals," the "California Nats," the "Earthquake Contest" (California was still quaking when contestants were arriving)—it was a competition that the 750 participants will long remember. All events were run "of, by and for" the model builder. AT's own Dick Everett was meet manager assisted by Keith Storey and a host of outstanding West Coast model leaders; sponsorship was by the Long Beach Exchange Club and all facilities were furnished by the Navy and its Los Alamitos Naval Air Station. A goodly number of entrants made the trek "over the mountains"—about one third were from outside the Pacific Coast region. The meet was distinguished by the presence of the Secretary of the Navy, Dan Kimball. Helicopters were used to spot far-flying models. Things moved along at such a hot pace the station theater caught fire during the presentation of awards!

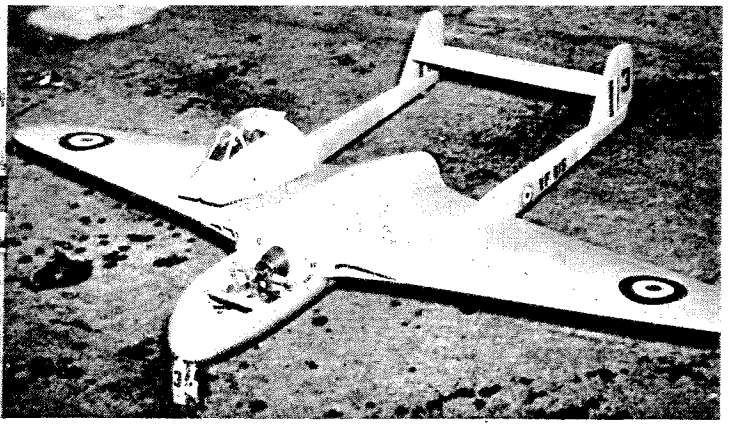
George Gardner (rt) with top Pan American winners. Class A-B PAA-Load junior-senior—C. Merrill, 16:54.2; open—F. Uyematsu, 23:53.4. R. E. Latham, A/2 Clipper Cargo, 17.25 oz.; Mal Alberts, Rubber PAA-Load, 194.1 sec.

Best in radio control! Alex Schneider of San Francisco Mustangs club, got 261.8 points to garner top honors in R/C. He used Rockwood's 5-channel system and a Spitfire .65. William Deans, 2nd, 238.3.



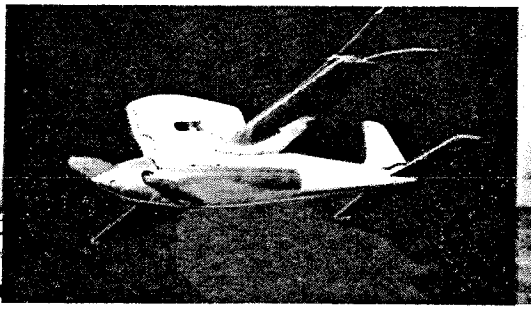
THE NATIONAL MEET IN PICTURES

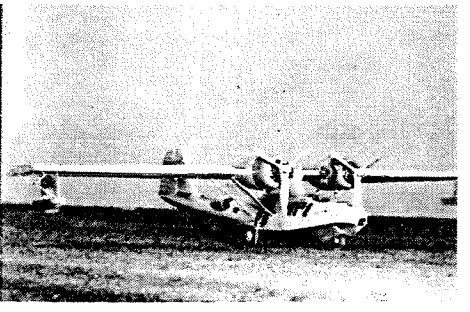




Team race event won by Granger Williams, Huntington Park, Cal., with metal-covered Minnow (2nd from rt.); other Cosmic Winds shown are his, too. Brother Larry entered the slick non-scale all-metal Torp .29 at right.

This is the 10.75 lb. Vampire Mark I flown by Howard R. Yonkers, San Mateo, Cal., in C/L scale. Howard is member of Peninsula Twisters. Powered by a Red Head Dyna-Jet engine, model spans 5 ft. Excellent finish; flew fairly well.

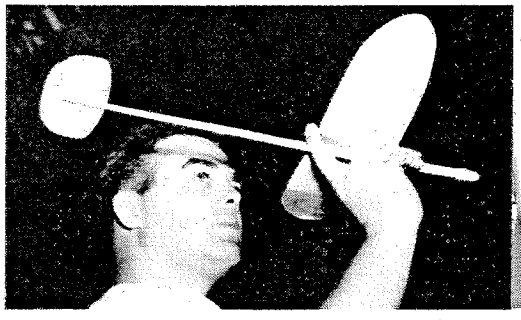


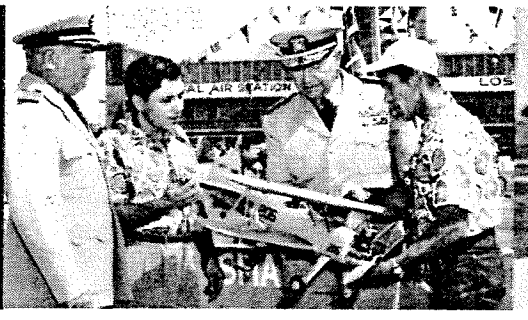


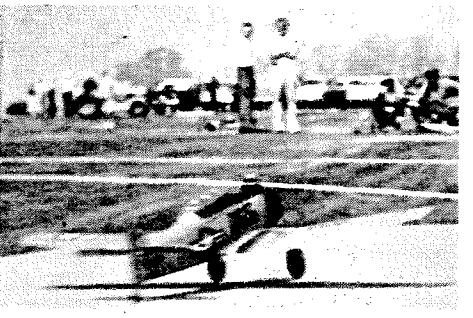
Typical gabfest (from lt.); Howie Robinson, Ohio, Al Lewis, "AT", Joe Bilgri, Cal., Bob Wiele, Cal., Bill Kresek, San Valeers.

S. Sgt. George Mueller, Marana AFB, won A speed with 131.77 mph using a K&B. Previously model set new record of 134.27 at the Air Force World Wide Championships.

Crashed—alas! This twin-engine "Cat" by L. W. Hess of Salt Lake City Active Modelers had 2 Torp. 19's; weighed 5½ lbs.; 54 in.







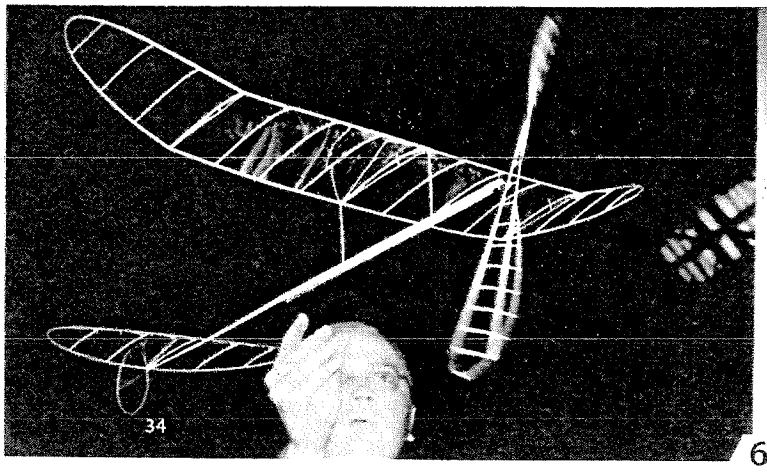
Nat. Champ Joe Foster with record-setting 1:13.6, 57 sq. in., .75 oz. (avec clay) indoor glider at the Santa Ana airdock.

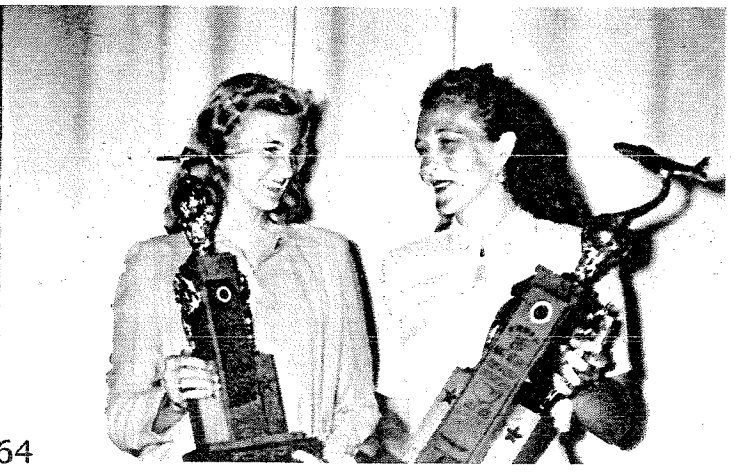
Adm. T. S. Combs, Chief Navy Bureau of Aeronautics approves N2S-4 Stearman with Spitfire .65 flown by A. W. "Shorty" Wright (rt.), Las Vegas, Nev. Capt. Dean (lt.).

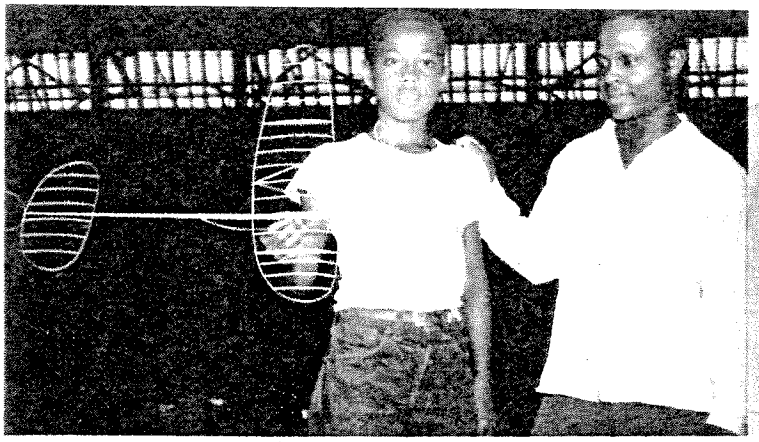
J. L. Eckstein, San Lorenzo, Cal., was second in carrier event with this Berkeley AT-6 and first man to start operations "off the deck."

Just back after 2 years in Korean waters, Navy's CPO S. W. Stanwick was 4th in open stick with 23:39.4. Then Stan built Jasco job overnight and did 18:05.8 for 3rd in A/2 open PAA-Load. He's from Boston.

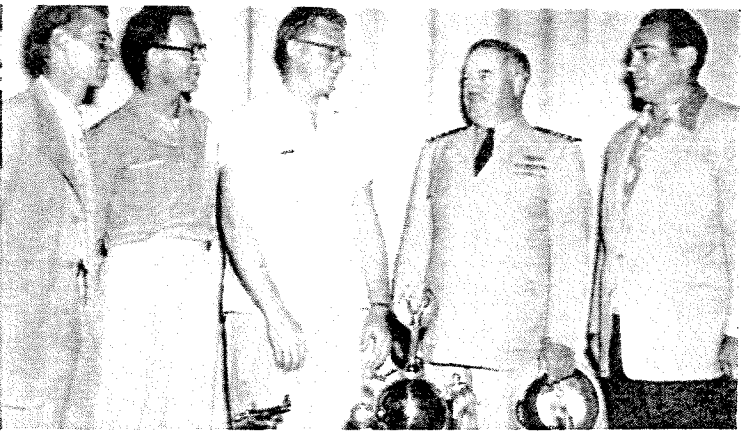
Cheers for the gals! (Mrs.) Violet Hoyt, right, high point feminine trophy winner. She did best jet time—144.23! (Mr. M. G. Hoyt was 4th in jet flying.) Janice Wood placed second and flew in a majority of the control line events.



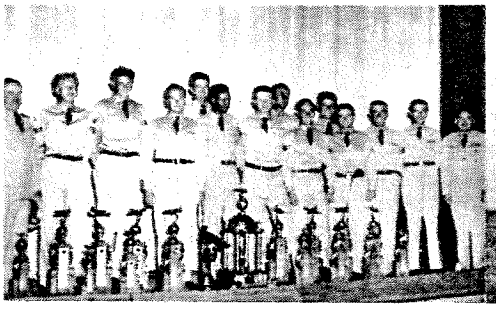




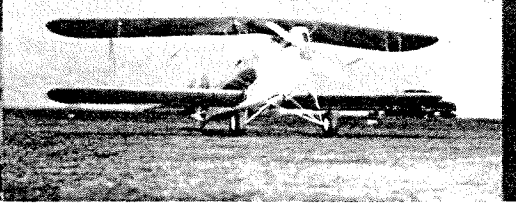
Proud Pappy is Frank Cummings, Jr. (rt.), former national champ, whose son Frank, III, won jr. indoor stick with 22:51.8. After 4-year layoff Big Frank returned to indoor competition, took the indoor cabin honors with 21:47.2.



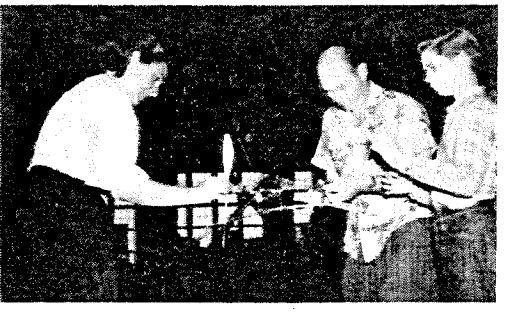
From left: Keith Storey, assist. contest director; Dick Everett, meet mgr.; George Aldrich, winner of the Jim Walker stunt trophy with 379.66 pts.; Capt. E. J. Drew, Los Alamitos NAS CO and Sal Taibi, F/F director.



Mighty fine group of military men: USAF contingent with trophies won. Project Officer Lt. Harry Vogler, Jr. (rt.); Capt. Drew (lt.), USN.



Top flying scale model in control line circles: Great Lakes Trainer by Thomas Dean, Corpus Christi, Tex. Wt., 2.75 lbs.; Dooling .29; 40 in. span. Dean totaled 280.90 pts.



Bill (Wotta Waspl) Atwood with '48 cabin model, helped by wife Mildred and son Ronald, 13. Bill won open stick: 27:52.

The wide open spaces and exceptionally fine weather were two features that participants in the California Nationals will never forget. Retrieving was easier than ever before at a Nats because of the flat countryside and presence of Navy helicopters. Calm mornings with plentiful thermals after daybreak fogs (smogs, haze—you name it) resulted in some tremendous free flight performances. In many events, unless you had at least 23 minutes total time, you just weren't in the running. Every afternoon the wind came up so most of the flying was accomplished during a.m. hours. As a result most flyers spent the post-noon period tinkering, repairing, swimming or shooting the breeze—all good for "contest nerves."

At last we saw a change in indoor models! Henry Jex, left, and Dick Baxter entered this in the cabin event, claimed the 40 in. hot air balloon fulfilled all rule requirements. Caused much comment, even arguments. Eligible?

Robert L. "Bob" Palmer, Jr., of Burbank, Calif., builds highly accurate models for wind tunnel tests. His Go Devil, Chief, Squaw, Papoose, Warrior, Mars and Venus designs—many kitted by Veco—have established him as a top-notch stunt designer and flyer. Won flying scale at the Nationals and 66 stunt trophies. Now 34, started modeling at 12; married, has 6-year-old daughter. Suffered set-back during 1948 in midst of stunt career when industrial accident severed 4 fingers on right hand. Designed glove-gauntlet to hold control line handle in his palm, now flies better than ever! Then switched to smaller engine, large wing area set-up to get better all-weather flyers. Took 1st at big Tucson meet this year with Smoothie.

Mr. Palmer's "Smoothie" Stunter

One of the world's top-ranking stunt designers presents a fine fast model for .29-.35 motors

By ROBERT L. "BOB" PALMER

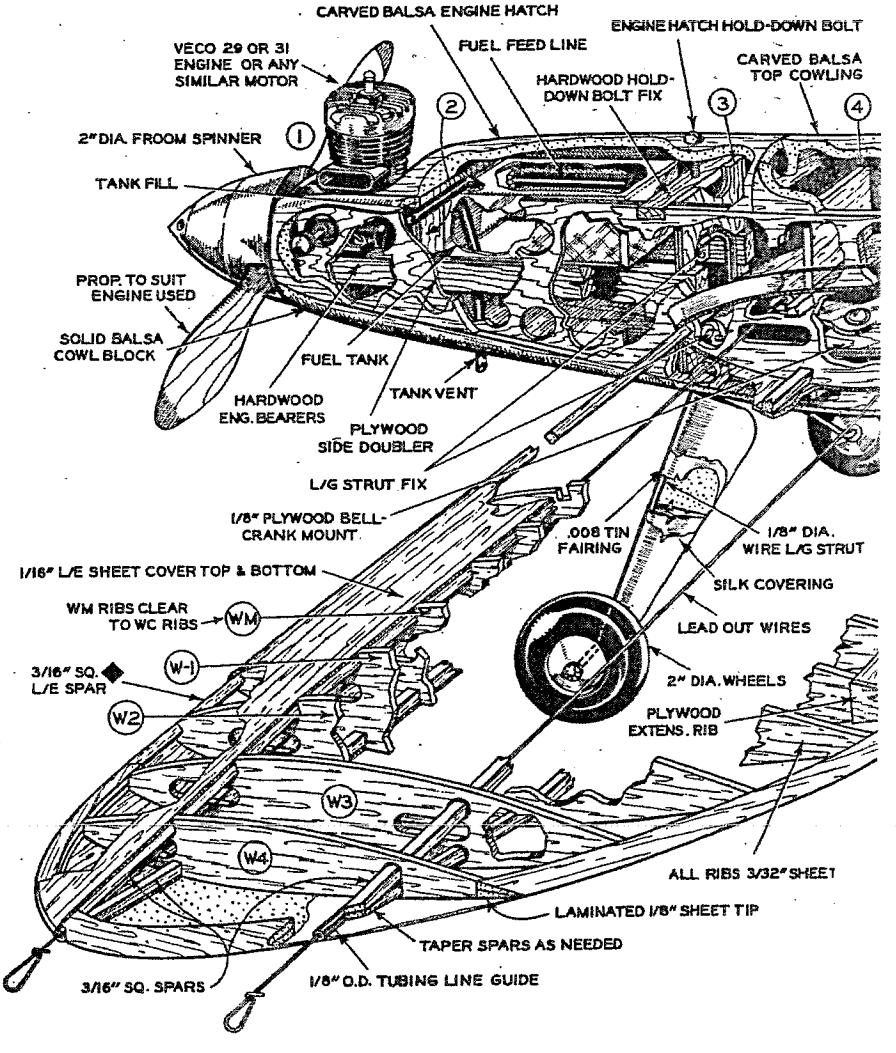
■ Just as the name implies, *Smoothie* is a smooth flying stunt model designed to meet all requirements for contest winning performance. Span is 51", the area, 495 square inches minus flaps; length is 31", the engine recommended is .29 to .35 displacement; weight 2 lbs. 6 oz. to 2½ lbs.; speed, 65 to 70 mph.

How many times upon going out to the flying park have you heard remarks to this effect, from fellows interested in models, when asked about flying at the next contest: "Aw, I wouldn't have a chance . . . So and so will be there. They are too good at flying. I couldn't beat them!" If you are one of these fellows, ask yourself this: "Do I want to compete and try to be a winner? Maybe if I did, I'd win over them someday." If your answer is "yes," then follow these instructions.

First of all, the model is one of the most important things to be considered, for without a good model you can't even begin to do good competition stunts, no matter how much you want to. If you purchase a model kit, or design one of your own, how do you know if that particular design will do competition stunts suitable for top contest work?

The only way to learn that is to be interested enough to ask someone who knows models, preferably a consistent winner, and have him answer the questions that are bothering you. You will find that most modelers are willing to help you. They will fly your model for you, and tell you what is wrong, and the improvements to make. Fly your model and have them tell you what you do wrong and how to improve on stunts you can already do.

It will pay in the long run to start with a good model, and an experienced modeler's suggestions. I have talked to most of the top winners and all of them are a swell bunch of fellows, willing to help anyone who wants to learn to be a top-notch flyer. I have helped modelers over



difficulties and now some of them are expert stunters.

To the interested reader who is already a stunter, or who wants to become a stunt man, here are four rules to follow to become a top competitor:

1. *A Good Model:* This is most important. The stunt kits on the market are very good, and usually, if followed to the letter, will fly well.

2. *A Dependable Motor:* The various model airplane motors advertised are very good. The .29 to .35 displacement motors are best for stunt; run according to instructions from the manufacturer.

3. *A Good Tank:* A good tank is very important. Its design will either make or break a stunt model.

Clarence Lee, who drafted the original plans for the *Smoothie*, also designed the tank for this model. He has experimented with tanks for four years and knows most of the answers on good tank design.

The location of the tank to the intake of the engine is just as important as the design.

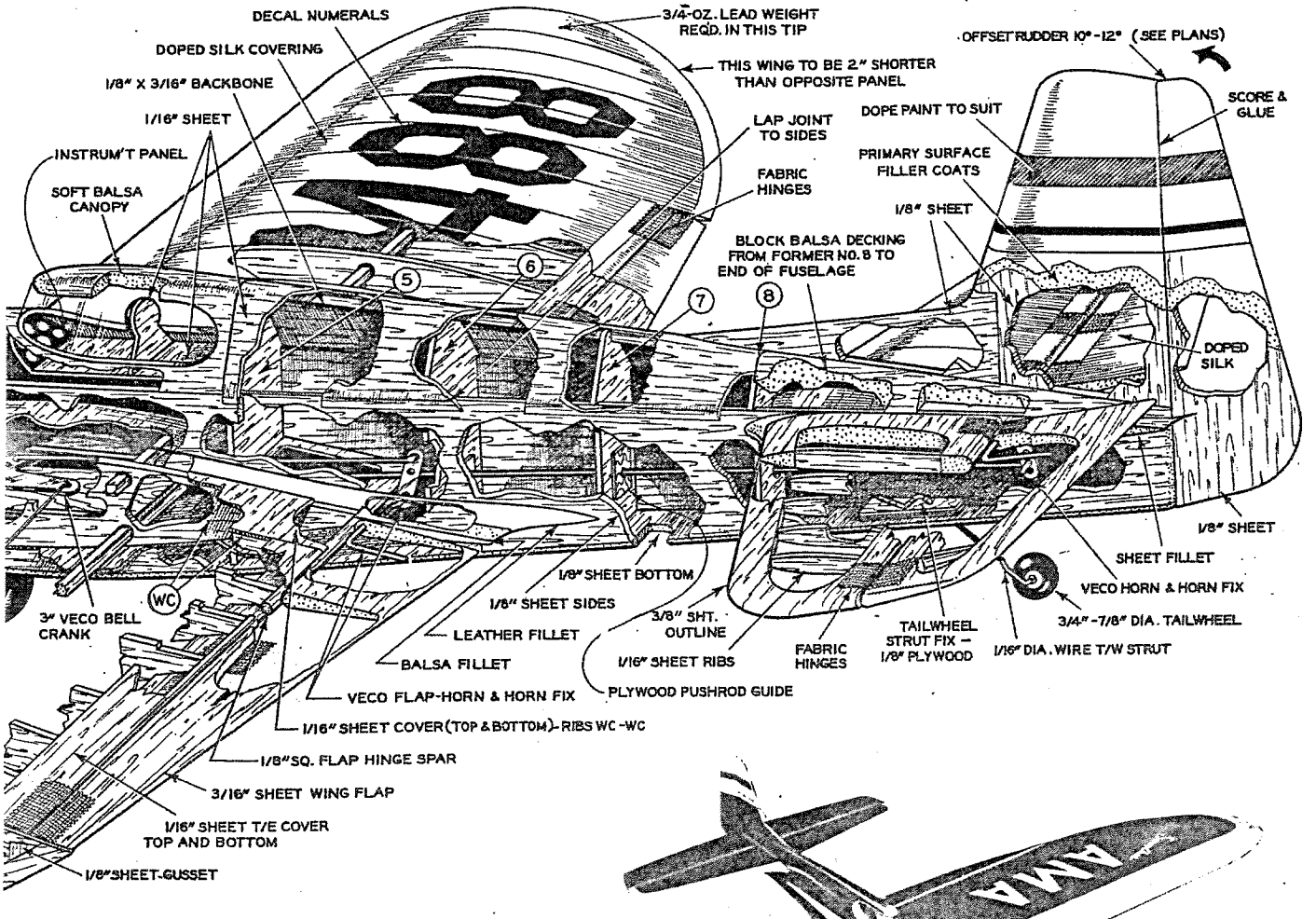
4. *Practice Flying:* It takes constant practice to be able to fly well. After finding the right combination—that is, propeller, engine, and model—practice constantly to fly with more ease each successive time.

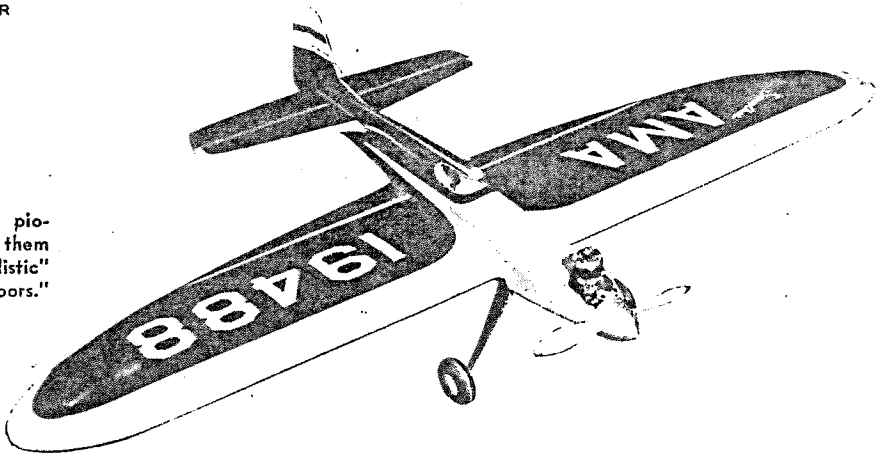
Trying stunts that are difficult should also be practiced. For example, stunting with a wider radius than necessary, then tightening them up as you become more acquainted with the looping radius of the model. Try those stunts on which you are especially rusty.

It seems as though most modelers prefer flying under ideal conditions. When the wind comes up they go home. Yet when contest day rolls around the wind may be blowing a gale. So you want to be sure and practice in the wind as well as under ideal conditions. This can be attained by having a model that will fly in the wind. I had the same difficulties, and so I kept right on trying to find an answer to a "wind" model. *Smoothie* is the answer. I have flown this model in high winds, and I have won every time.

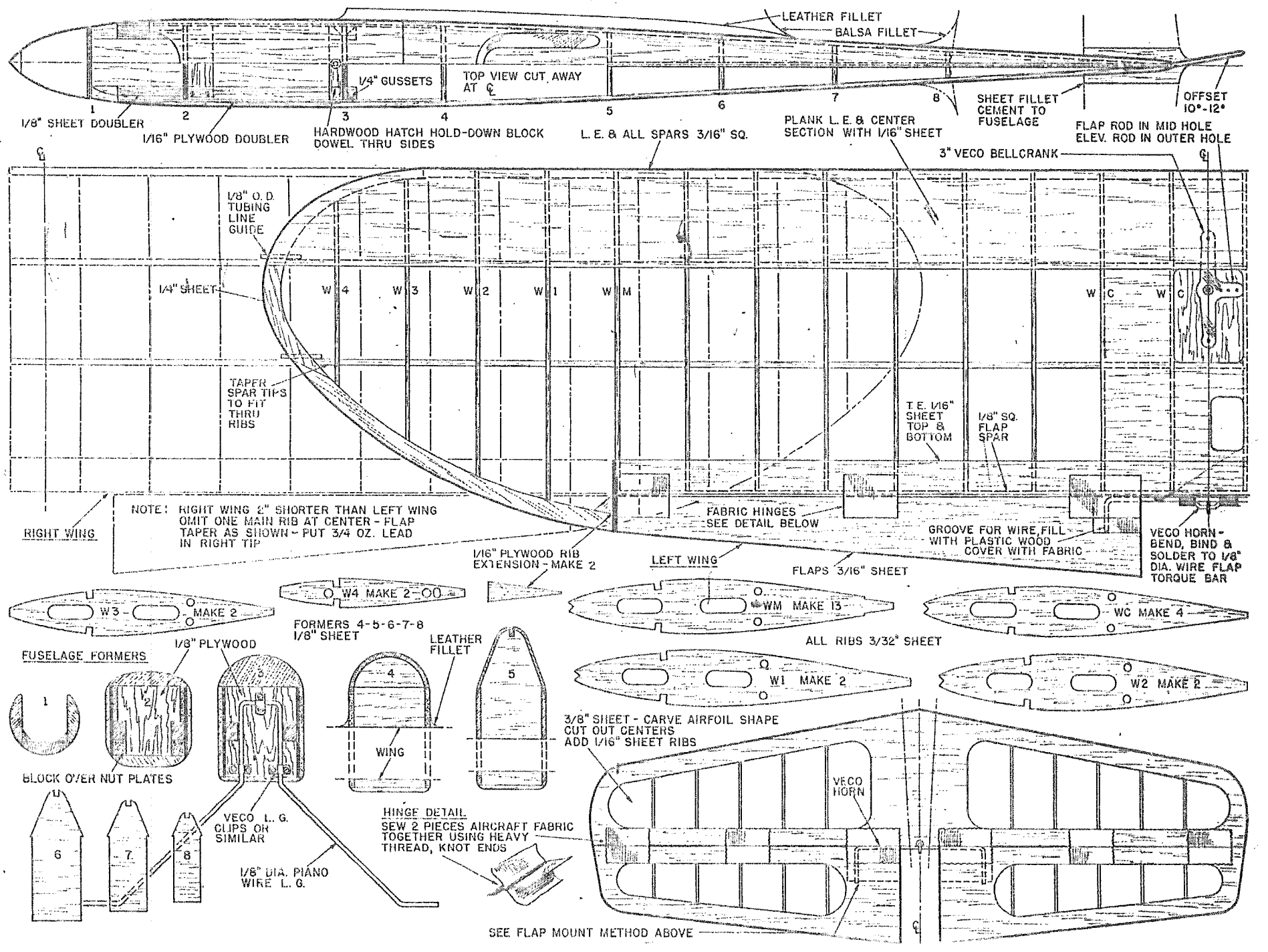
It takes a large area to stunt a model commonly known as a "barn-door" type. In *Smoothie*, I have cut

(Continued on page 69)





Working flaps on stunt models were pioneered by Palmer. His success with them ushered in an entirely new type of "realistic" model that could vie with "barn-doors."


LEATHER FILLET
BALSA FILLET
1/4" GUSSETS
TOP VIEW CUT AWAY AT ℄
SHEET FILLET CEMENT TO FUSELAGE
OFFSET 10°-12°
1/8" SHEET DOUBLER
1/16" PLYWOOD DOUBLER
HARDWOOD HATCH HOLD-DOWN BLOCK DOWEL THRU SIDES
L. E. & ALL SPARS 3/16" SQ.
PLANK L. E. & CENTER SECTION WITH 1/16" SHEET
FLAP ROD IN MID HOLE ELEV. ROD IN OUTER HOLE
3" VECO BELLCRANK
1/8" O. D. TUBING LINE GUIDE
1/4" SHEET
W 4
W 3
W 2
W 1
W M
W C
TAPER SPAR TIPS TO FIT THRU RIBS
T. E. 1/16" SHEET TOP & BOTTOM
1/8" SQ. FLAP SPAR
FABRIC HINGES SEE DETAIL BELOW
GROOVE FOR WIRE, FILL WITH PLASTIC WOOD COVER WITH FABRIC
VECO HORN - BEND, BIND & SOLDER TO 1/8" DIA. WIRE FLAP TORQUE BAR
RIGHT WING
NOTE: RIGHT WING 2" SHORTER THAN LEFT WING
OMIT ONE MAIN RIB AT CENTER - FLAP TAPER AS SHOWN - PUT 3/4 OZ. LEAD IN RIGHT TIP
1/16" PLYWOOD RIB EXTENSION - MAKE 2
LEFT WING
FLAPS 3/16" SHEET
W4 MAKE 2
W3 MAKE 2
WM MAKE 13
WC MAKE 4
ALL RIBS 3/32" SHEET
FORMERS 4-5-6-7-8 1/8" SHEET
LEATHER FILLET
FUSELAGE FORMERS
1/8" PLYWOOD
W1 MAKE 2
W2 MAKE 2
3/8" SHEET - CARVE AIRFOIL SHAPE CUT OUT CENTERS ADD 1/16" SHEET RIBS
WING
BLOCK OVER NUT PLATES
VECO L. G. CLIPS OR SIMILAR
1/8" DIA. PIANO WIRE L. G.
HINGE DETAIL
SEW 2 PIECES AIRCRAFT FABRIC TOGETHER USING HEAVY THREAD, KNOT ENDS
VECO HORN
SEE FLAP MOUNT METHOD ABOVE

BOB PALMER'S SMOOTHIE

down the wingtip area, eliminating too much lift, and as a result there is no buffeting and bouncing in the wind. It takes a real model to fly under all conditions.

Start the fuselage with the plywood side doublers and motor mounts. Screw and glue mounts to plywood, and glue plywood to sheet balsa sides. Make landing gear, attach fairings of tin. Bend wire so gear has 11" tread. Be sure and cut hole for wing in fuselage, also the flap.

Assemble all the bulkheads. Plank bottom of fuselage up to the gear. Wait until later to assemble top of fuselage. Bolt the motor in, and put the nut plates in place; glue belly blocks and spinner blocks in place.

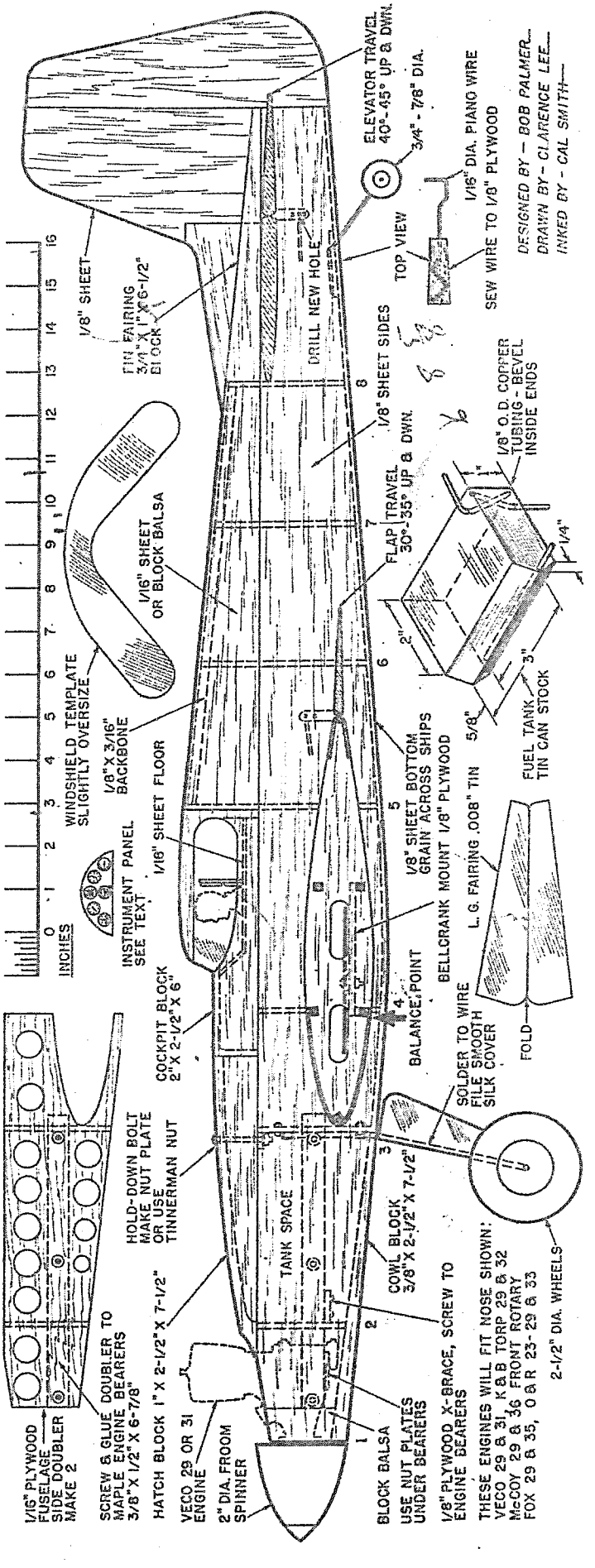
All spars of the wing, including trailing edge are 3/16" square.

The first step in assembling the wing is to prepare the trailing edge. Slightly bevel both sides of a 3/16" square, and glue in place 1/16" x 1" sheet balsa as shown. Splice in the center where wing will run through fuselage with 1/16" x ¾" balsa. Stand the trailing edge assembly on edge in a straight line; mark from the center 1" for first rib, then every two inches for eight spaces on left side and seven spaces on the right side.

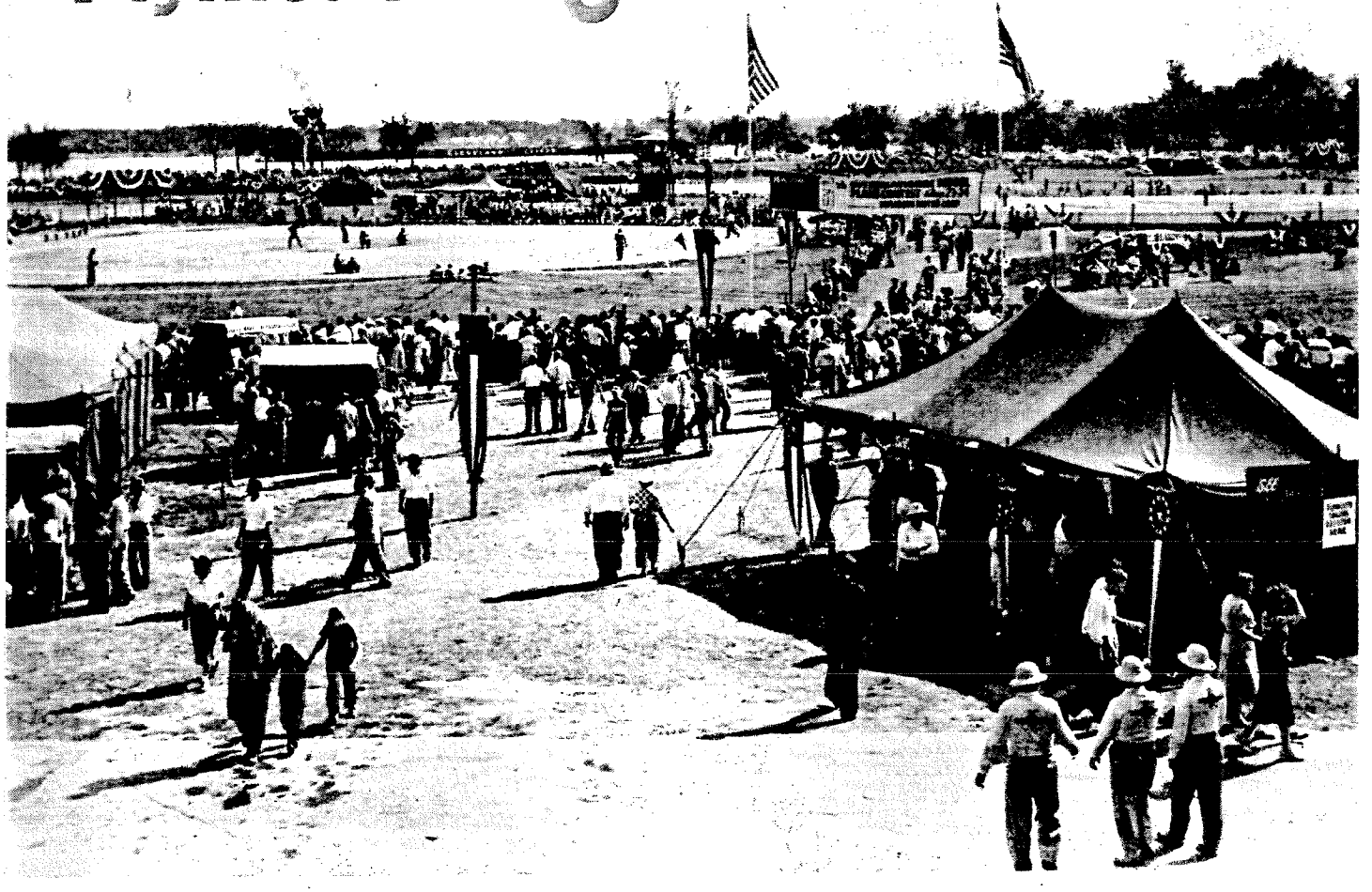
Splice two 3/16" square by 36", with a piece of 1/16" x 4" plywood and mark the same as the trailing edge. Assemble the wing upright on the table, putting the ribs in vertically. Attach the spars and the leading edge. Secure these with rubber bands. Sight wing and line ribs in straight line. Glue all joints and then insert the two spars through the ¼" holes; glue a splice of 3/16" x 4" in the center. These spars go on out to the tip. Cut tip ribs out and attach to forward and rear spars. Cut tips of laminated ⅛" balsa, and attach to wing and spars.

Be sure and assemble the plywood extension to main wing. Install bellcrank floor of plywood and glue six times around spars. Screw bellcrank in, using a second nut, the first one on under bellcrank. Wires should be attached to bellcrank before installation; use small grommets in bellcrank, soldering wire to grommet to prevent cutting large hole in bellcrank. Plank the leading edge and center section. Use brass tubing for lead-outs at wingtips.

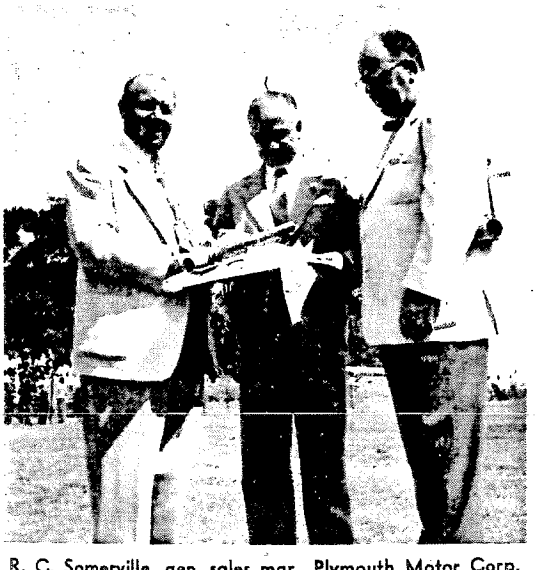
Make flaps of 3/16" balsa. Sand and taper. Remember to make inboard flap 2" longer. Take Veco flaphorn and splice with ⅛" piano wire as shown in plans, and solder well. Line up flaps and measure from center line to flap for installing flaphorn. Make hinges of aircraft tape, sew together on sewing machine, knot each end. Install flaps on wing and cover with silk. Dope the leading edge and all edges of the wing two times. Cut silk 1" oversize and draw through a pan of water. Pull out all wrinkles and dope to wing. Let dry and apply two coats of clear dope.



Plymouth's 6th Internationals



World's biggest invitational meet brings 500 top-notch American and Canadian modelers to Detroit for sixth annual competition; flyers set six new international F. A. I. records—general reaction: terrific!

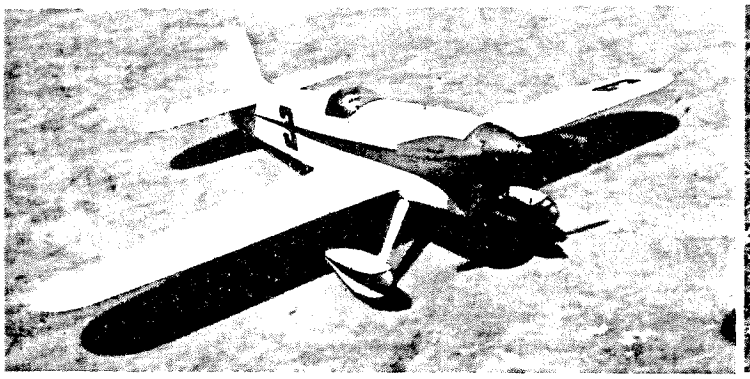


R. C. Somerville, gen. sales mgr., Plymouth Motor Corp. Pete De Paolo, 1925 winner of Indianapolis 500 race, and J. P. Mansfield, Plymouth's Pres., inspect George Mueller's delta wing jet model used in F.A.I. trials.

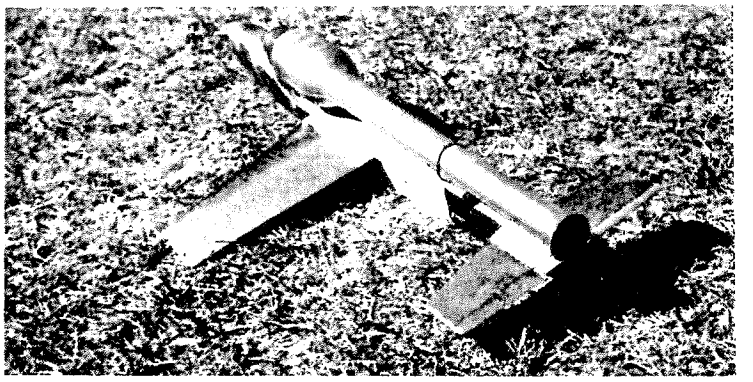
■ The world's largest invitational model airplane tournament, the Sixth International Model Plane Contest sponsored by the Plymouth Motor Corp., drew 500 U. S. and Canadian contestants to Detroit to compete in the best organized meet of all time.

More than 100 officials were on hand to direct 31 different free flight and control line events in the various age categories. Plymouth classifies flyers as Freshmen between 8 and 12, as Juniors between 12 and 16 and as Seniors from 16 to 31.

When the four-day Internationals concluded with a big victory banquet at the Bob-Lo amusement park in Canada, top-place winners emerged as Freshman and High-Point Meet Champ eleven-year-old Chris A. Hanson of Midland, Mich.; Junior Champ, Henry D. LaVon, 15, Tacoma, Wash.; and Senior Champ, Eugene B. Stiles, 20, Alameda, Calif., now with the USAF at Sheppard Field, Texas. The victory dinner brought together leaders in the automobile industry, high-ranking officers of the Air Force and Navy, and the 500 youthful contestants, their families and their mechanics. A total of 103 gleaming trophies and $4,725 in U.S. Savings bonds were presented to the boys and girls who sat in the winner's circle. The Air Trails perpetual trophy for outstanding performance in stunt competition went to Lloyd W. Curtis, 15, of St. James, Minn.



AT's nomination for cleanest team racer was this cream and gold entry #3 by Dick Moga, Minneapolis. Original design, Fox .29R.



When Frank Gross' (Compton, Cal.) outboard wing let go he flew the "reduced" model to 3rd at Nats. Didn't place at Detroit.

Free flight and some control line events were run off at the Air Force's Selfridge Field at Mt. Clements, Mich. Then after two days, the remainder of the C/L flying moved on to the Belle Isle athletic field in Detroit's mid-river recreation park.

As usual the Internationals proved to be a good show as well as a good contest. Although free flighters were hampered by rain the first day and high winds the second, creditable times were racked up despite difficulties in retrieving. It was necessary to keep one runway open at Selfridge for full-scale jet operations, thus restricting the F/F'ers in chasing their craft.

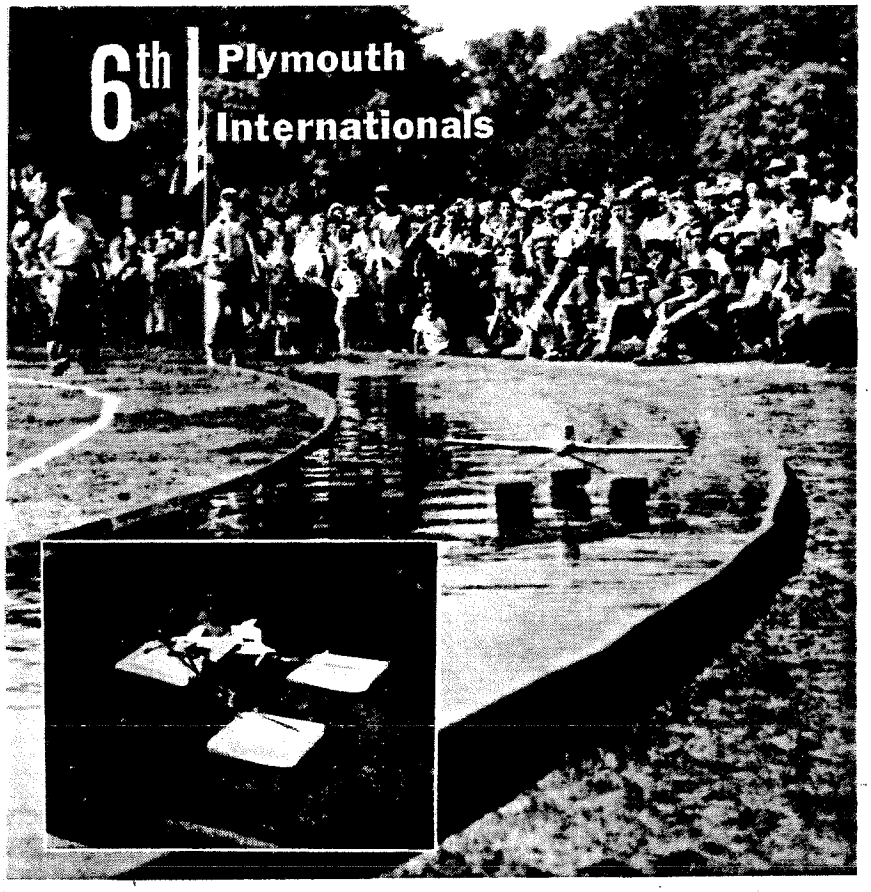
At Belle Isle international record attempts were made in speed flying, both rise-off-ground and rise-off-water. For this latter peculiar classification Plymouth prepared a curved hydro tank from which conventional and flying wing speed jobs took off, dropping their float dollies along the way. Richard R. Wilson, 17, racked up four F.A.I. world records; Stiles, the senior high-point champ, established one and a sixth international mark was set by Mark E. Brown, 20, USAF, Chanute AFB, Ill.

Smashing good time was had by many combat flyers. No exception are R. S. Nowicki, Detroit (lt.) and C. R. Brown, Winston-Salem, N. C.

First in style, beauty and main team race event was Sy G. Vos Gerau of Miami, Fla., Tropic Aeros. Upright Torp .29; 9/7 Tornado.

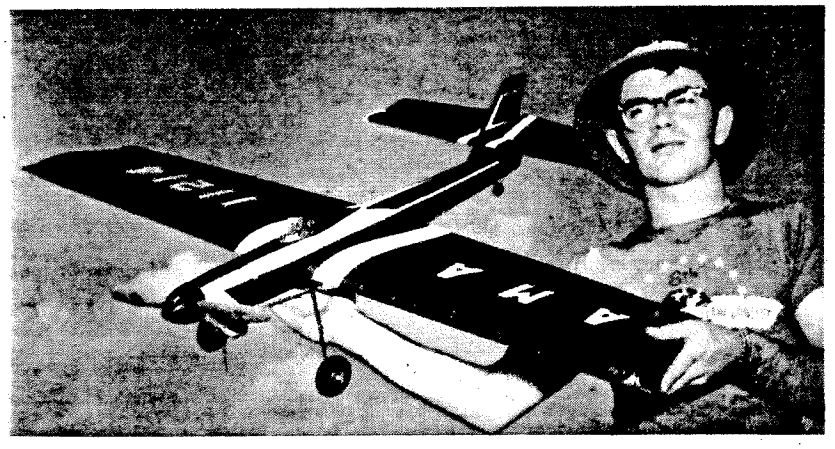
Radio controlled 7½ lb. model blimp powered by two OK .09's does F/F act at Belle Isle athletic field, site of control line competition.

6th Plymouth Internationals



Texan contingent gets official welcome from pretty Maureen Bailey. From left: Henry J. Fiegel, Texas City, James E. Geppelt, Corpus Christi, and Kenneth Tyson, Houston. Cowpoke hats, dungarees were trademark of Texans.

Flying wing, R.O.W. C/L Fox .29 speed model flown by Richard R. Wilson, 17, Lockport, N. Y. to new international Class II record (left). Floats drop off. Inset: Cl. I "conventional" McCoy .15 job. Tank held 2500 gals.



Typical of neat stunters was 51" span, Fox .59 powered 3-lb. model by Roland Chabot, Sanford, Me. Stab set high on rudder. Lloyd Curtiss, St. James, Minn., won Air Trails Perpetual Stunt Trophy with original, Fox .35, 460 sq. in. job.

Unusual stunt models (lower left) flown by Mike Holten, 10, and Jerry Stone, 9, both from Jacksonville, Fla. Mike's Vixen had Hornet .60, long stab on short booms. Jerry's job was powered with Fox .29, had very realistic appearance.

Senior high point winner Eugene B. Stiles, 20, Sheppard AFB, took A speed with 122.57 mph, also set new F.A.I. speed mark during record trials at meet. Janyce Wood, Pittsburgh, Pa., placed high in girls' scoring.

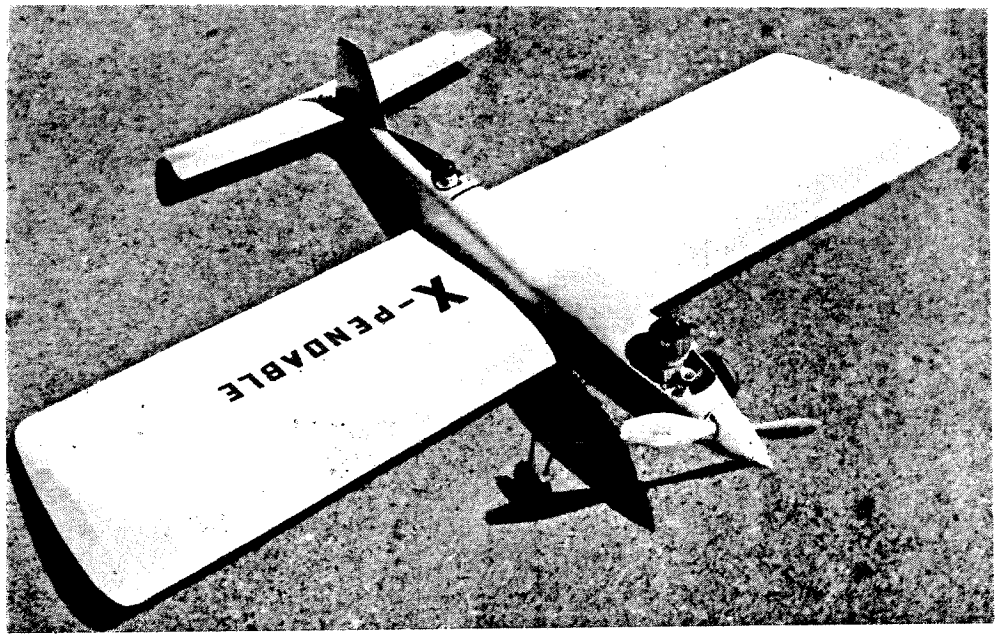
Johnny Brodbeck of K&B was there to help out with engine repairs. Keith Storey (behind JB) ran off team racing Joe Dallaire of Detroit (sunglasses) kept supply truck on hand. All lines were by Mattie Sullivan of Philadelphia

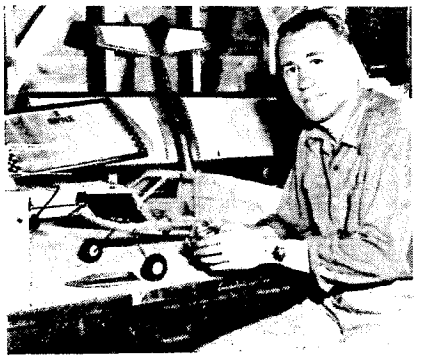
Neat carrier model was Martin Mauler by Graham Ireland, Syracuse, N. Y., who put in 300 hours. Wings fold. Event won by Valgene Hayworth, Sedalia, Mo., 285 pts., with AD-2 model from "AT"; Atwood .60, Top-Flite 12/8 prop.

Line-up of team racers exceeded number at Nat'l meet, although operation-wise ships did not perform as smoothly. Sy G. Vos Gerau, Miami, Fla., took event and also top style and beauty. Don Newell, also Miami, won Consoliation.

Grim determination (above) expressed by Robert C. Baxter, 14, San Diego, Cal., as he readies Cl. BC free flight. Bob took 2nd in Jr., 917 sec. Vic Peres, Erie, Pa., won, 1076.

Dyna-Jet stunt model had all agog! Chuck Parsons, Redfield, S. D. (rt.), flew good portion of pattern with special craft which had Super Zilch wing and half-pint stunt fuel tank



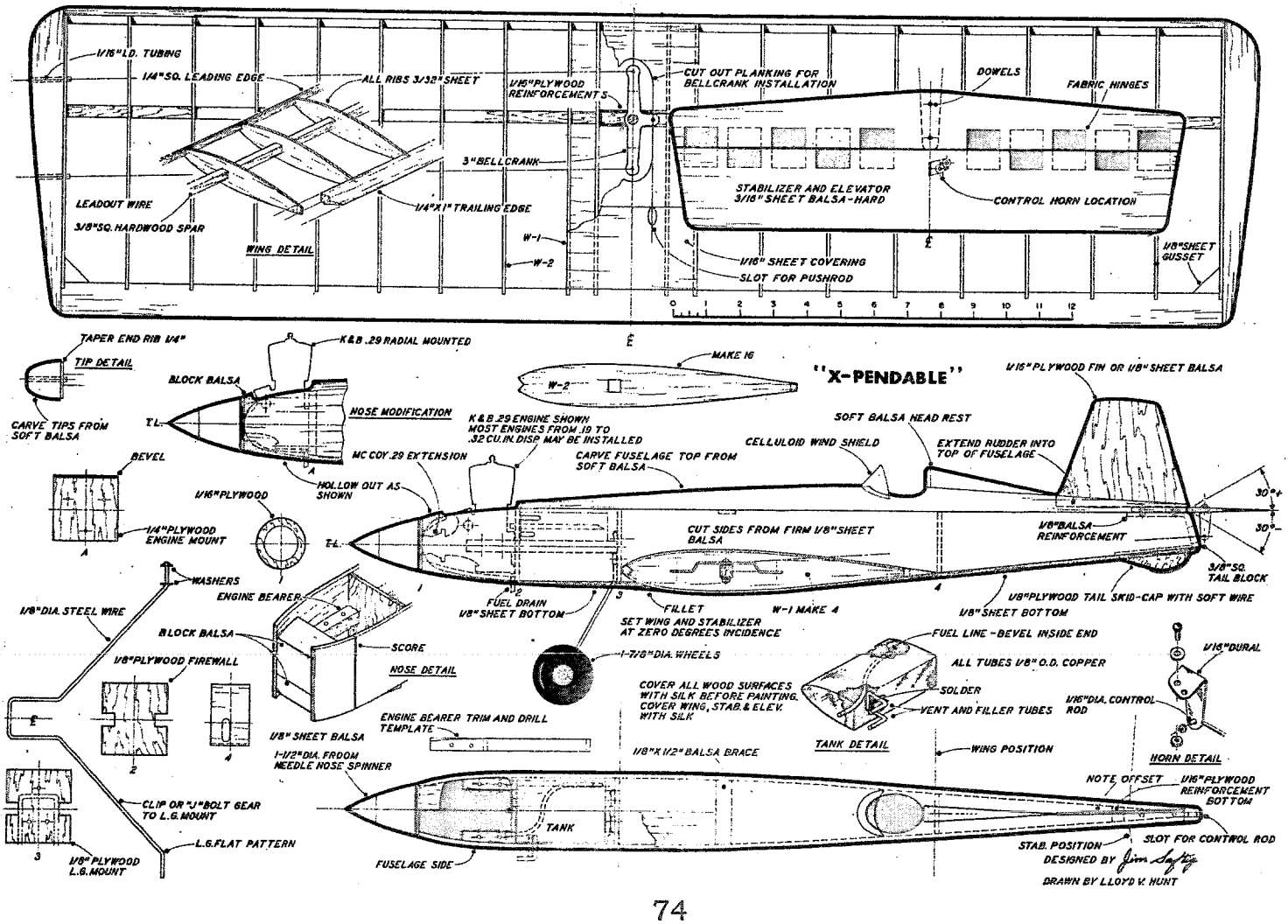


Meet San Diego's Jim Saftig, designer of "Zilch" line of stunt craft and winner of more than 50 first places in two years of competition flying. Saftig is 37 and a supervisor at Convair; he also acts as Commissioner of Model Activities for Consol. Vultee San Diego plant. Started modeling in '27 with Spirit of St. Louis.

"This ship has been through the mill and I consider it one of my best efforts for a combat job . . . the pattern is easily done with it," says Jim, internationally known stunt champ

X-Pendable

By JAMES G. SAFTIG

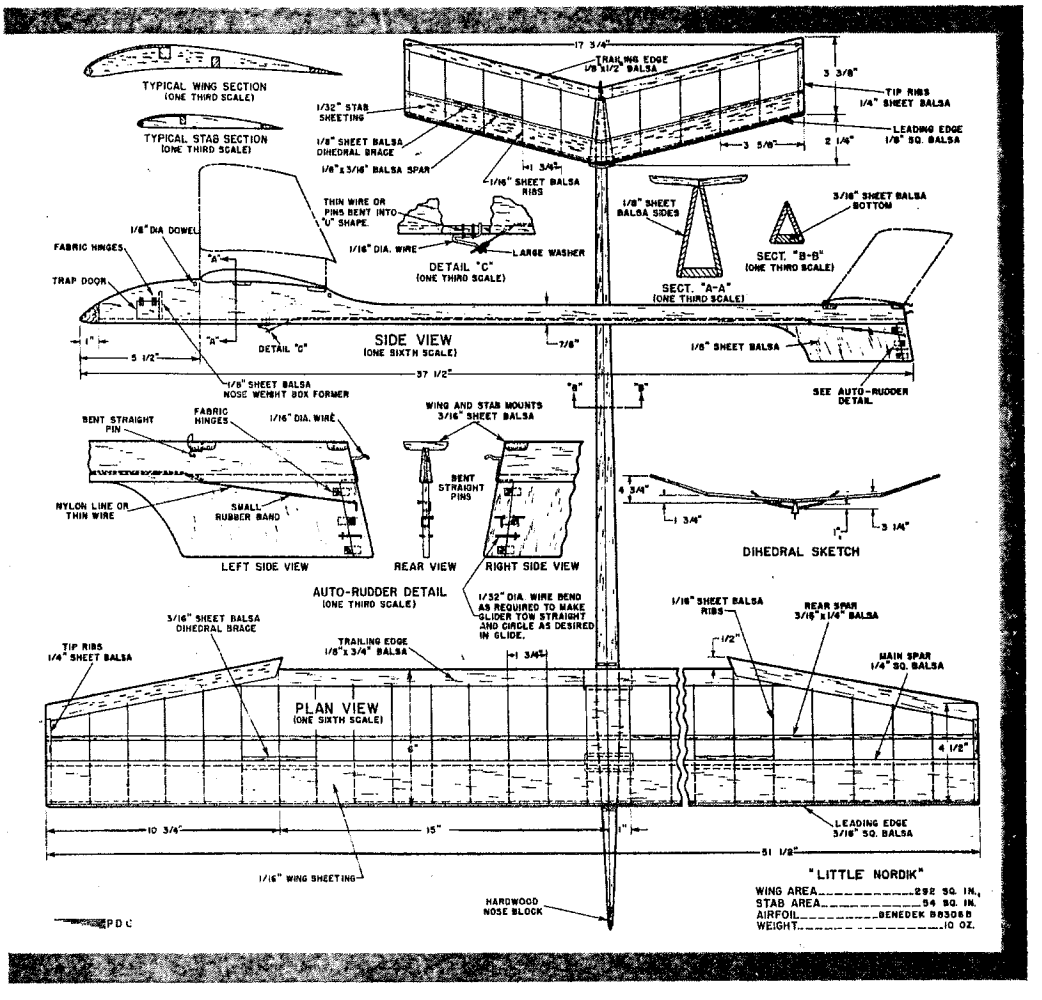


"Little Nordik"
TOWLINE GLIDER

By GEORGE PERRYMAN

Member U.S. International Competition Team

First contest "Little Nordik" entered was a National meet. It not only won first but set national record, too!



■ *Little Nordik* was designed to eliminate fancy formers, bulkheads, and stringers, yet retain appearance and performance. I have long been an advocate of simplicity of construction mainly because I'm too lazy to build the hard way.

The basic design follows closely that of big brother *Nordik* which I flew in the 1953 International Glider Championships held in Yugoslavia. The long tail moment arm permits use of an 18% stabilizer. This utilizes the total area of 350 sq. in. to best advantage by putting most of it in wing area which is what determines to a great extent the glide. First contest *Little Nordik* entered was the Nationals at Philadelphia where it won the open division with a new national record of 12:13.

The automatic rudder makes possible a straight overhead tow, which contributes considerably to altitude over most present gliders flown in this country. Few American gliders will attain full height on the tow line. This auto-rudder is a variation of European methods.

The wing airfoil section, the Benedek B8306B, was derived from work done by Dr. Georges Benedek of Hungary. This section is found on many Continental designs, and has an outstanding lift/drag coefficient.

The construction of the wing and stab is handled in conventional manner like that of most planes you have built, so I will not go into detail. The fuselage, though a bit different, is a pleasure to build. Cut the two sides from one-eighth medium sheet balsa to the shape shown. The bottom is cut from three-sixteenths medium sheet. Bevel the edges of the bottom piece as shown on view A-A, and pin down on a flat board. Bevel the sides at their top as shown on view A-A. Glue the two sides to the bottom and let dry. Before pulling the top of the fuselage together, insert the nose weight stop about 3½" back of the nose and glue. Pull the two fuselage sides together and glue beveled edges. When dry, glue on noseblock and carve to shape. Sand the whole fuselage to a smooth surface, and apply Silkspan over the whole structure. This prevents balsa from splitting under hard landings. Cut notches in fuselage and add the wing and stabilizer mounts. Add dowels for wing attachment, hooks for stab, and glue on sub-rudder. Cover the wing and stab with rubber-powered Silkspan and apply four coats thin dope with a bit of castor oil added.

Flying is simple. Add nose weight until ship balances 2½" from trailing edge of wing. The wing is normally set at 4 degrees but slight adjustments may be made by adding shims under leading edge to correct diving tendency, and under trailing edge to prevent stalls. A word of caution here; never add more than one-eighth inch under trailing edge of wing on this design if it stalls, but rather, add more nose weight.

The auto-rudder is easily manipulated. Slip the tow cord ring over the hook, and slide the spark plug washer with line attached to rudder over end of hook as shown in Detail C. Circling in glide is obtained by bending wire attached to fin to allow rudder positioning. With a little practice, you achieve a straight tow and smooth right circle in the glide.

Be sure to utilize the dethermalizer, because if you fail to light the fuse you may be in for quite a hike.

Remember, it has been said: "The only difference between an expert and an amateur is plenty of sandpaper and a strong thermal." This may not have been that famous old Chinese philosopher and box-kite flyer, Confucius, but it was a mighty wise man nevertheless.

Not So Simple - The History of

Astounds even Wright Field—U. S. A.'s only, unbeaten model jet engine

■ It was shortly after VJ-Day. The Big War was over. Like a couple of million other guys stationed stateside, the sergeant sat there at his desk in the big Equipment Laboratory at Wright Field, the Air Force test center near Dayton, Ohio, and felt the curlicues of a gigantic question-mark clawing at his future. What would he do now?

For months he had been engaged in some very "hot" projects—design and development of small engines for target planes. But suddenly, the projects turned lukewarm. He found himself sitting there with little or nothing to do. A guy with ambition could go nuts under such circumstances. And Sergeant Bill Tenney had ideas about the design of some new motors. He wanted to try them out, if for nothing else than to develop a faster engine for his outboard racing boat.

The then 30-year-old (he's now 37) Minneapolis-born enlisted man, a Yale graduate, decided he'd set up his own little experimental engine laboratory. Together with a friend, Charlie Marks of Las Vegas, he rented a three-car garage near the field and they started to delve into the mysteries of a new type two-cycle piston engine. To them it looked like the answer for a lot of power needs. Someday it might grow into a production item. In the future, maybe, they'd build this thing in their own factory. If they could design the kind of engine they hoped for, Tenney had some money he'd invest in its production. Temporarily, that should straighten out the question mark.

Today—seven years later—W. L. (Bill) Tenney is president and sole owner of the Shevlin Corporation, Vandalia, Ohio, a plant whose 14,000 square feet of factory space is bursting at its beams. It is doing work for the Army, the Navy, the Air Forces. For civilian consumption it is turning out model airplane motors, specially powered insecticide blowers, heaters and a whole list of new and revolutionary items.

But the irony of it all is that Tenney and Marks in their garage laboratory never did build that piston engine. What they did do, however, was to build a pulse-jet motor that, by and far, is the simplest prime mover ever built. It is so simple and it produces so much power, so efficiently, that even some of the German scientists who worked on the V-1 bombs which employed the same principle still shake their heads and say—impossible!

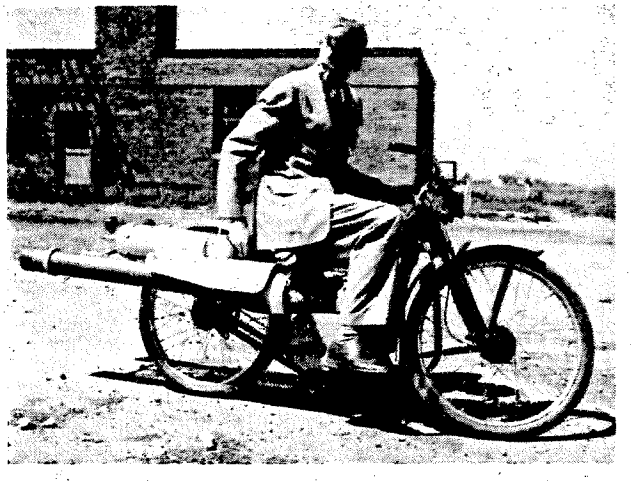
Simple in parts and operation, the little motor, initially trade-named the Dyna-Jet, was anything but simple in its development and perfection.

"It was," Tenney recalls, "a pulse jet all right; a thousand and one little throbs, each one a big slam-bang headache!"

It all started when Tenney, still in the Army, went down on the flight line at Wright Field to see an open house exhibit. On display was a German V-1 bomb. He took a quick look at the pulse jet motor and decided that it could be duplicated in miniature. He was sure he understood its theory of operation. So he went back to the garage that night and he and Marks started to build one.

They cobbled up the whole thing in about half a day, using crude materials. A piece of water pipe served as the taip-pipe. The casing from a 75-mm shell became the combustion chamber. The reed valve assembly they stole from the crankcase of a two-cycle engine.

"We put it on a test bench," Tenney said, "and the unfortunate thing is that it ran."



Adventurous Bill Tenney, the master-mind of Dyna-Jet, with his jet-powered motorcycle. Units are Aeromarine D5-1's—Dyna-Jets in cluster formation.

The embryonic baby jet was about six feet long and it weighed between 30 and 40 pounds. Actually it didn't have enough thrust to make you blink your eyes. But the important thing was—it ran. The principle was there. Tenney and Marks were sure they could miniaturize it, make it of lighter metals, come up with a small, powerful little motor. That's where the headaches began.

The second motor was made to order of two different diameter pieces of water pipe and razor blades. To get a proper thinness and strength for the intake valve (the only moving part in the engine) they tried out every size and shape of razor blade. Finally, after two weeks of burning the night oil, plus Saturdays and Sundays, they had the "baby" ready for test.

It didn't work!

the Dyna-Jet!

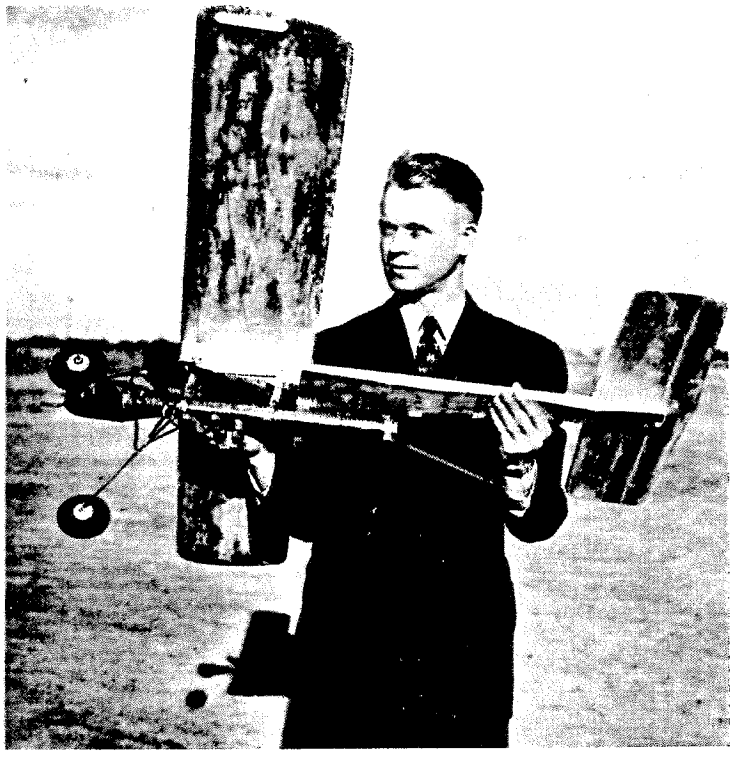
By DOUGLAS J. INGELLS

Try as they might, the two experimenters couldn't get their "white hope" to do anything but sputter and spit and die out. So, they tore it apart. In the process they found one thing which they were sure was causing the trouble. They changed it. Still the motor wouldn't run. They rebuilt it again. No luck. Another change in this part, then that one, and finally, they began to get some results.

"We put it on the bench and it ran after a fashion," Tenney says. "But it was difficult to start. There was no valve endurance. The razor blades went blooey like they were cutting a wire beard. The thrust you could measure in fractions of an ounce. I remember we had a little scale which we used for measuring the breaker spring strength on a magneto. It would only take up to about eight ounces. We kept hoping for the hour when the pulse jet would kick out enough thrust to break the darn thing. It seemed like forever."

Weeks went by. Tenney got discharged. He could devote full time to the jet experiment. The challenge was such that both he and Marks forgot all about their piston engine. Like the Wright Brothers who had a bicycle business and suddenly found themselves in the airplane business, Tenney and Marks discovered they were in the jet engine business—win or lose.

It was more guesswork and prayer than anything else, and long hours in the workshop. They built hundreds of different configurations and combinations. Preconceived notions and theories about pulse jets went out the tailpipe like so much hot air. They found out you had to invert the process of trying to make an engine follow a theory. Engines don't think. Instead, you had to build the engine and find out what it wanted to do and then go back and build up the theory. It was the same kind of "monkey-wrench" engineering that enabled Kettering to design the self-starter for the automobile. Since there wasn't any formula, you just tried one darn thing after another until the contraption finally worked.



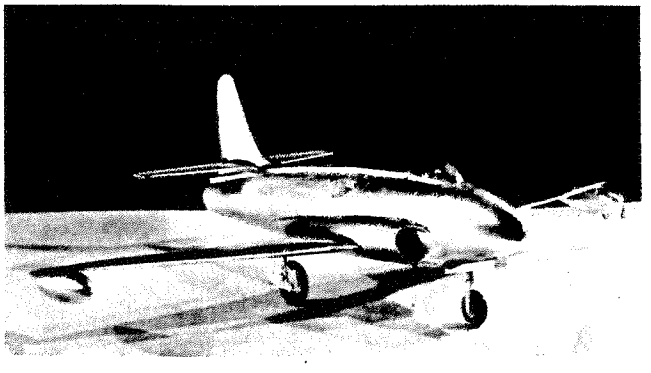
For the devotee of the jet blast this is an historic "pic" indeed: William L. Tenney with the first model plane to be powered by a Dyna-Jet engine. The powerplant worked fine, but the aircraft's performance left much to be desired. Compare the model with today's sleek speedsters of 150 mph-plus.

Early in the spring of 1946 they had the answer. In fact, the small pulse jet motor turned out to be a miracle midget. It didn't know it, but for a baby it was doing things that its parents—the V-1 engines—never could do. The fuel versus thrust ratio was something nobody would believe.

Now the engine became a simple thing. It had only seven parts including every nut and bolt, screw or washer to assemble it. The combustion chamber and tail-pipe were one unit of thin (15,000th inch) stainless steel. This was the principal part. The others included: the valve head hogged out of a solid aluminum bar stock; not a casting. The engine intake valve—only moving part—a flower-petal-shaped affair. The engine intake valve retainer. The engine intake valve retainer screw. A flow "injector" for metering fuel, also serving as starter—about the size of the valve on a bicycle tire. A spark plug.

This was the little power package—the Dyna-Jet. It has seen many modifications and changes for specific jobs but essentially the motors Shevlin Corporation is building today for numerous tasks differ very little from the initial product which took so long to turn from fantasy to fact.

It was little over 21 inches long. It weighed practically nothing—16 ounces! Having these characteristics, it seemed quite naturally that the engine would be ideal for model airplanes. Tenney saw in this field a chance to get some money coming into the "garage" which meanwhile had become a *(Continued on page 78)*



With models like this Tenney succeeded in convincing skeptical model builders across the country that the Dyna-Jet unit could be enclosed in a flying model.

Dyna-Jet

(Continued from page 77)

proprietorship—Aeromarine factory. He took the engine and demonstrated it to many model plane engine manufacturers. They were interested, but not to the degree that Tenney wanted. He decided to build the engine himself. Mass produce it. Sell it to model builders for jet-powered planes.

Aeromarine took on a couple of assistants; two other shop workers. It turned out a batch of 50 of the engines. They all worked perfectly. The little company was ready to do business. Then disappointments struck it down, almost closed its doors before it ever got started. There was a whole series of setbacks. First off, model builders turned skeptics. They didn't think you could build a plane around the engine. It would burn up anything you might try to do in putting wings on it. (This had already happened in previous attempts at jet-powered models.)

That's when Tenney found himself in the model design and model manufacturing business. If the model builders wouldn't accept his power plant and apply their own ingenuity to building plane designs for it, then he'd show them it could be done. He turned to a friend at Wright Field, Joe Fallo, who builds models for the Air Force. Together they collaborated on a design. It was a little crude, a big wide-winged affair, but it worked.

Joe flew it one day in the spring of 1946 from a vacant field not far from the "factory" garage. It took off wth a swoosh, flew around a couple of times on its control line, then splattered itself all over the ground. Like so many crashes they blamed it on "pilot error." A second experimental model worked with a great deal of satisfactory performance.

It was true, the first jet-powered pulse-jet model planes that Fallo and Tenny built were wing and stick affairs. That wouldn't entice many model builders used to sleek, trim, scale models. So, they put the engine in a plane that looked like the X-1 and in another that looked like the F-80 Shooting Star. And they took them around the countryside to model meets and proved the little engine was a power-house. The sky looked bluer.

A survey of the potential market indicated that they could sell "at least 10,000 the first year."

Dyna-Jet loomed like a dynasty.

The model builders of the country were promised a jet engine by late summer. They didn't get it that quick. Something got stuck in the tailpipe. Tenney, to meet anticipated production, tried "farming out" certain parts to other companies. The stuff didn't come back with suitable accuracy. Other parts weren't available. Most important, the technique of welding the very thin stainless steel tube for the tailpipe turned into a technical tragedy. On a batch of 100 engines the welds didn't hold. Something had to be done and quick.

Marks came to the rescue. In face of many "doubting Thomases" he devised a special machine using plain gas welding which did the trick automatically. And the welds withstood the terrific 1800-degree F. temperatures! This machine is still turning out Dyna-Jets. It is one of the production secrets.

Demonstrating one of the jet-powered model planes at a meet in Indianapolis, Tenney was approached by an observer who asked: "How do you weld that thin stainless steel tube?"

"We gas-weld it," he explained.

"Impossible," said the stranger. "I work at Allison. We make jet engines, too. The thinnest we can weld is down to 20,000th of an inch; and that stuff of yours. . . . It can't be done!"

Tenney's plant today is turning out about 150 jet engines for model planes per month. Gas welding them, too! Another theory is catching up with a new technique.

"Our success seems to be based on the fact that we never were experts," Tenney claims. "We didn't know you couldn't do it."

The yardstick of his company's success, however, isn't measured by its sale of jet engines to model builders. Actually the first year's sale fell far below that survey's "indicated acceptance." It was about 2,000 motors. Altogether they have manufactured approximately 10,000 of the model plane powerplants in the six years since they started. But the motor has grown into other uses; the plant is in many other fields.

Tenney himself sums up what happened very nicely: "With the model plane engine we had a very great scientific success. But it was a financial flop with a capital F."

He admits very frankly the cost ($35) for the Dyna-Jet is that high because of limited production and limited demand. But it has been a powerful little engine to pull a very profitable train of other items resulting in a growing business. But if Tenney got a kick-in-the-pants disappointment over his model engine sales, the small engine has healed any hurt because of the big boot in the brain it gave to a lot of the country's top scientists. What it did to the science of jet engines is what Fulton's *Folly*, the first steamboat, did to doubters when it puffed away so majestically up the Hudson. They wouldn't believe it.

For one thing, scientists look at a jet engine in terms of a trick equation—"lb. fuel/lb.thrust/hr." It means pounds of fuel used per pounds of thrust per hour. The more you can starve an engine's appetite for fuel without cutting down on its thrust, the better engine you have designed.

The German V-1 had a ratio something like this: four pounds of fuel per pound of thrust per hour. The initial Dyna-Jet—a much smaller engine and more difficult to build (the difference between a clock and a wrist watch)—had a 2:6 ratio. It had increased performance fuel-wise by more than 50 percent!

More important, the V-1 had a 20-minute endurance on the life of its hundreds of intake valves. It was just enough to get it into the air, across the channel and down on London. Then, the valve burned out. Tenney's engine had a two-hour life for the single valve. More than that the V-1 fired 40 to 50 times per second, which meant the valve lips were flapping like a bird's wings in comparison to 220 vibrations per second in the Dyna-Jet, a buzz-saw operation.

And today's improved little jets have valve life in excess of 50 hours, Tenney reports.

Scientifically, indeed, Tenney had made progress. There was no other jet engine in existence to compare with such performance. Even when engineers from Wright Field came out and saw the small engine perform they could hardly believe it. But they had to admit it was the best progress made so far in the jet (pulse jet) field.

It was this proof-positive of the performance of his small engine that led the manufacturers of the Dyna-Jet into other fields. Finally, they got a contract to build a larger pulse jet engine for the military. Details not available. Security reasons. But they are definitely continuing in this field.

With an eye to commercial business, Tenney and his crew modified the engine and produced what they call the Dyna-fog Jet Insecticide Fog Generator. The Navy and Army are using this now to build smoke screens around their battleships and ground maneuvers! It is also being used in Florida and Texas to provide effective kill sprays for mosquitoes and other insects.

Another project is the application of the jet engines to helicopter rotor blades, bringing the pulse-jet helicopter very close to reality. As Tenney puts it: "All you need is a rotor blade, the pulse jet engine, a seat to sit on and a fuel tank—and away you go." He knows, however, from past experience it won't be that simple. Nothing is.

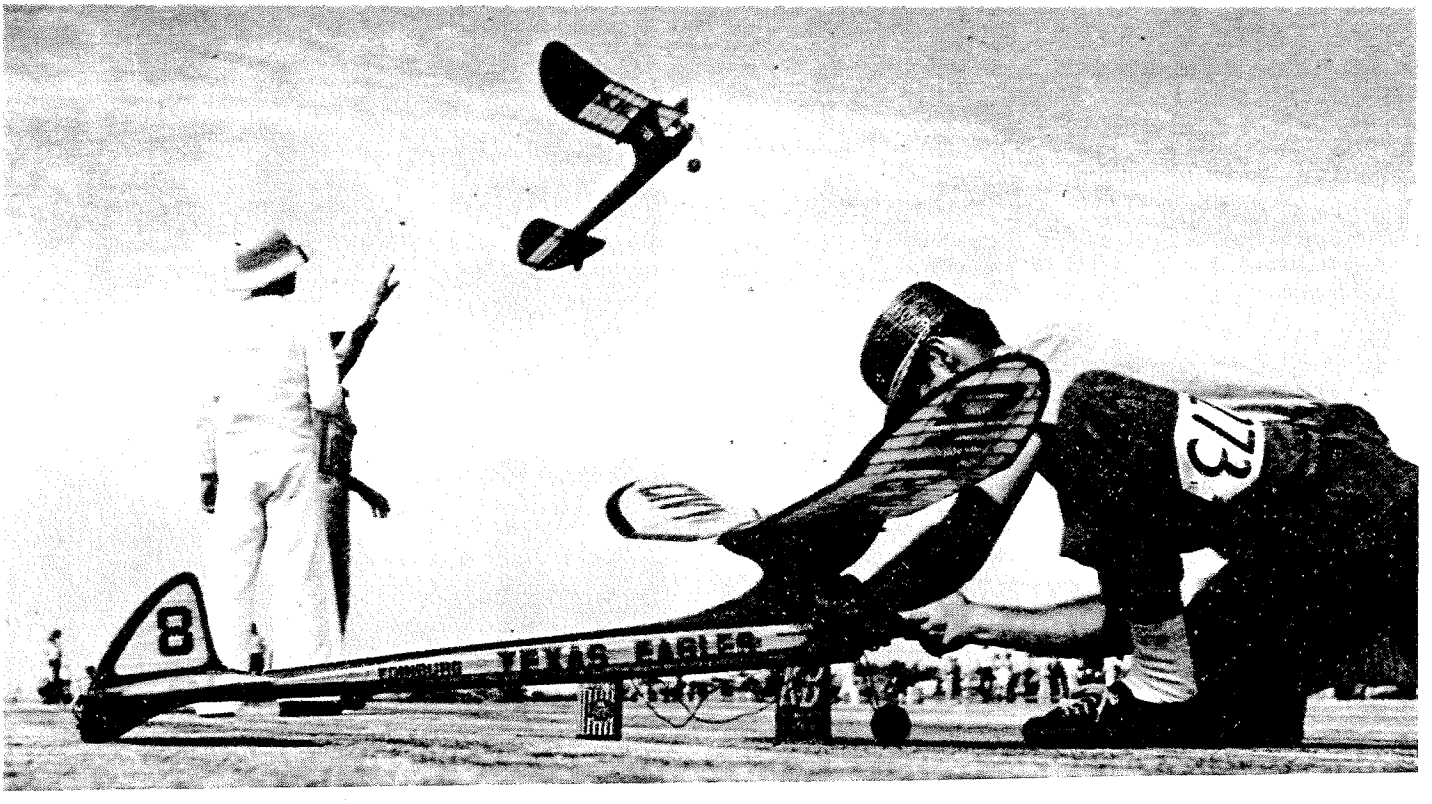
They have also tested the jet engine for glider boosts to get the sailplanes into the air and eliminate the need for tows and winches.

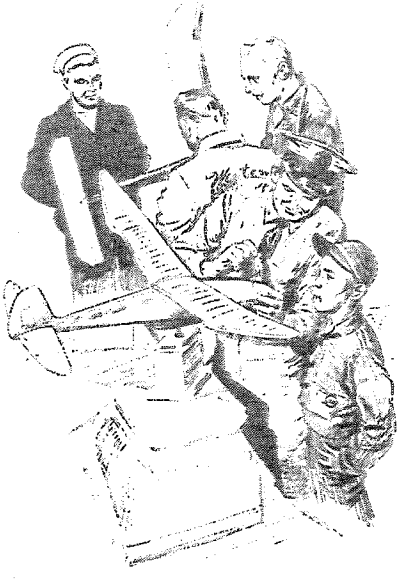
Experimentally they have tried the engines out on a bicycle with great potential results, and someday there may be a jet-propelled bike. But he stresses the fact that the company isn't producing any such item now; nor will it in the near future.

Already they are confident of building a jet car and preliminary designs have been under study for sometime.

Further, nearing commercial sale, is a jet heater which in tests has proven it can withstand temperatures down to minus 65 degrees, still start, still throw back a lot of heat.

"Beyond these things we have a lot of other items which I can't talk about now," Tenney says, "But one thing is sure—we ain't seen nothin' yet from the jet!"





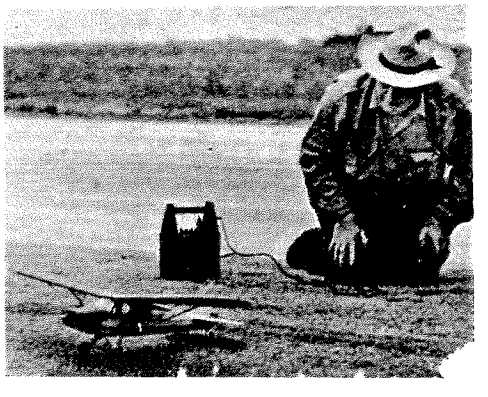
The NATIONALS!

■ It is only fitting and proper that the Nationals should begin with the indoor event. This event has been with us since the Nationals began, and it is the only one in which the models are not handicapped in fulfilling their basic function: defying gravity for maximum possible time.

The event at the Lakehurst hangar seemed like a reunion of the indoor alumni responsible for the development of indoor models as we know them. Some came as flyers, others as spectators and officials. Among the flyers we found Bill Tyler who used to represent Boston; John Zaic, New York Aeronuts; and Pete Andrews and Tony Becker, Philadelphia. Jesse Bieberman had his old job as contest director with assist from Mayhew Webster, Erv Leshner and others. If one could forget war years, wrinkles and grey hairs, the event seemed more like one of the pre-war record trials at which the records were pushed higher and higher from the reach of beginners.

YOUNG MISTER WRIGHT

Busiest man in free flight was the much beloved builder from Topeka, Kan., C. O. Wright. Everybody wanted to talk to him (as did Ed Al Lewis, left); then C.O. is shown with his Half-A "Spacer" ("built it just as Sal directed"); next PAA ("this is a design by Herb Kothe"); finally his Super Cruiser for the Half-A flying scale event. His battery box has home-made voltage regulator.

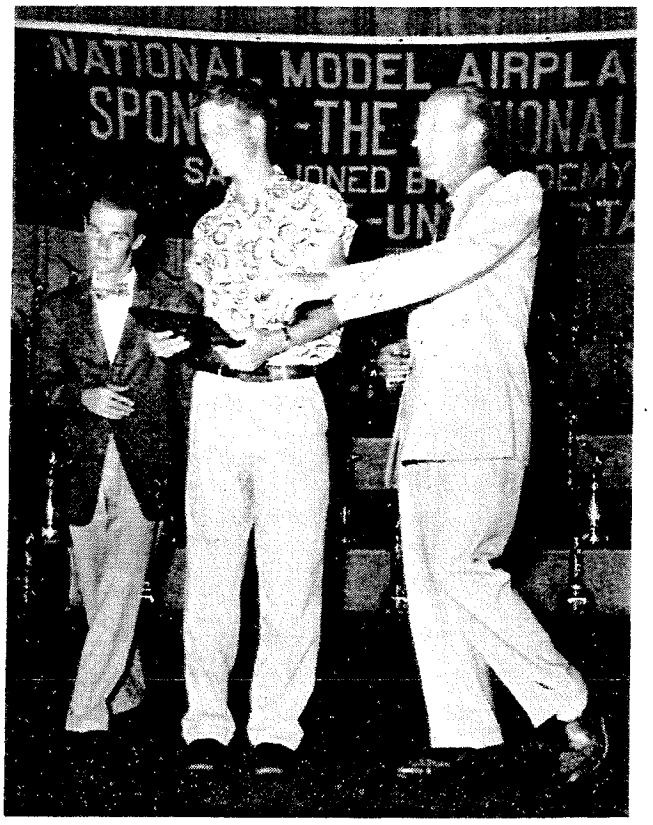


THE NATIONALS! . . . Photos by SCHOENFIELD

Attending or competing in an indoor meet is an experience not easily forgotten. Time seems stretched out, and the day never ends. It's almost like living in a fish bowl. All motions are slow. Men on the bottom, or floor, move with a snail-like pace, while the models just drift around and around. At this particular meet, Dick Querman heightened the effect by flying his slowly moving helicopter.

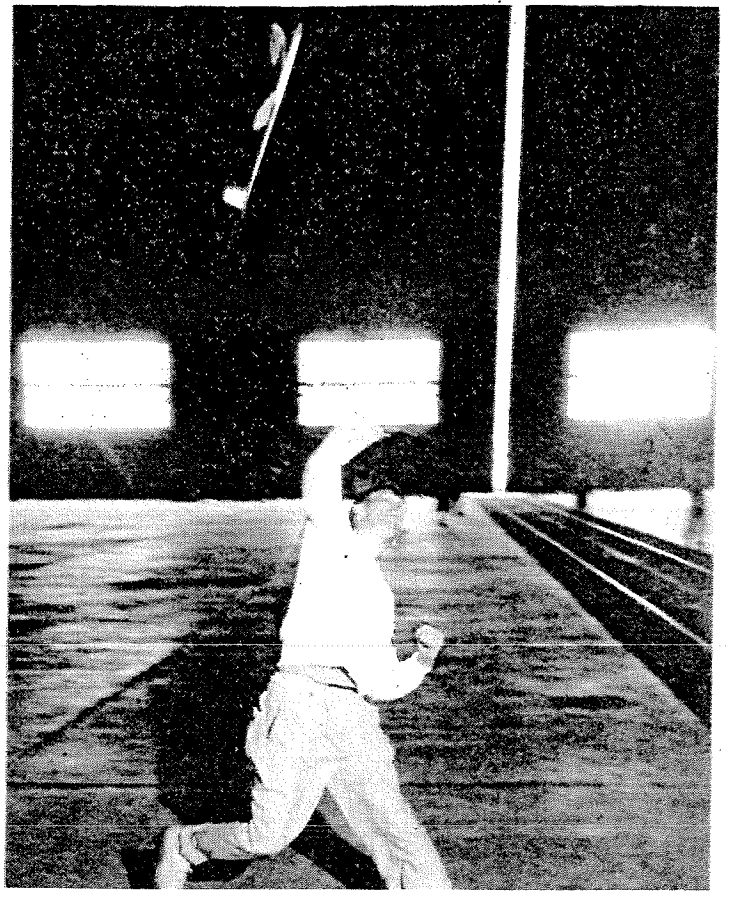
Don't think excitement is lacking. As a model gradually spirals toward the treacherous roof, one begins to anticipate the troubles it may encounter before it completes its flight. Will it go up and down without touching the ceiling or sides? Or will it be snagged when it is just about to break a record or beat the previous best time? There are times when the model drifts toward the sides with each succeeding circle bringing it closer to disaster. If *(Continued on page 86)*

Berni Schoenfield, the noted photographer and ex-modeler who "covered" the Nats for "AT," was impressed by the minute size of the Half-A speed entries. This one by AF flyer Tommy Baker was among neatest.

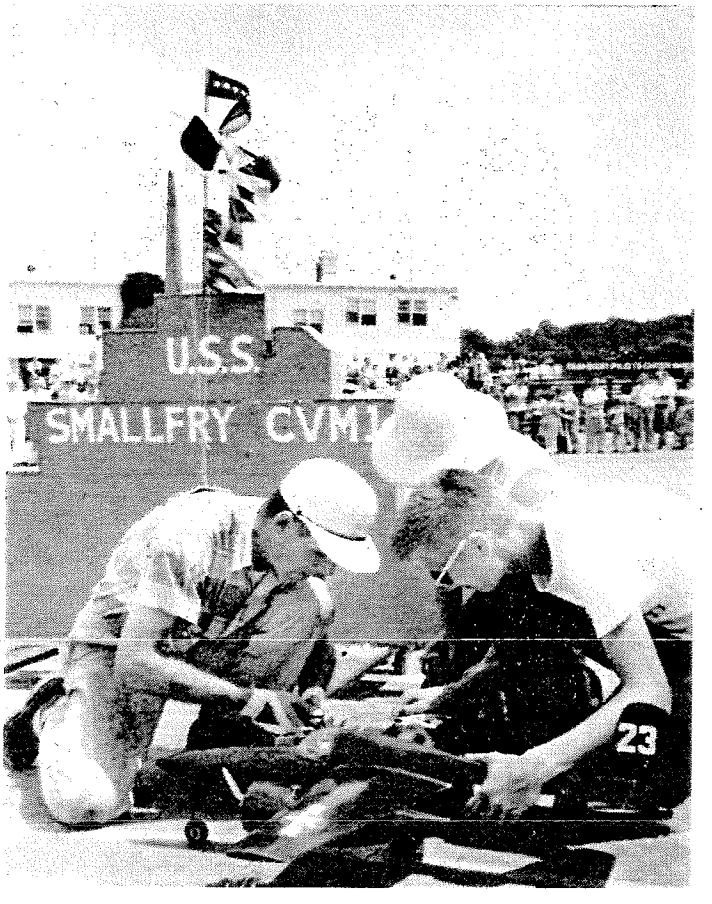


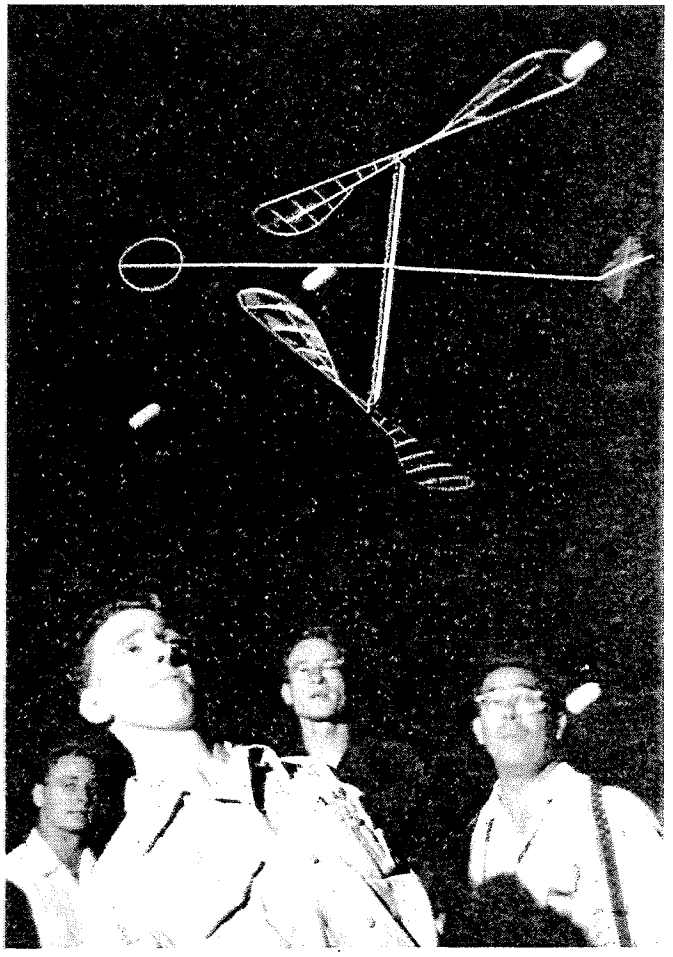
Dance of Victory . . : National champ Bill White gets his Exchange championship plaque from contest director Matt Sullivan (right) while AMA president Keith Storey looks as if he's cutting in for the next number.

Airman 3/C Stuart Savage of Wright-Patterson AFB who shared senior champ honors with Ron Plotzke of Detroit demonstrates the proper technique in indoor H/L glider flying. He did 52.8; winner turned in 69.6.



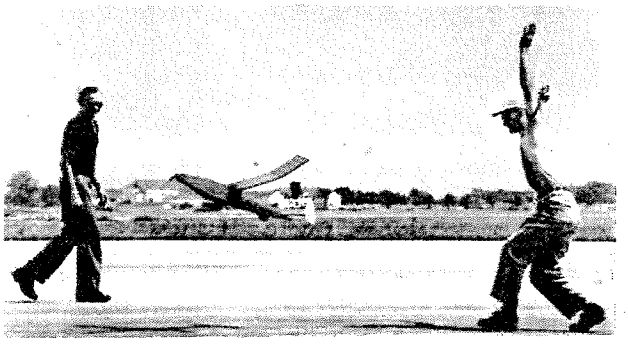
For carrier flying John Albertson (left) of Arlington, Va., entered this F7F which used two K&B '32's. One engine cuts for low speed run and deck landing. David Domizi, Rocky River, O., won with 391.5 points.





Dick Querman of Long Island City attempted to better the existing record for indoor helicopters but missed the mark by a narrow margin. At right is Jesse Bieberman of old Phila. Gas Model Assoc., who directed indoors.

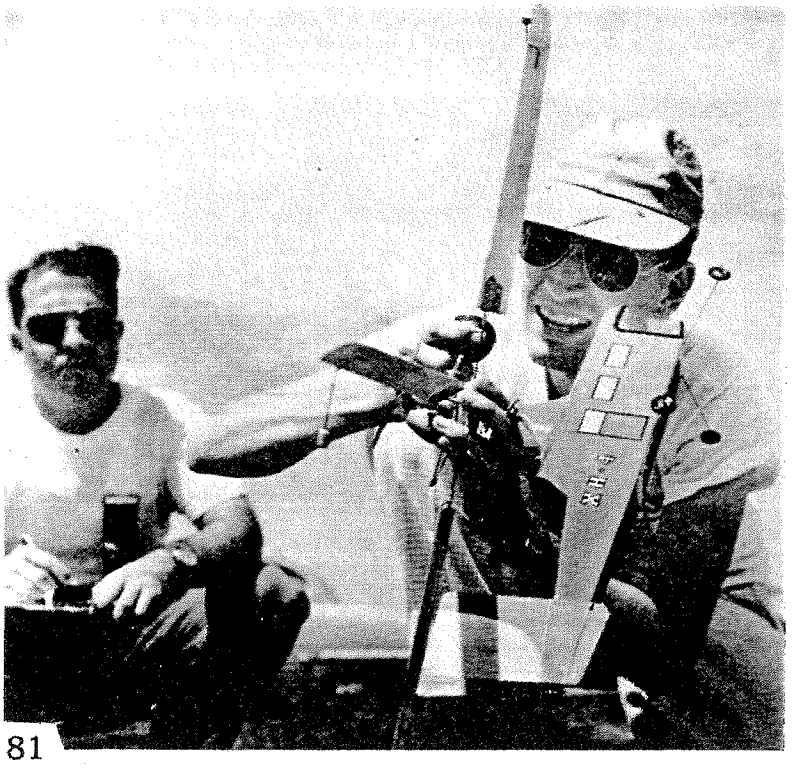
"Tennie" and the Nordic. Mrs. George Perryman launches husband's Nordic glider which after meet went to Yugoslavia along with George to compete in international event. His trip sponsored by Lockheed.



And away she goes—or, look, Ma, no hands! Bill Fletcher shows how to get a Wakefield off accordin' to the rules. Fletcher left Nats for England where he served as captain for U. S. group, which won team honors.

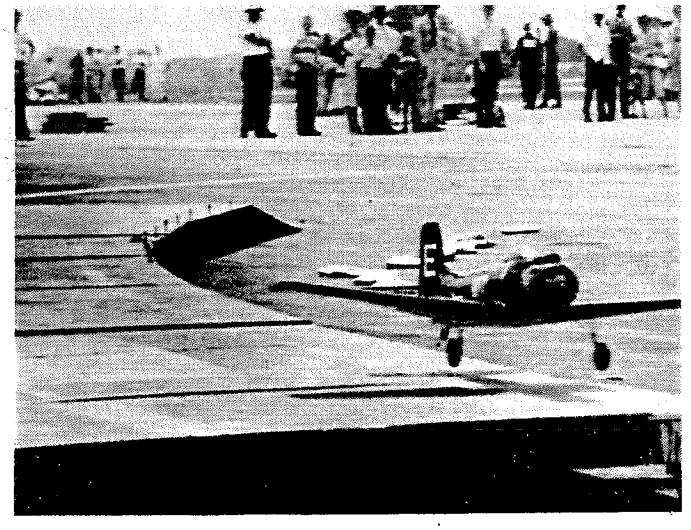
Scale director Vic Fritz (lt.) and Ann Hauze of Phila. MAA check over Thomas Dean's first place Aeronca crop duster. Al Rubin (rt.), one of busiest officials, and Pete (Indoor Champ) Andrews also admire it.

Winner of the Hiller Model Helicopter competition was Parnell Schoenky of Kirkland, Mo., who works for McDonnell Aircraft. His 121.41 points put him far out in front. Dave Call, the meet official at left, handled event.

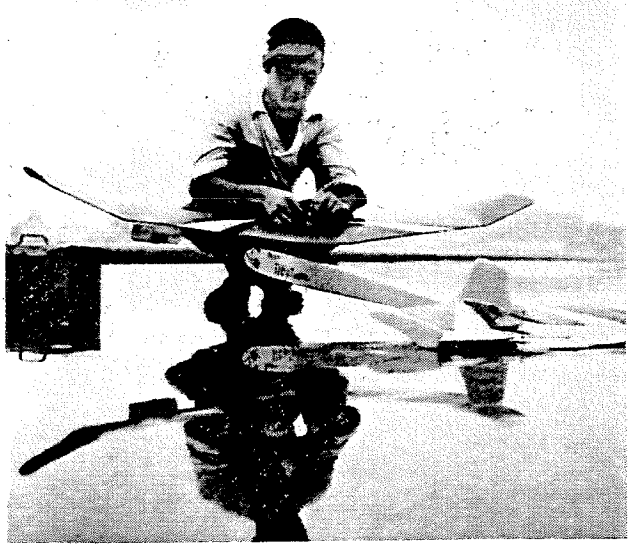


THE NATIONALS!

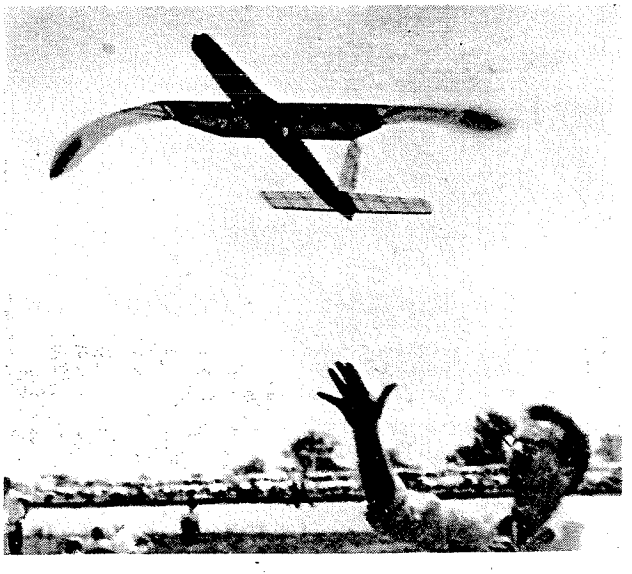
Sal (Spacer Chaser) Taibi, once of Brooklyn, now proud of his adopted California, demonstrates proper rise-off-water technique. Mrs. T. keeps her fingers crossed (lt.). Sal racked up top time in this category—13:00.5.



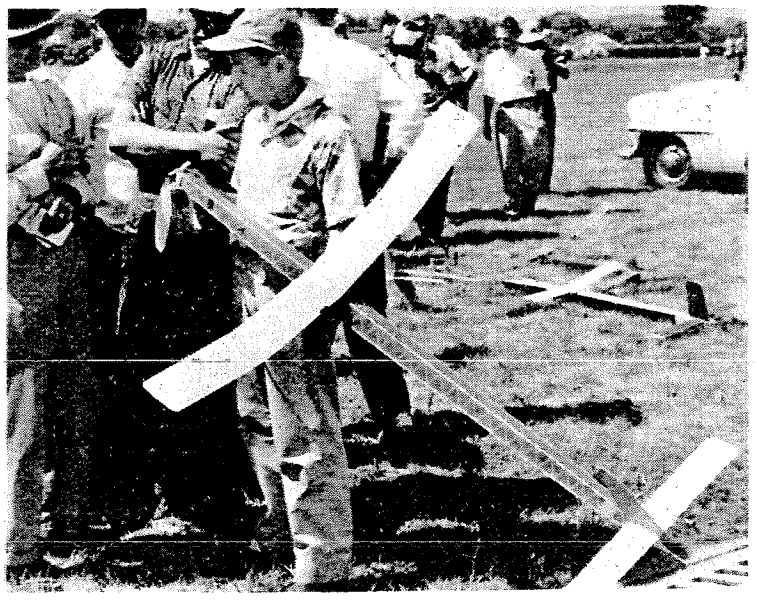
Neat carrier take-off by Vincent Calano's AD-2 (from "AT" plans). Used Fox .35 with intake butterfly choke for engine control. Hez from Hartford, Conn. Event drew crowd. Nat. champ White won junior ABC carrier.



No, this is not the ROW tank! Just a rainy runway scene last day of contest. Air Force's Al St. Clair of Williams AFB readies his "Neptune" free flight. He couldn't have picked a better name considering weather.

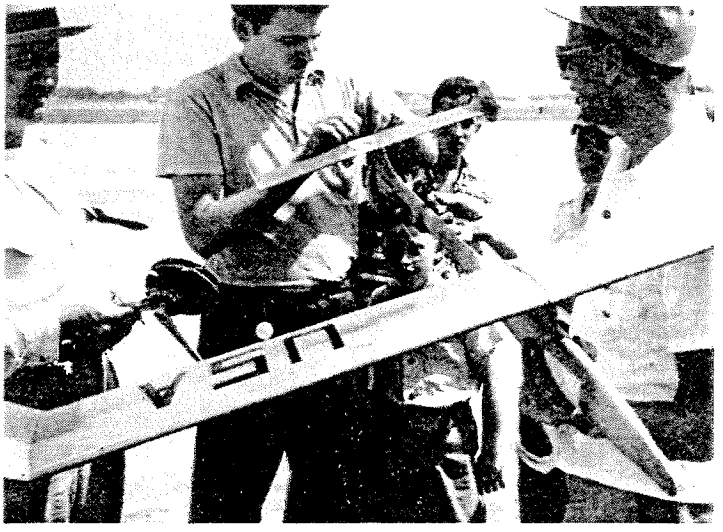


One of the nation's top model designers, Lawrence Conover from Iowa City, Iowa, goes after the ornithopter record. Special attempts at records were permitted throughout meet; the modeler really was king.



Hal Roth of Richmond, Calif., who walked off with PAA Clipper Cargo (lifting 23.25 oz. for 42 seconds with a Half-A engine) discusses the fin points of his Wakefielder with Frank Zaic (lt.), Nats "AT" report

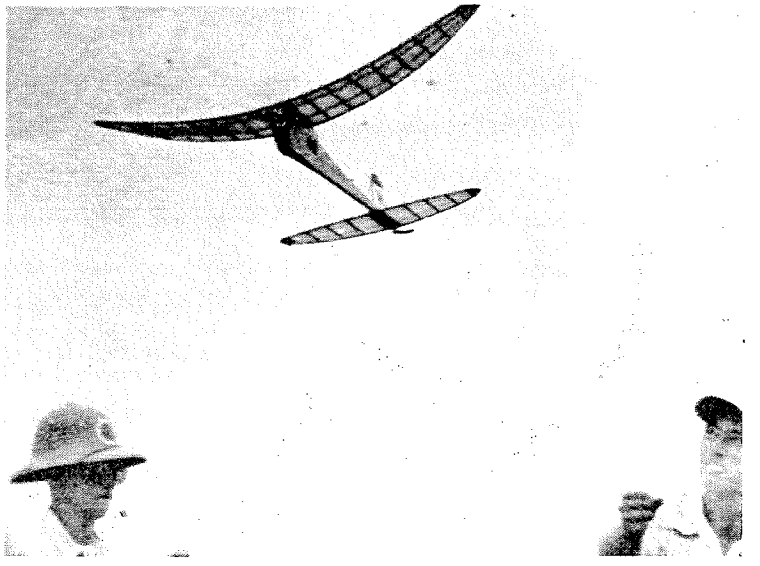
Half-A flying scale champ Edward Stoll of Detroit testing his Fairchild 24. a modified Berkeley design. Ed's 290.22 points were more than 100 ahead of next contender. Wasp .049; event was flown ROG in drizzle.



Henri Dore adjusts dethermalizer of his Nordic glider. After contest model was shipped to Yugoslavia to be flown by proxy in international A/2 contest. Jasco's John Zaic (rt.) helps while brudder Frank holds line.

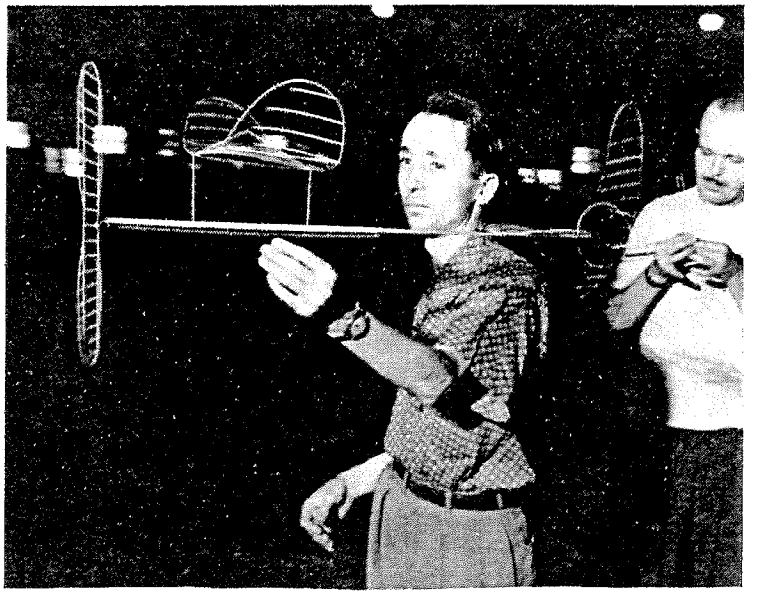
Two-time flying scale champ Thomas Dean of Corpus Christi (lt.) dries off his Aeronca "duster" model. Power was Cameron .19. Everything works on model including prop on duster bin, tiny seat belts, shock absorbers.

Grumman Avenger entered in flying scale event by Robert Fritsch, Camden, N. J. Number of entries in this event was less than in '52 despite change in rules which eliminated stunt and required only 10 laps by each man.

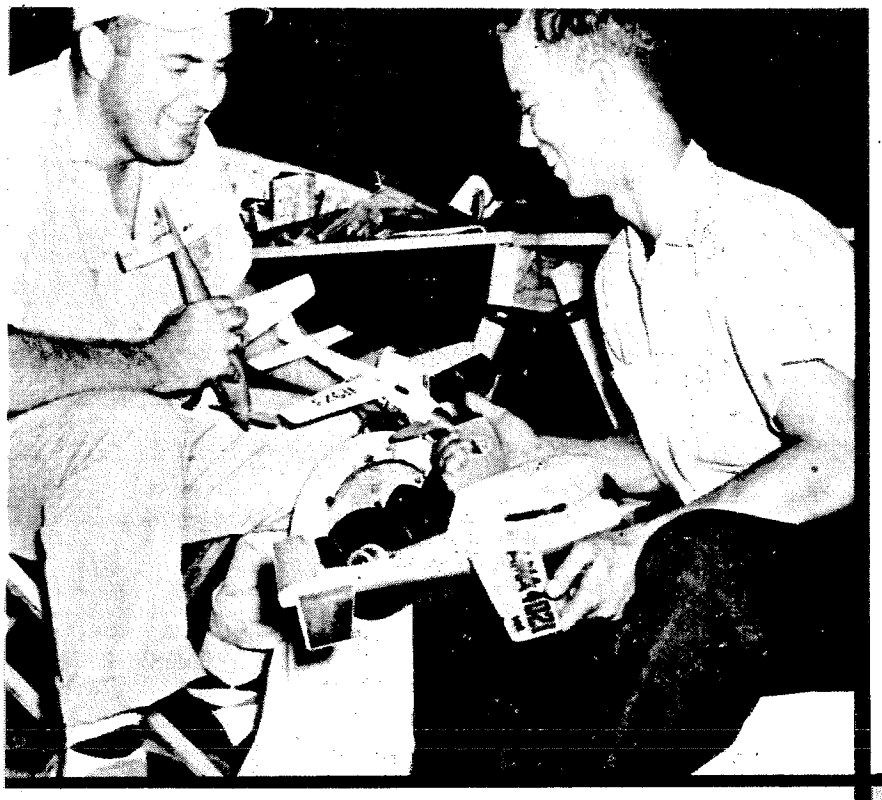


Tom Henebry (see "From the Reader" last issue) launches his elliptical dihedral Half-A free flight. Tom is all-round builder, a CPO in the Navy from Chula Vista, Calif. His designs were all finished beautifully.

She went thataway—the wing, we mean. "Thataway" being backwards! This sad episode was staged by Robert A. Jones of Norfolk, Va. Rubber band which was holding wing at launch time is blurred strea



Merrick S. "Pete" Andrews of New York City with his big Class D 30:15.5 microfilm-covered stick model, high timer of indoor events. "AT's" Bill Tyler readies his Class B job (rt.). Andrews is world's finest "mike" man.

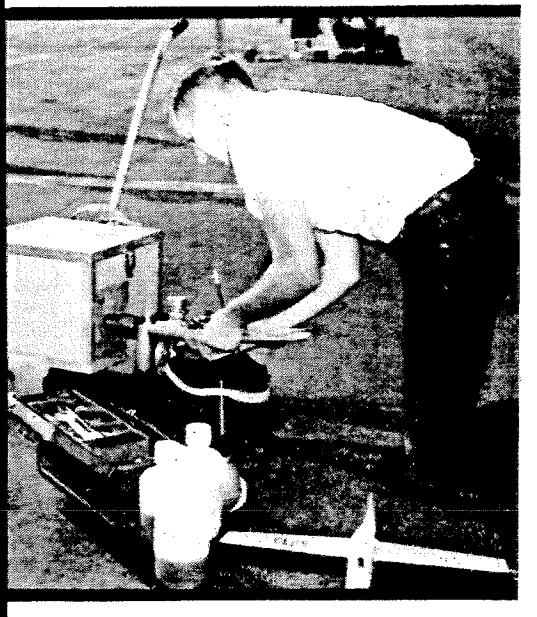


Speed at the Nationals

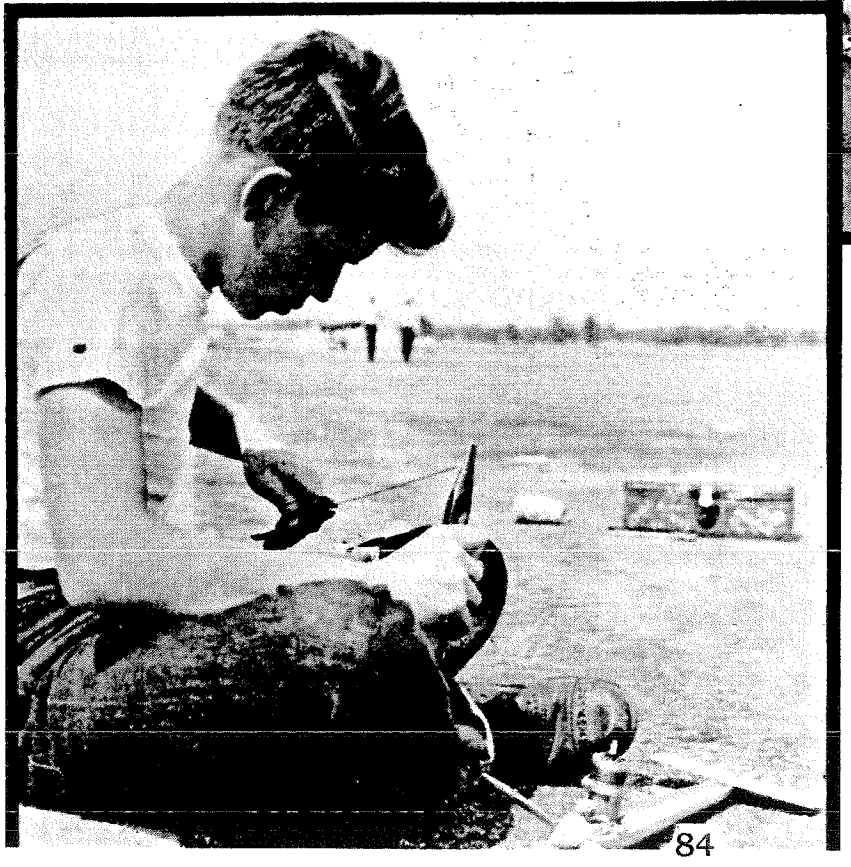
When speed models met Speed Graphic at Willow Grove!

Texans uphold the winning traditions established by Hall-Massey, Clem, etc. On the left, Leo Holliday, Dallas, Open B speed winner with 129.5 mph, and Guy Rogers, Wichita Falls, who set record taking Open Cl. C with 151.7 mph. Both used stock engines, fuels, props!

Phil Rich, Rockford, Ill. (right) flew in B and D speed. Note handy polyethylene plastic containers for fuels. Top speeds were: Class Half-A: Jr., 74.97 mph; Sr., 78.22; Open, 84.66. Cl. A: Jr., 123.29; Sr., 125; Open, 130.43. Cl. B: Jr., 130.43; Sr., 125; Open, 129.44 Class C-D: Jr., 142.86; Sr., 153.85; Open, 151.70. Jet times were 144.46 in Senior by Sonny Mozel, San Antonio, Tex., and 141.39 by H. P. Smith, Pinecastle, Fla., in Open. Florida and Texas—as though to avoid any dispute—both took three first places.



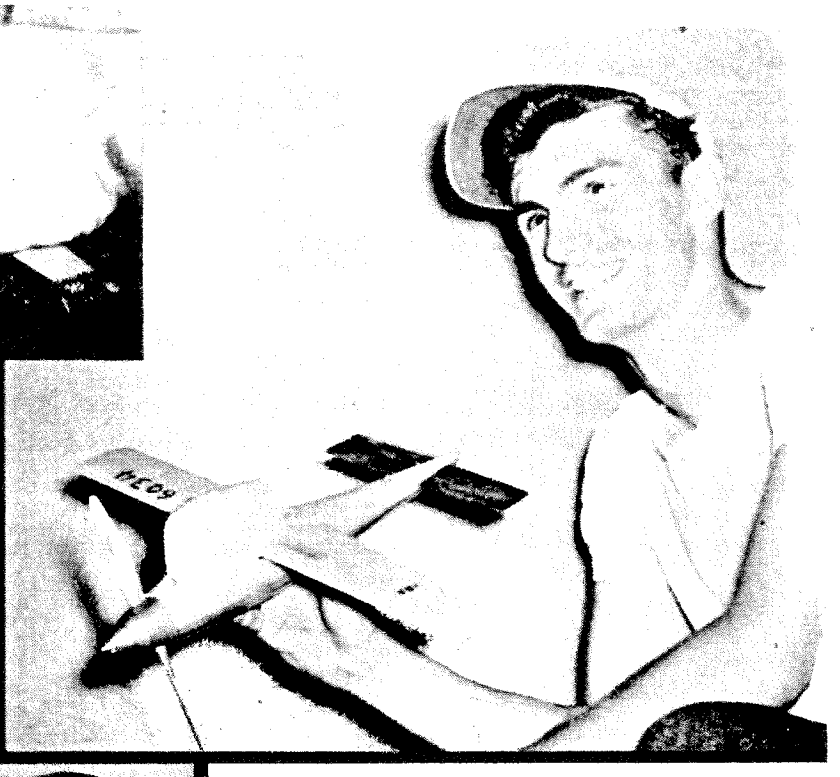
Robert Giles, Irvington, N.J., adjusting rod in Torp-powered A job, was 4th in B Jr., 5th in C-D.



1939 National Champion Henry Thomas, Akron, Ohio (no relation to "H.A.") was finalist in '53 team racing, here helps launch in speed.

Somewhere under the knuckles is the Half-A speed model entered by Charlie Reina, Elizabeth, N. J. Contenders from New Jersey took all first places in the how-small-can-you-get category. Designs were divided into two groups: the bare minimum "barn door" construction boys and the "classic" designers.

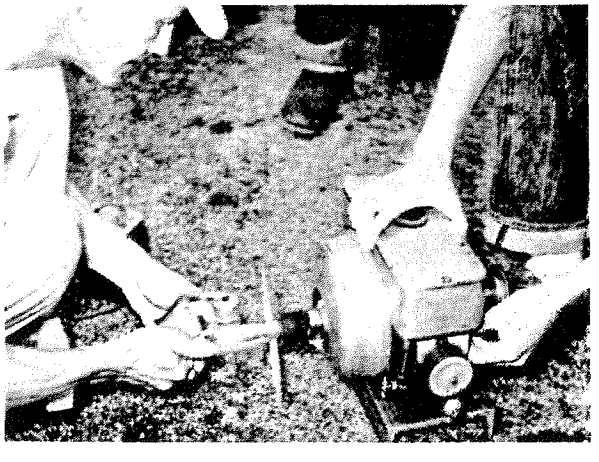
PHOTOS AND DATA BY H. A. THOMAS



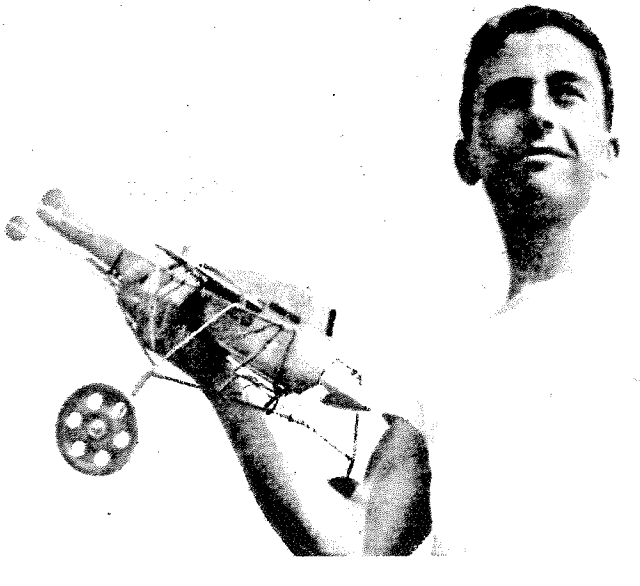
First place in Senior C speed with a record-setting performance of 153.85 mph was Sam Dehelean of Detroit. Sam's model used a new McCoy .60 and balloon tank, 9/11 prop. Fuselage bottom half was Champion casting. Fuel was "Stardust H" with 6% nitromethane added. At Nats Dehelean became speed man to watch.

Thelma and Albert Rittman, Cheltenham, Pa., appear somewhat dubious over possibilities of Al's Class C Dooling .61 entry which boasted reed valve. Didn't place high. However, in Half-A he took 3rd in open (76.53) and in jet he was second (137.40)—not a bad average and something Thelma could smile over afterwards.

Barry Freeman, Jamaica, N. Y., and five-year-old Dooling .61 all-magnesium Class D entry. Anybody can build a model, but few a dolly like this! Large wheel is aircraft micarta pulley with ball bearing. It slides across ground on which rubber wheels would only crab. Model was designed by Roger Christy.



Small "stationary" gasoline engine, mounted on heavy channel, was excellent starter for speed models. Keep this in mind when you set out to buy power equipment! That's a Dooling .29 going here.



NATIONALS!

(Continued from page 80)

you want suspense, watch an indoor model working gradually to the sides. You can see it pass the girder with twelve inches to spare. Then you have to wait 30 seconds before it gets around in its deliberate circle. . . . Somehow, an indoor model gets your sympathy, and it is not uncommon to have spectators shout warnings to the model to "keep away."

Pete Andrew's Class D, 300 sq. in. "stick" was the prima donna. Pete played safe and started his official flights with 1400 turns, and got around 25 min. The ship looked so good that he threatened to put it away for future record trials, but the rest of the boys were pushing the time up, and he had to try again, with more turns. Somehow he managed to keep his model below the rafters and side girders during his three official flights. But on the very next flight, which was intended for record, his luck ran out and the model drifted to the sides.

Before the microfilm models started to fly at 11 a.m., the hand-launch gliders filled the air. (Incidentally, the first official flight of the meet was made by Fred Salmon of Keesler AFB at 9:35 in the glider event). While Carl Rambo from California was working up toward his 1 min. 7 sec., Ed Luca of Brooklyn was exhorting his fellow Skyscrapers to try their best to keep the honors in the East. When the morning session ended Rambo led with 1 min. 7 sec., but when glider flying resumed after 5 p.m. William Dunwoody of the Skyscrapers pulled a "Dodger" with 1 min. 9 sec.

The opening day can be taken as good indication of how the rest of the week shaped up organization-wise. It was a pleasant surprise to see the timers and tents ready to operate at 9 a.m. There was no time-consuming opening ceremony which usually distracts everyone from his job. As quickly as the flight lines formed, the timers chopped them up. Processing during the previous evening eliminated all but weight and stamp mark checking. At no time during the entire meet did one see a bottleneck. If you were ready, a timer was just a few minutes away—ready, willing and able.

Unfortunately, the opening day also showed how limited the field was for retrieving. A fair drift would take your model beyond the fenced boundary. You may have clocked six minutes maximum, but your model was gone, D/T'ing over brush or residential area. The Navy helicopter and cooperative phone calls plus prompt pick-up service brought many models back for another try, but many were lost or retrieved too late for that day's flying. The Easterners are used to such conditions, and the Westerners were good sports about it. The Navy did its best and no one could ask for more.

Since it would take a long article to describe individual events, max by max, crash by crash, and day by day, it seems best to give our personal impression of events so that those of you who were too busy in your own private corner might get an idea of what went on in general, while the stay-at-homers can realize they missed a good thing.

After all these years of 100-foot tow lines and tight-turning gliders, the Nordics presented a different picture as they were towed up to the peak of 320 feet (about 30% made it) and then glided in rather large meandering circles. Since most of them had sharp tip dihedral, we could not help but compare them with the Balinese dancers with their outstretched arms and upward-pointing fingertips. And the Nordics looked just about as graceful, if you go for that sort of dancing, in contrast to the gull-like wheeling of the old-type gliders we used to watch spiral upward. Since the day was not exactly thermal, we can't say how the Nordics would react to real thermal flying.

Near the Nordic take-off site the Wakefield boys had their day. As many of you may know, this is the last year in which there is no limit to the amount of rubber that can be used in the model. (Next year, only 2.8 oz. can be used.) And so, the ratio of rubber to total weight was carried to the extreme by many. A 3 oz. model with 5 oz. of rubber was nothing special. In effect, it's like having a 1000 hp engine in a Piper Cub.

The official Wakefield event was held during the day, but the unofficial Wakefield Team event was flown during dawn; it was won by the Detroit team.

A bit further down the line the gas-powered flyers had their fun. This type of flying can be likened to a thunderstorm cloud. Looking at it from a distance you see occasional lightning in it and hear a bit of thunder—on the whole it seems harmless enough. But if you had to fly through such a cloud your impression would be quickly changed by the violence inside. And so it is when you walk into free flight during the Nationals when every timer is on the firing line. It makes no difference what class of engines is gobbling up the gas, the excitement and high tension edge your nerves. You have no chance to have a quiet talk or even think. Your faculties are tuned to nothing but self-preservation. One has to keep his eyes on dozens of take-offs and make split-second decisions which way to duck. In fact, the action is much too fast to feel sorry for the sad cases. After a while one gets a peculiar sadistic feeling in waiting for a real honey of a splash.

The mortality of the free flight models seems to average about 50% or more. If the splashes were not absolute, the engine just cut out in time. (Can't vouch for the rumor that the timers were giving themselves "Ace" rating after timing five "splashes.") There were a lot of screaming, almost straight-up flights to show the boys that it could be done.

The "National" atmosphere is very catching. It gives the contestant a feeling that by merely being at the big meet, his models acquire unique properties they did not have at home.

With thunder and lightning diminishing in the free flight area, we drifted to the "country club set" where the radio control flyers were going through their tasks. From the outward appearance, the R/C event is ideal. Only one or two models can be in the air at the same time, and no testing is allowed. This sort of a thing gives the boys a lot of time to gossip and visit, which after all is one of the most important things to do at the Nationals—digging up secret information with which to "kill" the boys back home.

It was very pleasant to lie on the grass and watch the other fellow sweat at the key. Every once in a while the tempo would quicken a bit as someone tried to bring his model for a landing over the cars. And the announcer would ask for applause when someone turned in a creditable performance.

R/C is definitely something to look forward to when you begin to feel bushed running after a free flight model. But first ask C. O. Wright what keeps him so young. He entered so many free flight events that we were sure he would end up as the National Champ.

Yes, there is something in making a model which on being set free seems to have a life of its own, and knowing you put it there in the building.

In the control line area the boys were hot, and we mean hot. Out on the field one could work on repairs or stretch out on the grass to rest weary eyes and feet. But not so in the C/L area. The circles and pits were on the boiling asphalt. Just standing there for few minutes we could feel the heat seeping through our soles and gradually work upward until our shoulders began to droop and we had just enough strength to drag ourselves to the hangar. But the control line boys did not seem to have time to think of heat as there was a lot of flying to be done.

We just had enough time to see one of the 140-lap team races. It was good to watch the pit crew in action. A talk with one of the team racing lads convinced us that it is here to stay. They seem to get worked up about their speciality as much as the Wakefield boys do over theirs.

Carrier event also drew a good number of contestants. At one time we had an idea that it was for the "Small Fry," but it now looks as though the papas have taken it over. When you think of it, it does require a bit of good control plus gadgetering to "plunk" on a restricted spot. It would be a bit more realistic, as someone suggested, if they had installed the "Small Fry" in the R.O.W. tank. Which reminds us. . . .

The R.O.W. tank measured 50 x 50 and held 18,000 gallons of water. A surprisingly high percentage of models took off. The water was almost to the top, and that helped. Most take-offs were too fast to give the spectators the thrill of watching the model gradually tear itself from the clutches of the water. . . .

An overall impression: as one of the "first Nationals" boys said, "Glad I came, didn't win anything but sure did learn a lot."

Eating and sleeping at the Nationals—what's that? Monday night was a bit noisy in the barracks; after that you could hear pins drop if someone had enough strength to drop them following a day on the field, evening processing line and rebuilding and repairing. As for eating, ex-G.I.s exclaimed "What food!" and queried the Chief if it was a put-up job. The G.I.s remember what they had during the war, and know how little you can now get for $8 which was the cost for the entire stay of almost a week.

On the whole, the 1953 Nationals were about as good as one should expect although the *final* day saw rain. They even got through with prize giving before eleven on Sunday night! Lots of fine workmanship shown in all events. Many trying to design their own, which is a good sign for a healthy future. Matt Sullivan and his crew, and the Navy should be proud of the excellent job they did for us.

—FRANK ZAIC

Weight Lifting at Willow Grove

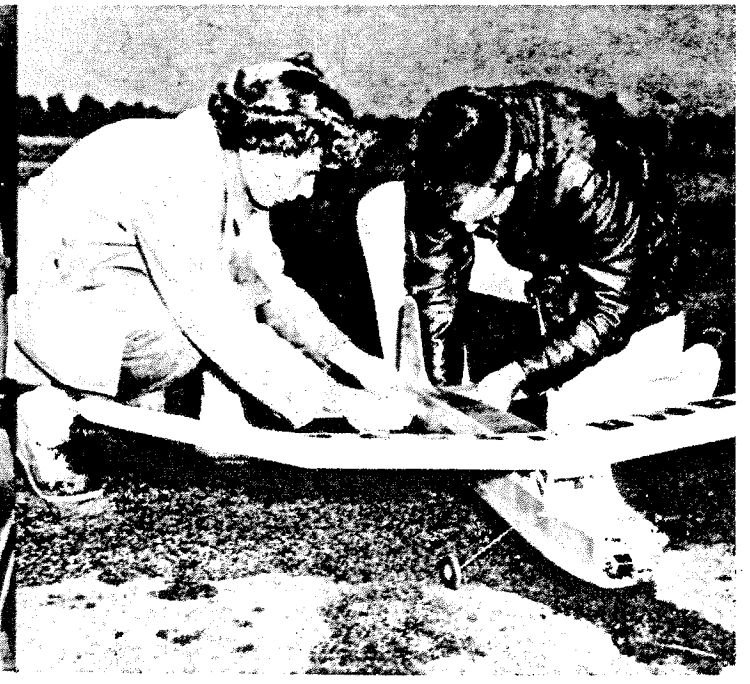
Off to third place in Half-A PAA-Load (combined Junior & Senior class) goes model flown by Thomas Marden, Highland Park, Mich. Ship scored 6 mins. on previous hop, but suffered midair crack-up on this flight. Tom did 7:38 total. High Half-A time was 12:59 by Richard McGrath, also of Mich.

It's all work and no play for the poor model that finds itself entered in the big Pan American payload contest . . . what an awful way to go: snap, crunch crash!

Photos by H. A. THOMAS

■ Pan American World Airways has made a significant contribution to the air-modeling sport with its weight lifting awards, but no phase of PAA-Loading produces more original thinking, more unusual entries, or more suspenseful moments than the Model Clipper Cargo Event. Requirements sound simple enough: take one free flight model of any size or shape, power it with any engine under .051 cubic inch displacement, add one PAA-Load dummy 3 x 1½ x ¾ inches weighing 4 ounces, pile on an additional load of any weight you desire, then with an engine run not exceeding 20 seconds

PAA-Load processing produced pretty plane models and maidens. Trio of earnest judges from left: Frank Bushey, former A.M.A. president, Harry McCall of Cleveland, & George Gardner, Pan Am Educational Director.



Laura and Darrel Pengh from Rockville, Md., assemble their Bootstraps. California contenders walked off with two 1st places in the PAA-Load events; Ohio, Michigan, New York and Pennsylvania got one each.

Here is model flown by Ted Gonzoph of Philadelphia to first place in the Experimental rubber event. Ted did 6:05.5; all age groups competed as 1.

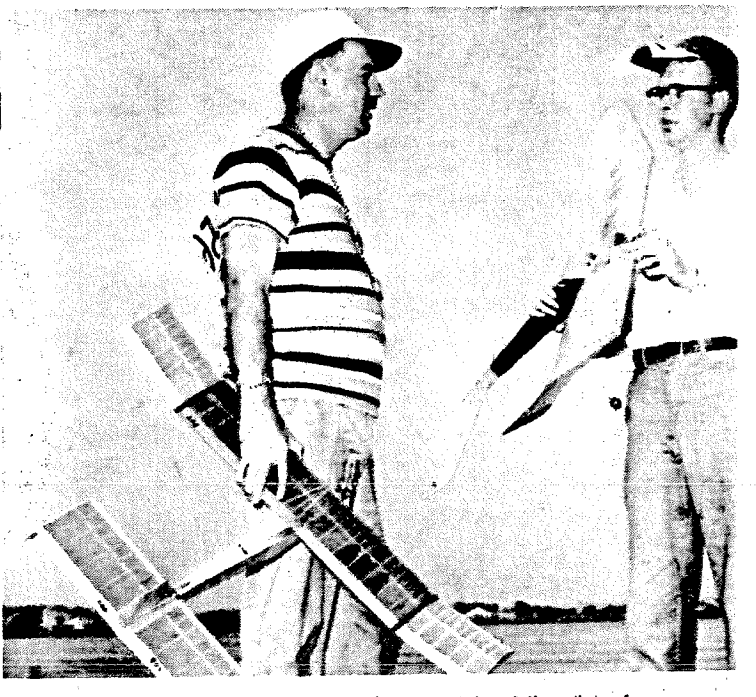
Ernie "Sky Guy" Shailor, Detroit, used 4-wheel landing gear on Clipper Cargo entry; Space Bug engine. Flew 56 sec. with 22½ oz. to 2nd place.

pray for a flight of not less than 40 seconds. Oh, yes, the model must rise-off-the-ground "under its own power and without assistance" and at the conclusion of the flight "must be presented . . . for inspection to prove that it landed safely with pay load."

Simple, hey? Only rub is that while you are applying—gingerly—an additional cargo of steel washers weighing a tremendous 10 ounces, some character like Hal Roth of Richmond, Calif., comes along, loads up his "Blueboy" with not 11 or 12 ounces, but 23¼ ounces of extra weight and walks off with the National Clipper Cargo championship. So on the long drive home from the Nationals you keep thinking just how far you can go to cut down structural weight, yet retain that necessary strength. . . .

That old aeronautical problem of weight *vs.* strength for the first time since the heyday of the indoor model has a very real application now to competition craft. As a result cargo entries utilize such rarities as exterior bracing, geodetic construction, hollow spars and lightened wheels. . . . In the opinion of many: the hardest, yet most satisfying event.

Hail the top man: Lew Mahieu whose 13:56.1 was high time of all weight lifters. The Long Beach, Cal., whiz won Cl. A-B under low clouds. He cut engine well below 20 sec. to keep in sight. Modified Kiwi, K&B .19 engine.



Clipper Cargo brought out strange designs. John Stiles (lt.), from Hillsdale, N. J., used 480 sq. in. while Roger Capwell of Stroudsburg, Pa., stuck to medium size 200 sq. in. wing in single engine "Skyrocket."

R/C at the NATIONALS

The rains came and how the wind did blow—last day at the National R/C event. Walt Good, left, with "Wag"; McEntee in cap, slicker.

■ "This just proves what I've been telling the boys," said director deBolt at the conclusion of the R/C competition at Willow Grove. "If you know what you're doing you can still win with rudder control only." His words were backed up by the performances of 1st placer Port who racked up the highest score on the stunt pattern—70 points, and Richard C. Allen of Dayton, Ohio, 3rd place flyer with rudder only who made the greatest number of precision pattern points—57. Allen tied with "Doc" Good who used a single channel tone control rig operating only the rudder.

In spectator interest among both casual visitors to the Naval base and other contestants radio outdrew all other categories. The number of autos present equalled those at the combined free flight sites; this was the case day after day. Entries numbered 141, with 40 piling in during the final week end. About 10 multi-channel systems were present, the remainder being rudder only or rudder plus one other control on one channel.

Dark Horse Jack Port from Fairborn, Ohio, with his original-design ship which won with "rudder only," 7 points ahead of Harold Bonner.

When activity lagged, event director Harold deBolt would whip out a Live Wire and stir things up a bit. Pop deBolt at right assisted.

Claude McCullough with his "Wizard of Ah's," drastically changed from last year. Farmer Mac hadn't flown ship since 1952 Los Alamitos meet.

AIR-MODEL MANUAL

glossary of R/C terms & symbols

BANDS MOST USED FOR R/C

26.960-27.230 mc. (Novices & Hams)
27.255 mc. ± .04% (anyone with proper station license and crystal-controlled trans.) *
50-54 mc. (licensed Hams only)
465 mc. (anyone with proper station license and *F.C.C. Approved* transmitter).*

* no test of any sort required

STANDARD DESIGNATIONS of our parts of the FREQUENCY SPECTRUM

3-30 mc.—high frequency (HF)
30-300 mc.—very-high frequency (VHF)
300-3,000 mc.—ultra-high frequency (UHF)
Frequency and wavelength both often used; megacycle—mc.—is 1,000 kilocycles (kc.).

OTHER COMMON TERMS

Ohm—unit of resistance (for resistors)	Ω
Megohm—1 million ohms	Meg
Volt—unit of potential	V (or E, in formulas only)
Ampere—unit of current	A (or I, in formulas only
Milliampere—one thousandth of ampere	ma
Radio frequency choke	RFC
Watt—unit of power	W
Microfarad—unit of capacity (for condensers)	mf (called "mike" for short)
Micro-microfarad—one millionth of a microfarad	mmf (called "micro-mike")
Thousand—as used in designating resistor	K
Inductances (coils, transformers, chokes) are indicated on diagrams by	L

In formulas, R represents resistance (ohms or megohms) and C represents capacity.

SIMPLE FORMULAS

Changing frequency to wavelength:
$$\lambda \text{ (wavelength in meters)} = \frac{300}{f \text{ (freq. in mc.)}}$$

Ohms law: Volts=Current (in amperes) times Resistance (in ohms)—or E=IR. Also may be written
$$R=\frac{E}{I} \text{ and } I=\frac{E}{R}$$

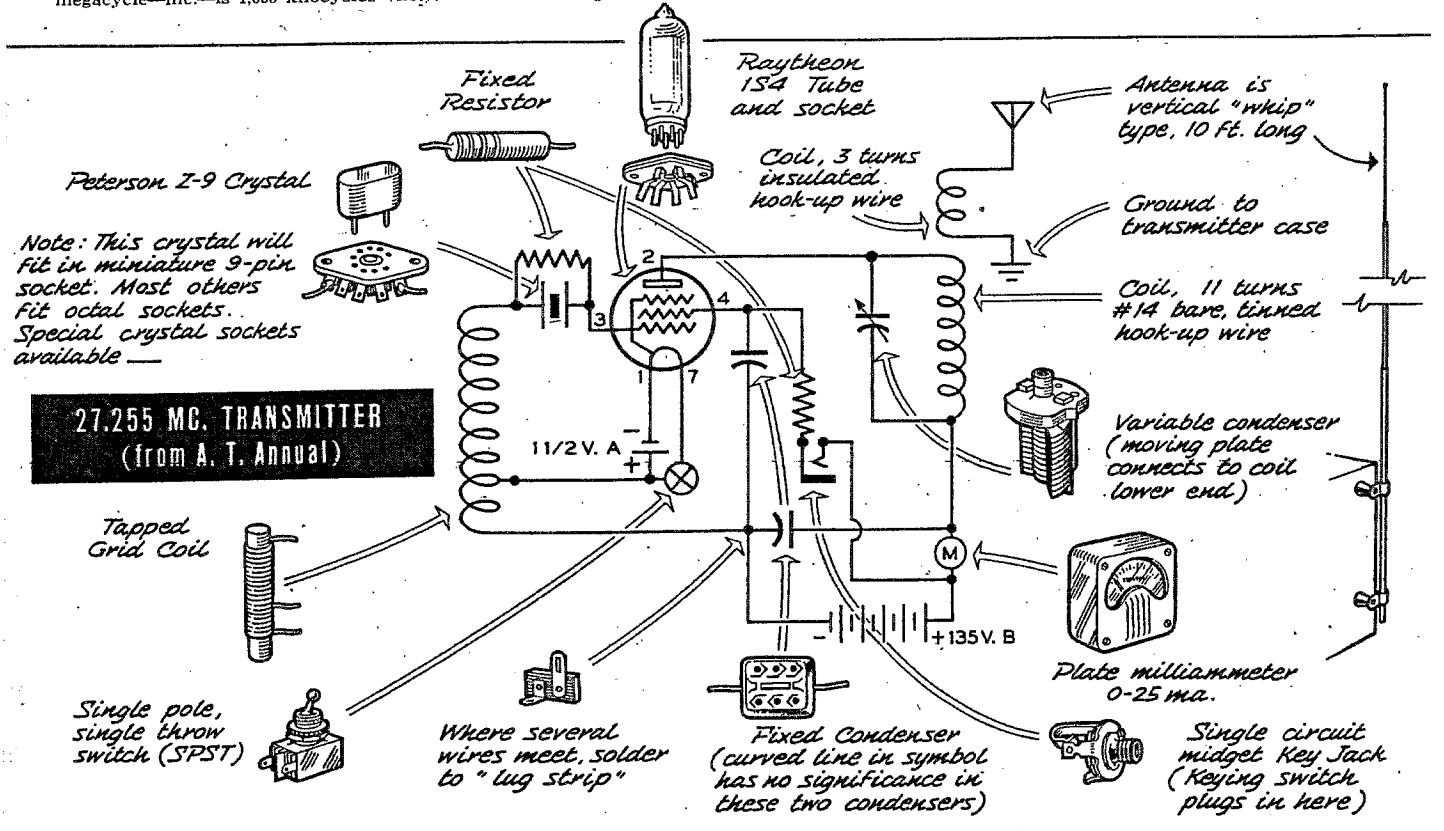
Watts: W=EI. (Always use volts, amperes, ohms in these 4 formulas.)

Resistors, connected in:

Series	Parallel
$R=R_1+R_2$	$R=\frac{R_1 \times R_2}{R_1+R_2}$

Condensers, connected in:

Series	Parallel
$C=\frac{C_1 \times C_2}{C_1+C_2}$	$C=C_1+C_2$



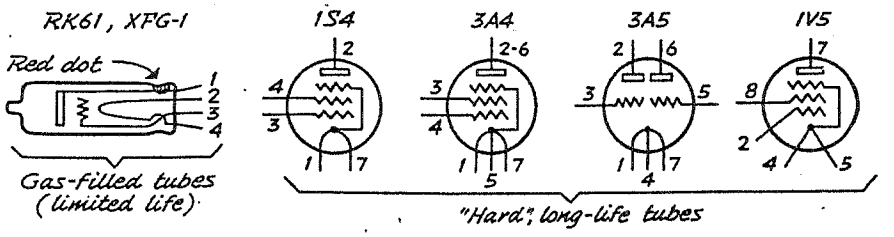
Radio control is becoming more popular every day, but many "recruits" are puzzled by the odd terms used, the circuit diagrams and symbols. We show here a collection of such data, facts and terms the uninitiated will encounter. Also included are wiring diagrams of typical transmitter and receiver, showing both the item used and the circuit symbol for it.

Many resistors and condensers are color-coded instead of having the actual value printed on them. The resistor code is quite simple and will be found in only two forms, of which the most widely used is shown. Condenser codes are trickier and it's wise to try to get these components with the value printed on them. We give the most common codes here; note that the same colors designate the same figures in both condensers and resistors.

The most common resistors are 20% tolerance, that is, the resistor you purchase may be as much as 20% different in value than you ask for. In most of our circuits this makes little difference. Resistors also come with a silver band (10% tolerance) and a gold band (5% tolerance) at somewhat higher cost. Most modern

The "Manual" brings you helpful information on all phases of aeromodeling and is dedicated to the beginning enthusiast. Tell us what subjects you'd like covered

MOST WIDELY USED R/C TUBES

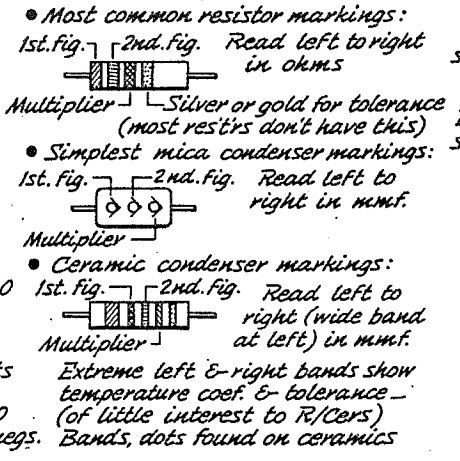


STANDARD COLOR CODE FOR RESISTORS AND CONDENSERS

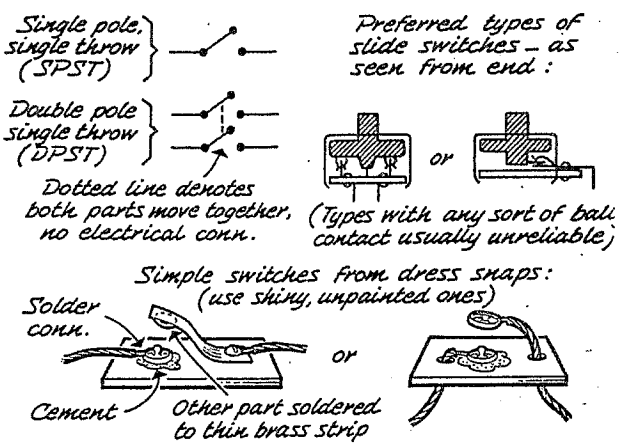
COLOR	FIGURE	MULTIPLIER
Black	0	1
Brown	1	10
Red	2	100
Orange	3	1000
Yellow	4	10000
Green	5	100000
Blue	6	1000000
Violet	7	10000000
Grey	8	100000000
White	9	1000000000

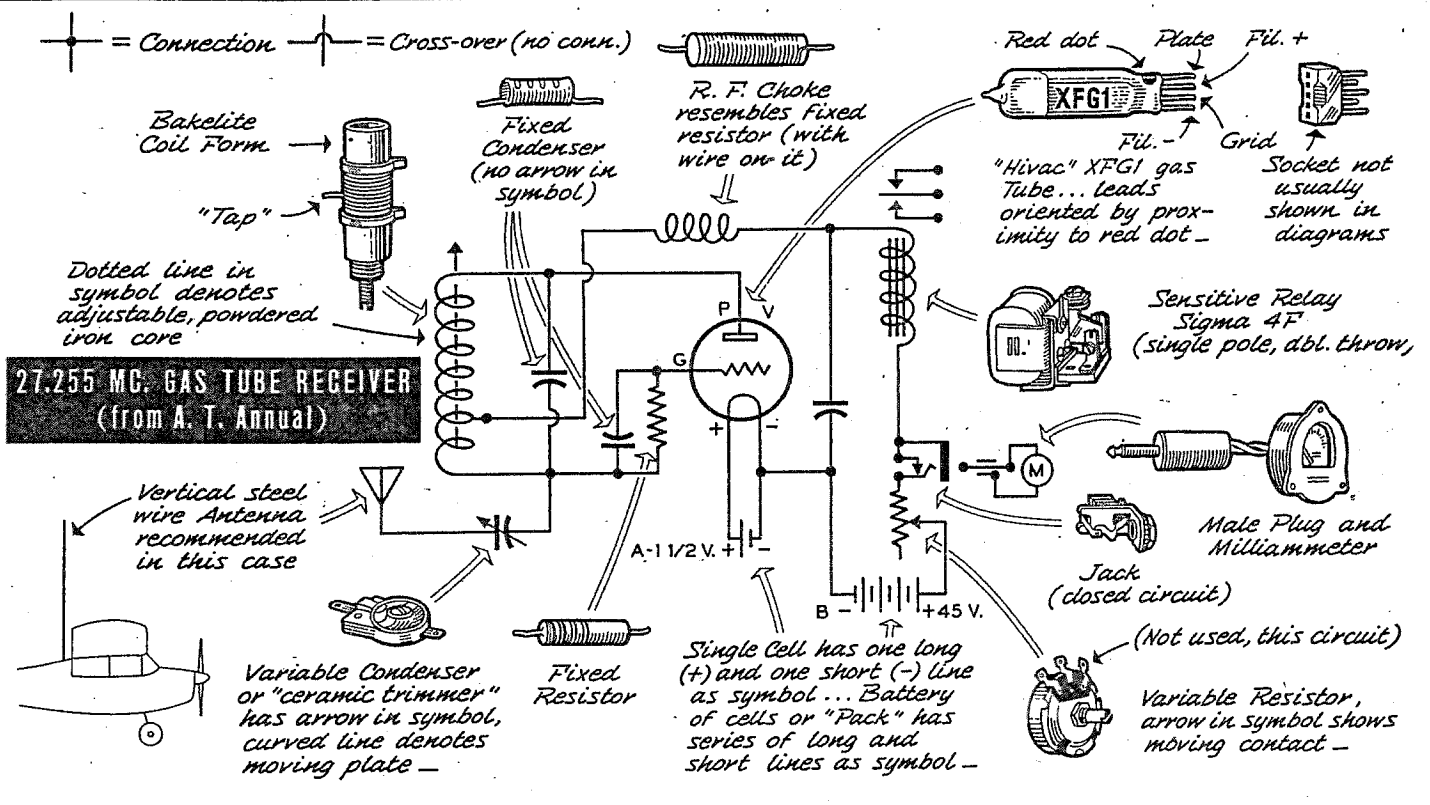
Examples:

- Brown, green, red rings or dots on cond., 1500 ohms
- Yellow, violet, orange - 47000
- Orange, orange, green - 3.3 megs.



SWITCHES



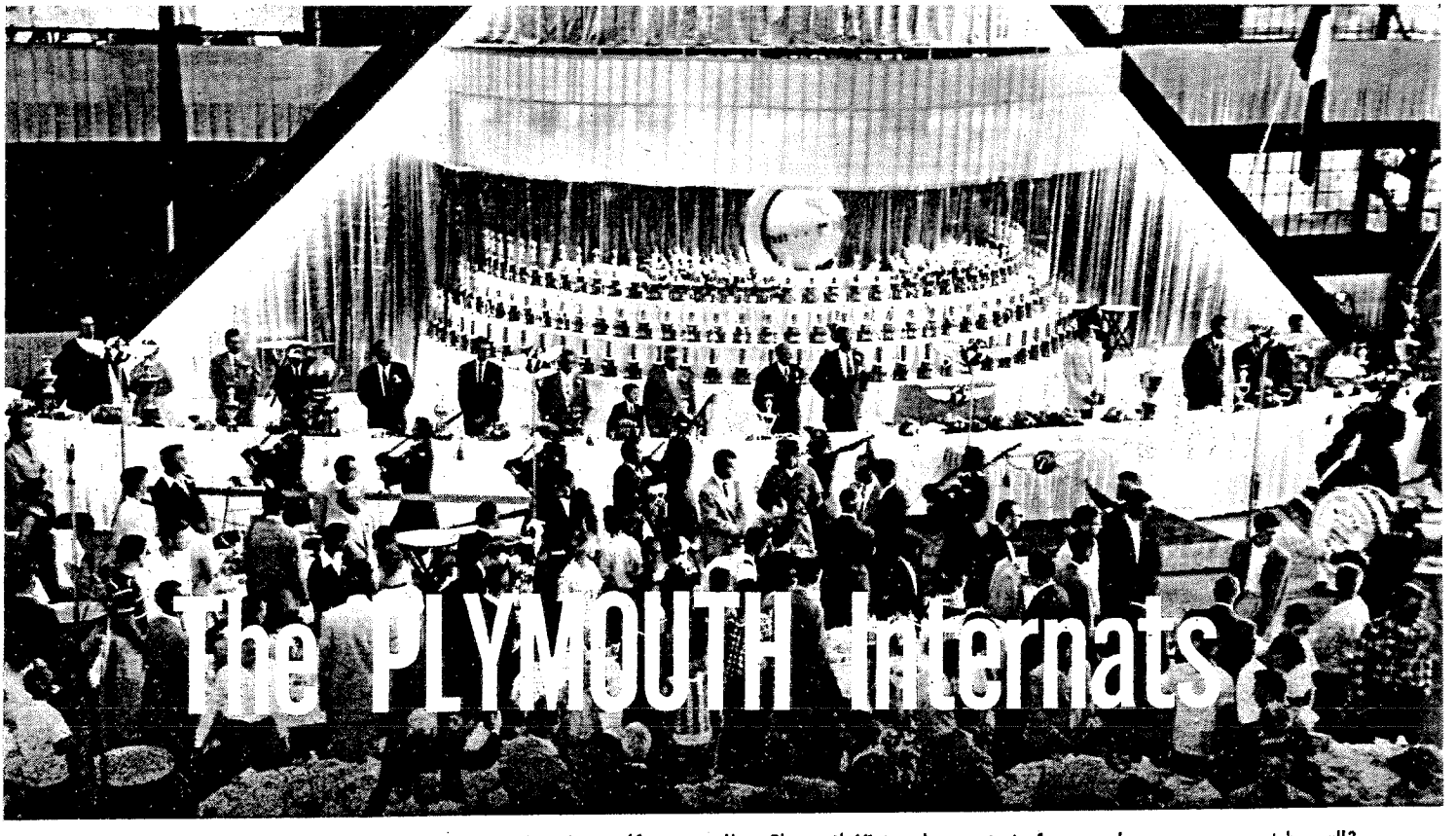


resistors have rather odd values—33,000, 470,000, 2.2 megs, etc. If you want to duplicate a circuit that has more even values, just pick the nearest ones from the standard RMA values that most radio stores now carry—you will probably be close enough.

Of thousands of tubes on the market, R/Cers use only two or three; these are shown pictorially. Get into the habit of numbering the leads of tubes when you draw diagrams—then you won't have to look them up every time you refer to the circuit.

Try to put down brief notes of results you get with various circuits; record plate current, plate voltage, current change you got with receivers, potentiometer settings, placement of antenna coupling coil in the transmitter. Note down the approximate range you can get with a new receiver or transmitter. Keep track of the number of turns you can put in the escapement rubber, the area and range of movement of the rudder. You'll find these records invaluable as you progress through R/C work.

Radio amateurs' handbooks, sold by most large radio stores and mail order houses, will furnish additional info.



The PLYMOUTH Internats

Chrysler Kiltie Band departs after escorting prize winners (foreground) to Plymouth Victory banquet. As for awards—can you count 'em all?

ALL THIS FOR ONE CONTESTANT!

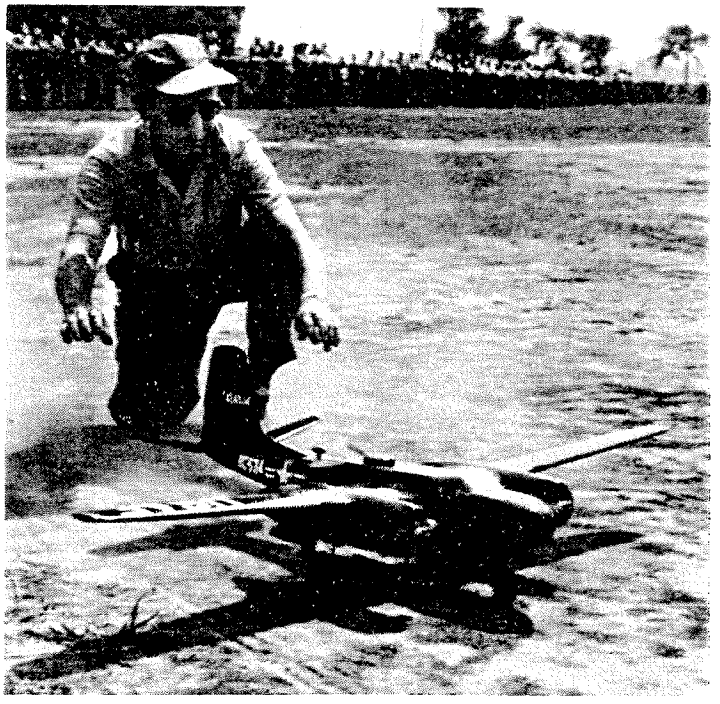
This is what Plymouth considered necessary to insure a contestant having fair chance to fly. First, you have one flyer, Arthur Pawloski, 14, of Detroit (holding model). He is permitted one mechanic. The Academy of Model Aeronautics provides the rules and licenses the flyers—Russ Nichols, exec director, kneels at left. Then we have the contest director, Warren Bartlett (behind Art). Third row (3 handsome gentlemen) has from left the director of control line events, Curley Clingman, a chief judge, Keith Storey, and starter, Leon Shulman. The other 14 include timers, pull test judge, file clerk, laps timer, watch reader, processors, tabulation crew and announcer.

■ Plymouth's seventh International Model Plane Contest in Detroit, a four-day affair held at Selfridge Air Force Base and Detroit's Belle Isle athletic field, set a new high in well-run meets, for certainly no contest in the world ever had so many officials in attendance.

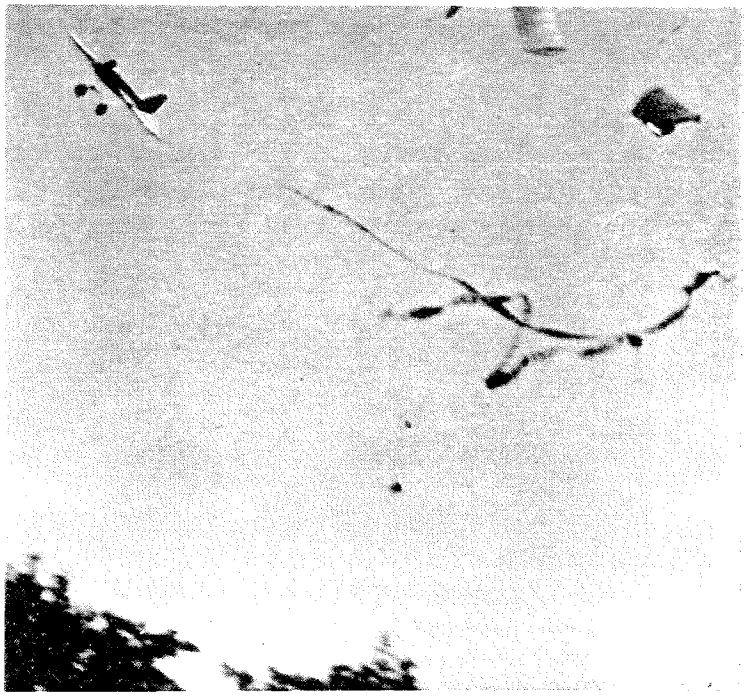
The number of contestants dropped off this year, yet the caliber of flying remained high. One reason was the establishment of a Leader (Open Class) Division which permitted adults who had been active in local Plymouth Aero League groups to enter.

The competition was climaxed by a victory dinner at a Canadian recreation center and saw in attendance such notables as Vice Admiral C. E. Rosendahl; K. T. Keller, chairman of board of Chrysler Corp.; L. L. Colbert, Chrysler president; J. P. Mansfield, general manager of Plymouth, and William Bird, Plymouth sales manager—plus about 1200 contestants, parents, mechanics, and car dealers. Some $4,000 in cash prizes and 120 trophies were handed out. When the affair ended top winners were:

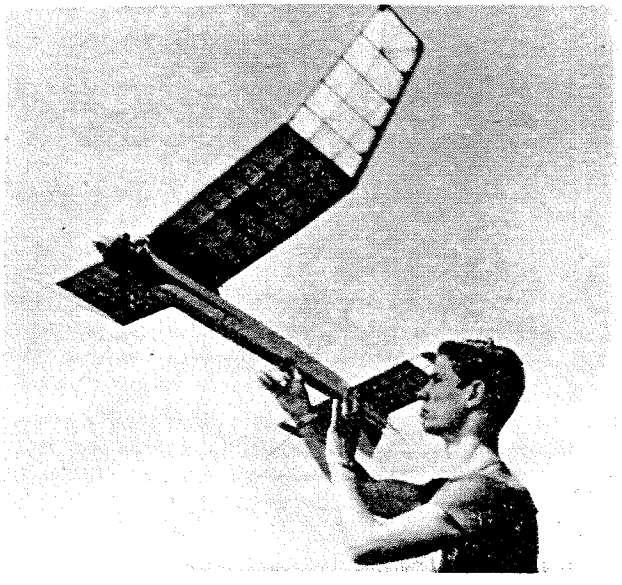
Jet champion with 144.64 mph, Gerry L. Blake, 16, Dearborn, Mich. Leader division high point champ: Airman 1/C Thomas Baker, 24, USAF. Senior high point man: Edwin McGowan, 19, Napa, Calif. Junior high point flyer: William Schlarb, 15, South Bend, Ind. Freshman high point winner: Alden Hansen, 9, Midland, Mich. Stunt champion: Donald Still, 22, Beaumont, Texas, 343 points. Girls' high point winner: Shirley Ann Austin, 15, Kirkwood, Mo. Top Canadian contestant: Robert Thayer, 14, Riverside, Ontario. Scale model champ: Roger Harney, 18, Berwyn, Ill. Team race winner was Charles Gray, 18, Miami. The sportsmanship award went to Gerald Wagner, 20, of Southington, Conn., who spent so much time helping other flyers he reduced his own chances of winning. The youngest contestant was 8-year-old Michael Scuro of Pittsburgh, *(Continued on page 94)*



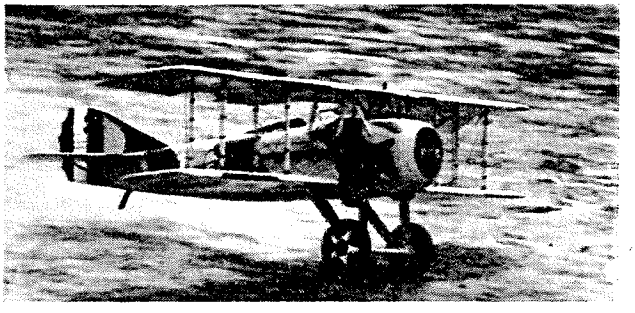
Robert Stucker, Rock Island, Ill., entered Douglas B-26 in Sr., took 8th. O&R .23's. Dad launches. "AT" plans again available.



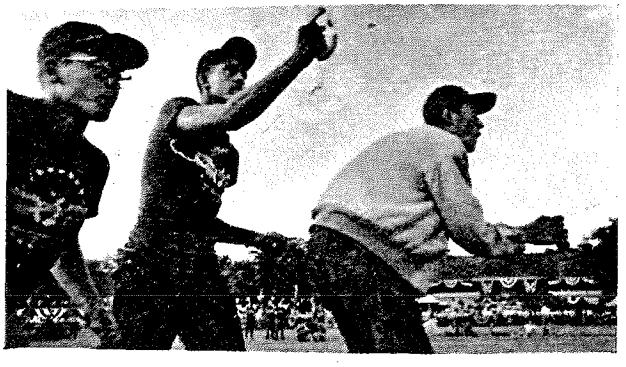
Ah, that moment of sad parting. "Wing! Farewell!" says combat ship (rt.). Top combat man was Jim Ebejer, 17, Detroit.



Bob Gelvin, Topeka, Kan.; K&B .23 Spacer. Dethermalizer burned limit string. Stab remained aloft longer than fuselage-wing.

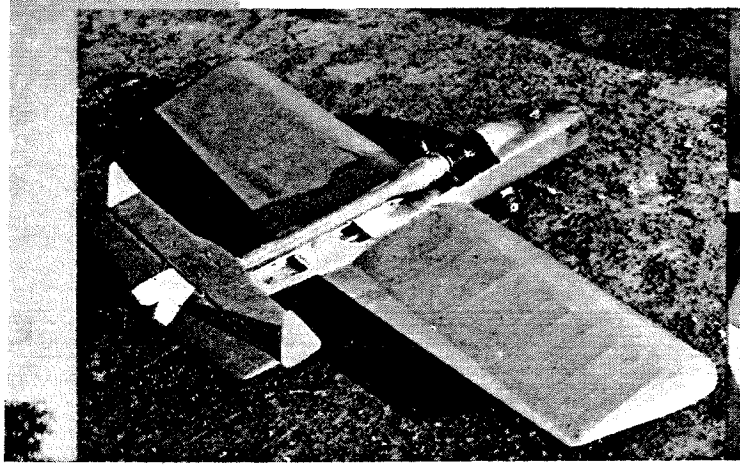


Top scale was this Spad with 311 points. Roger Harney, Berwyn, Ill., took Sr. with it. Power: Atwood .51. Slick finish.



Team racing crown went to Charlie Gray of Miami (center, above) shown at right with AMA pres Keith "Key" Storey who had to admit Florida is great T/R state. All those trophies are Gray's. Whew!

Stunting jets, radio-controlled model blimps and admirals—that's the sort of thing you run into at this big invitational competition



Dyna-Jet stunter flown by James Beecroft, 14, St. Paul. Five ft.; 720 sq. in.; 12 oz. tank wedged at rear; symmetrical wing; 5½ lbs.

Old Timers' session (from lt.): Pete Vacco, Joe Stefani, Lavalle Walter (pres. MAA of Canada), Japanese guests & Clair Oberly, K&O.

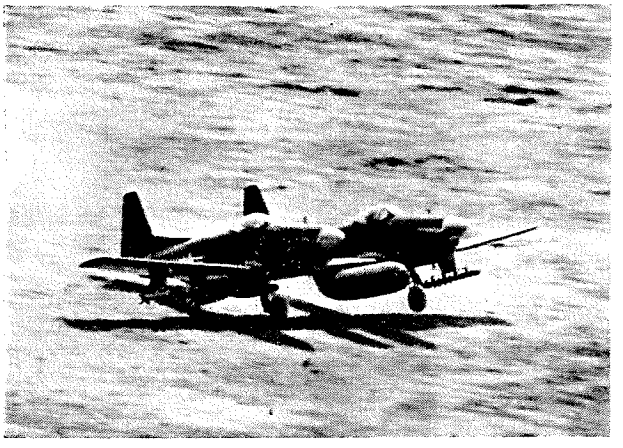
(Continued from page 92)

which qualified him for a nice trophy.

At the victory dinner Mr. Keller complimented the assembled modelers on their interest in radio control flying and indicated that it was a desirable activity especially in light of a serious shortage of guided missile technicians in military and government science service. In congratulating the radio winners, the former director of guided missiles for the U.S. stated that the U.S. missile has progressed to the point where it can be aimed at a target 500 miles away and be landed within 6 feet of that target.

In general, competing models were better finished and performed with fewer crack-ups this year than ever before. Combat continued as a top interest event, while the multi-engine scale entries drew considerable interest from entrants as well as spectators.

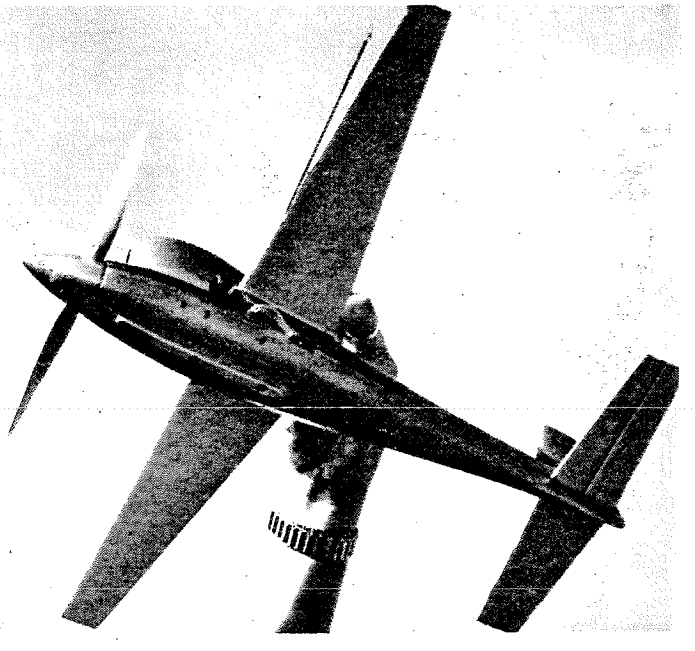
Headquarters for the contest, as it has been for the past six years, was the Fort Shelby Hotel. Plymouth provided all the comforts of home for entrants including housing, meals, bus service to the flying fields, box lunches, colorful T-shirts. (All photos by Berni Schoenfield.)

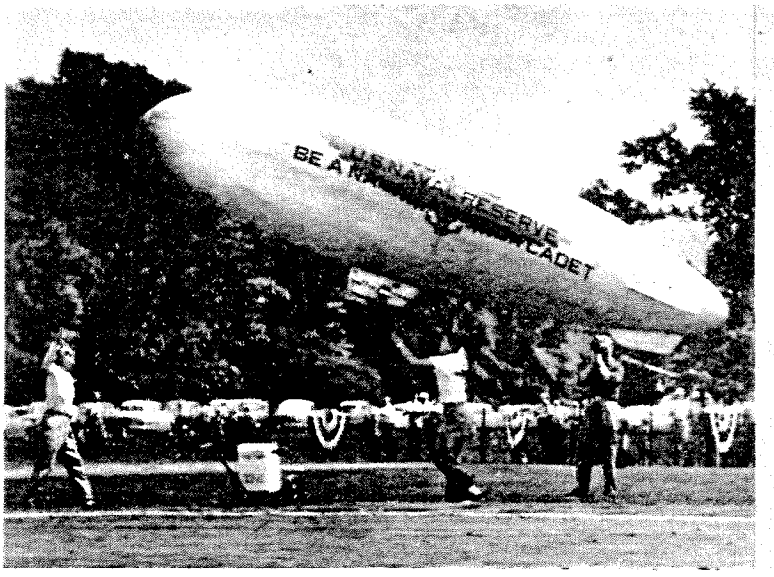


F-82 with 2 McCoy .19's by Barry Robertson, Glendale, Cal., from AT plans. Slick black finish. Barry won carrier at '52 Nats.

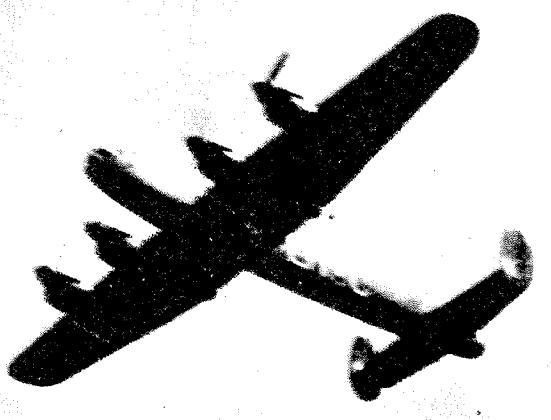
K&B .32 powered delta flown by Garry Austin, 9, Kirkwood, Mo.. Father Frank fueling; this is a club design by Bill Netsban.

Dooling .29 Monoline speedster by Jim Clem has 10:1 A.R. Victor Stanzel developed it; 18" span. Has done 139; at Nats one did 137.

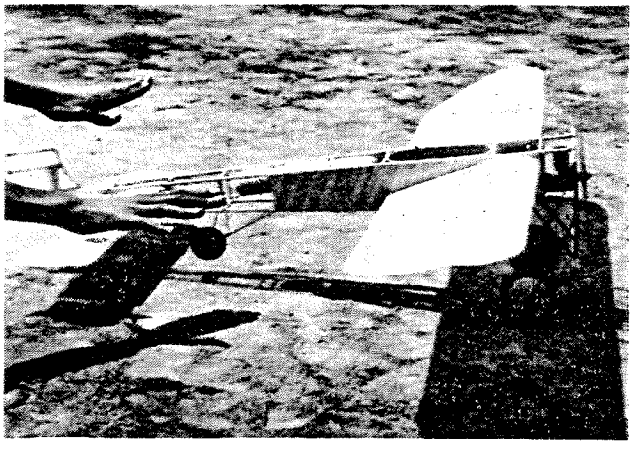




Again this year the radio control model blimp was present; again the radio controls failed to function. But an impressive sight, no?



Fourth in Sr. C/L Scale with 4-O&R .23 powered Lancaster was Graham Ireland, Syracuse. Spans 67 inches; flies beautifully.

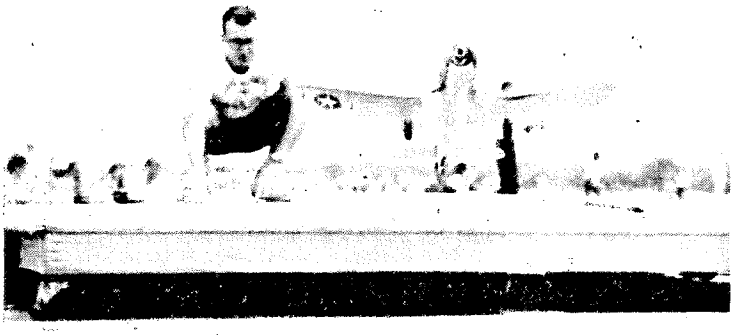


David Graben, Bismarck, N. D., entered C/L Bleriot powered by McCoy .29; 6th in Sr. Construction followed original closely.

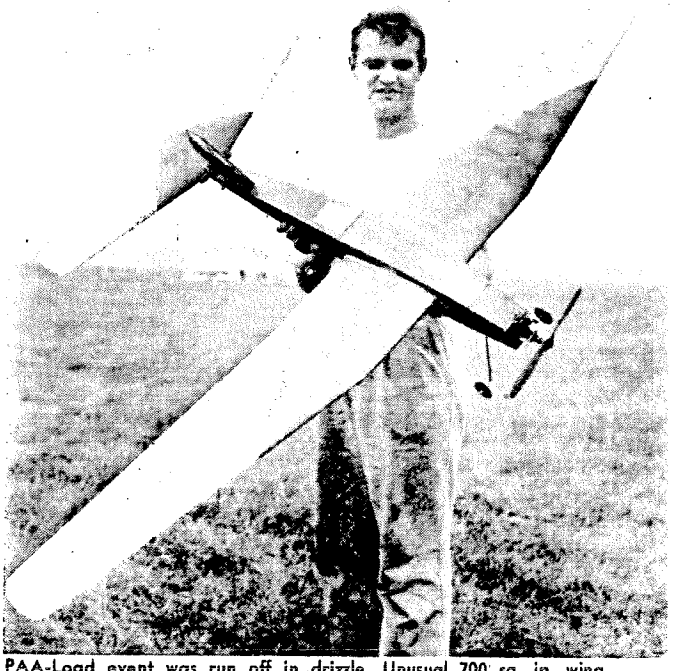
Hit of the meet was this scale-like autogiro flown by Art Christen of Toledo in exhibition. Squaw fuselage; Fox .35; fast, stable.

Well-known fixture at Plymouth meet is the supply truck and its man-in-charge Joe Dallaire shown approving Cox TD-1 job.

Warren Bartlett, CD, beams on AF's Tommy Baker, high point open flyer. Rest of Air Force modelers grin over the hardware they won.



Bob Hodges' Vought Corsair is racked up in a steep climb in Navy carrier event; 2-speed (exhaust choke) K&B .35 took 5th in Senior. Senior man Dave Domazi scored top points, 417.4.



PAA-Load event was run off in drizzle. Unusual 700 sq. in. wing entry by Dick Burges had plug-in wings. In Clipper Cargo Herbert Kothe, first PAA-Load champ, lifted 25½ oz. to win.

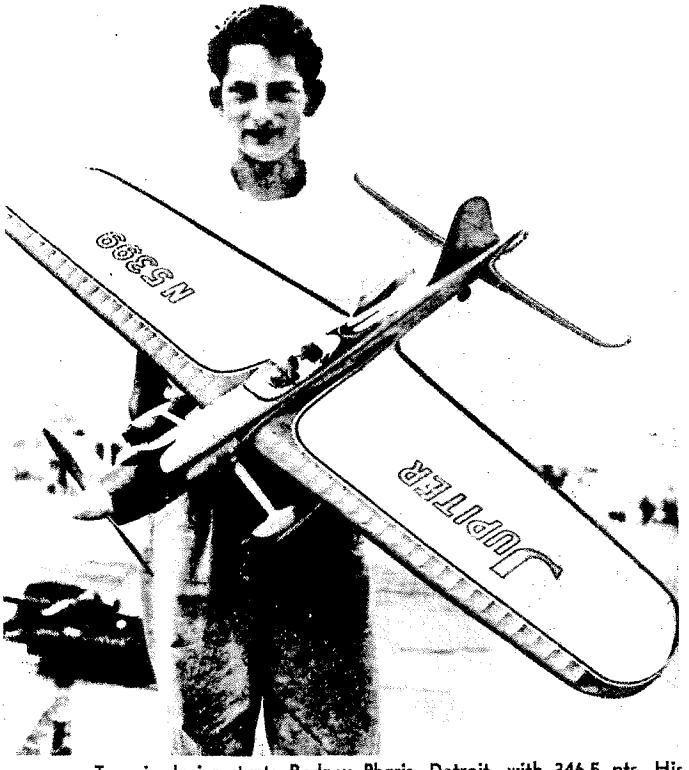
For second year in row Parnell Schoenky, Kirkwood, Mo., flew off with Hiller Helicopter event. This original design used a Cub .14 engine. Canadians Graves & Stefani placed second.

Photo Report from Chicago on the 23rd Annual Event

National Modelplane Championships

Pictured by JOHN W. SCHNEIDER

NATIONAL CHAMPION: Willard S. Blanchard, Jr., 30, Hampton, Va., also won Open class (over 21) honors in '53. "Woody," an aeronautical research scientist, is well-known contest flyer.



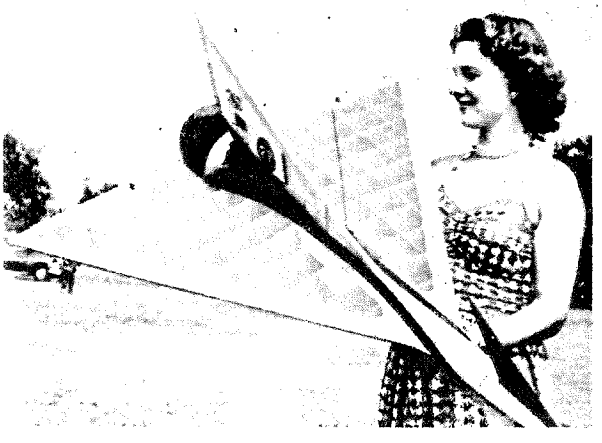
Tops in Junior stunt: Rodney Pharis, Detroit, with 346.5 pts. His magnificent original precision aerobatics entry had Fox .35. Top points scored by C. Hill Hutchins as a senior—352.

Repeating his '52 victory, Alex Schneider, San Francisco, won radio control with modified Piper Cub, 7' span, 8 lbs., 18 oz. loading, Spitfire .60 ignition. Rockwood 5-channel reed rig.

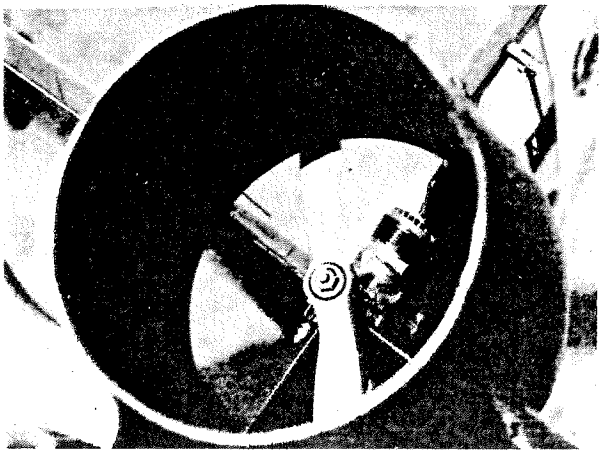
■ Ranking first in size, number of events and interest, the 23rd annual running of the American air-model championships drew more than 1,500 entrants to Chicago's Glenview Naval Air Station. The 1954 "Nats" were sponsored by the National Exchange Club with the U.S. Navy acting as host. Events were sanctioned by the Academy of Model Aeronautics and run off under the supervision of AMA personnel. When the last of the 78 different age-and-category events had been concluded the new National champ was Langley Field's "Woody" Blanchard. Junior championship honors went to Joe White of Sacramento (brother of last year's champ, William White); the senior champ crown was awarded to William Gelvin of Topeka. Some free flight events were conducted at the Chicagoland Airport; indoor flying took place in Chicago's 132nd Infantry Armory. For the first time the big competition was compressed into a 4-day schedule. An estimated crowd of 200,000 attended the contest on its final day to see an air show which included Navy's famed Blue Angels jet team.

Duplicating his 1st at the '54 Mirror meet, Bob Yeomans of W. Haven, Conn., scored highest (329) points in C/L Scale with 5' span, 1/20th size P2V-2 Neptune. Uses two Torp .29's.

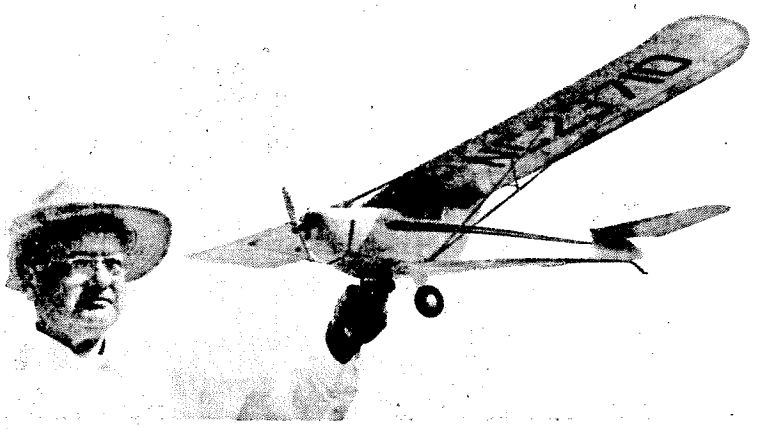
Most unusual radio entry: Ed Sieh's 60 deg. delta with span of 42 inches. Area is 764 sq. in. Good tone receiver; 3¼ lbs.



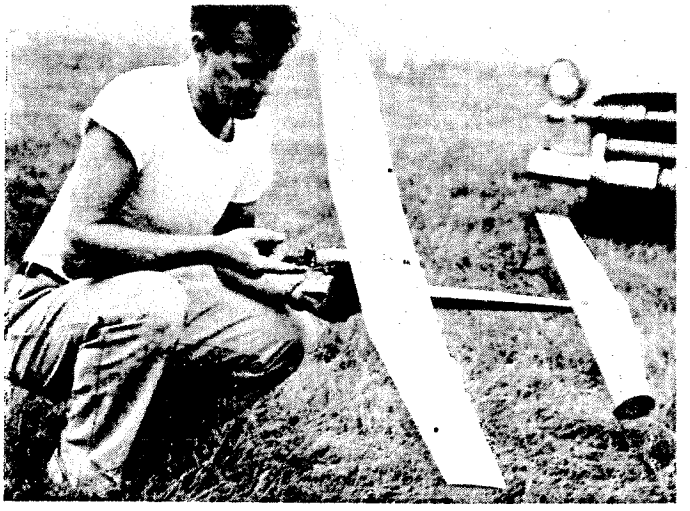
Shrouded K&B Torp .15 powered this dart. That's Ed's missus Catherine; both beauties. At moment only rudder control used.



NATIONAL MODELPLANE CHAMPIONSHIPS

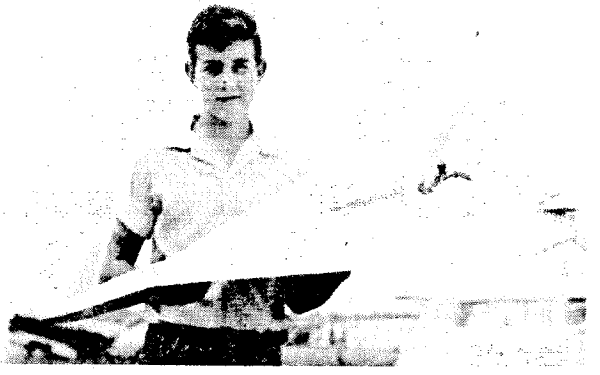


No. 1 nominee for any young-in-heart award, C. O. Wright, ex-AMA prexy and Topeka's most famous modeler, was 5th in Open class free flight Half-A scale with .049 Atwood Taylorcraft.



All-balsawood construction utilized by Dick Burger, Piedmont, Cal., for McCoy .049 diesel free flight. High thrust line Half-A weighed 5 oz. Sparless 1/32" sheet wing, ribs 5" apart.

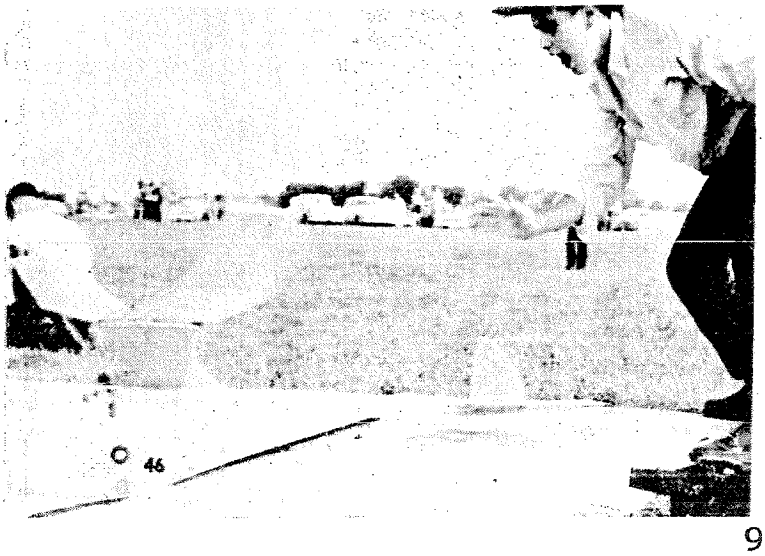
Renowned patience of indoor flyer is exemplified by Carl Rambo, Oakland, as he repairs large hand-launched stick model. Highest in event was Richard Obarski who totaled 20 min., 45 sec.



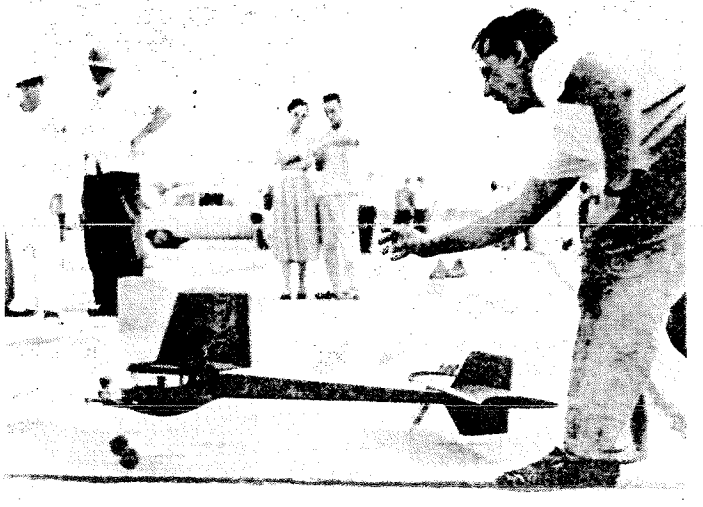
Young Greg Wilson from Cedar Rapids, Iowa, had Half-A free flight delta modeled along lines of Ed Sieh's R/C job (see pg. 45). Powered by a Thermal Hopper running backwards.

■ The first air-model Nationals to be held in Chicago since the 1940 and 1941 championships, this year's competition produced its usual quota of unusual designs and innovations. Even though a good many top models were those that had appeared before, original designs still were noticeable enough to make an impression on any observer. Radio control flying drew its biggest entry list ever; this produced some difficulties because the R/C flyers, like everyone else, had less time in which to establish official flights. As is its annual wont, the question

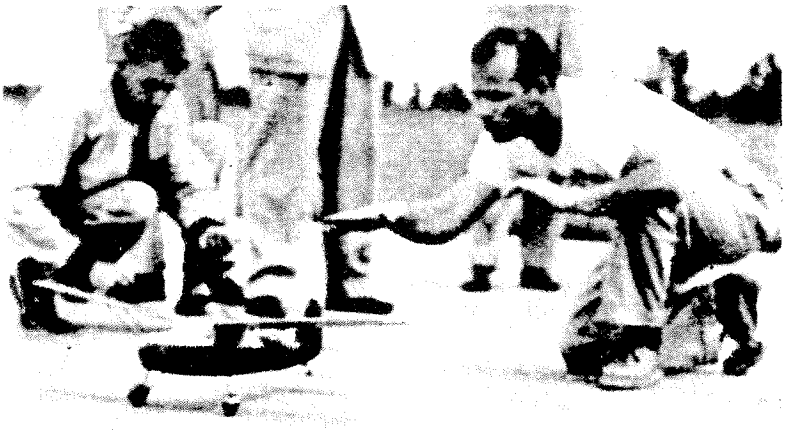
New national junior champ Joe White of Sacramento launches his Torp .19 powered "Whogit" Class A free flight entry. This model was designed by brother Bill, last year's National Champion.



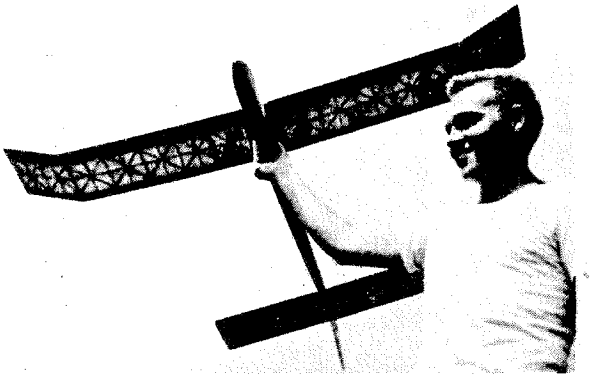
First place in Combined Class A-B PAA-Load went to Bruno Markiewicz of Detroit who flew this Torp .32 powered original design "Polywog" to total time of 13 minutes, 48.4 seconds.



Ten-foot, 13½-pound Buhl Bull Pup flying scale radio control by Hubert B. Lacey, Columbus, Ohio. O.K. Twin motor, 18/9 prop. Five channel Schmidt; rudder, elevator, motor control.



Duplicating his 1953 victory with the same model, Ed Stoll of Detroit placed 1st in open class Half-A free flight scale. This is a Fairchild 24 powered by Wasp .049. Total, 344.5 pts.



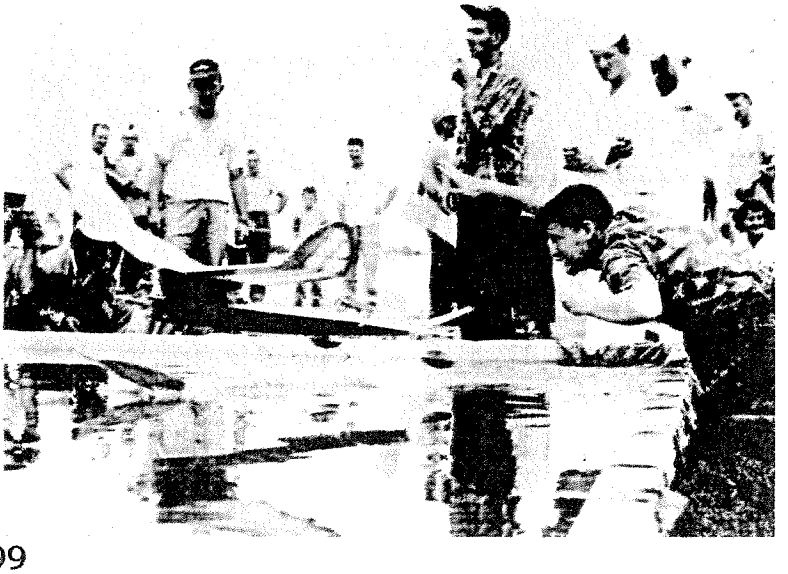
Nordic towline glider crown was won by James A. Patterson of Holloman Air Force Base, New Mexico, who flew as Air Force team member. His total time was 13 minutes, 36.1 seconds.

arose as to whether or not the contest has become too cumbersome because of its large number of events. But as long as a sponsor and a suitable flying area are available any suggestion to trim the categories does not get very far. Again this year leader members of the A.M.A pitched in to conduct events. Among those most active were Pete Vacco, Leon Shulman, Ernie Kratzet, Warren Bartlett, Carl Goldberg, Al Davis, John Hillegas, Keith Storey, plus countless others. Technical details will be reported in Air Trails Model Annual.

Winning team race trio was (from left): Bill Hallenbach, mechanic; George Moir, designer-builder; Bob Huffer, pilot. Re-worked Fox .29. Huffer, Annapolis, Md., won last year.

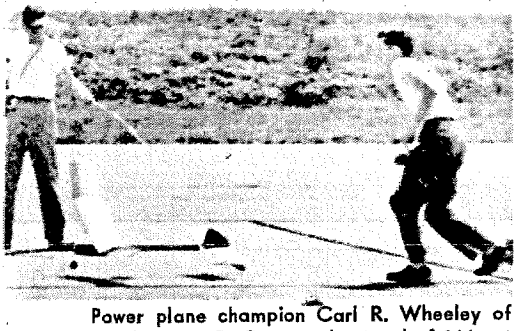
Best of indoor cabin contenders was Bob Bienenstein, Detroit, with 14 minutes, 25.2 seconds. This more than tripled the highest Jr.-Sr. time, indicating "indoor" flying is on wane.

Rise-off-water free flight saw top time of 16 minutes, 50 seconds racked up by Sherman Kachenberg. Here, Robert Stucker, St. Louis, 5th in senior, demonstrates real "sincere" launch.



WORLD MODEL

Wheeley Wins F.A.I. "Gas" for U.S.A.



Power plane champion Carl R. Wheeley of Washington, D. C., scored a total of 844 out of a possible 900 points with his distinctive design (in air, just taking off, above).

Second place honors went to Silvio Lanfranchi flying for Switzerland whose technique left no doubts that each flight was "unassisted rise-off-ground." Score: 831 pts.

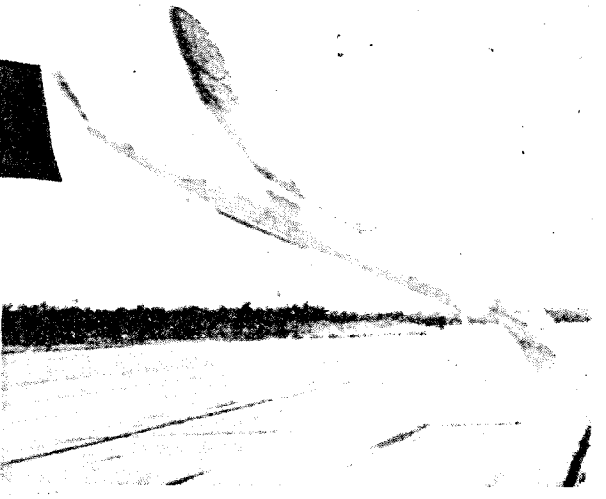
Member of last year's F.A.I. power team also, Mr. Wheeley has a distinguished record in U. S. competitions. He is the technical director of the Academy of Model Aeronautics, edits AMA's monthly "Model Aviation." Design follows his "Senator" and "Little Senator" planes.

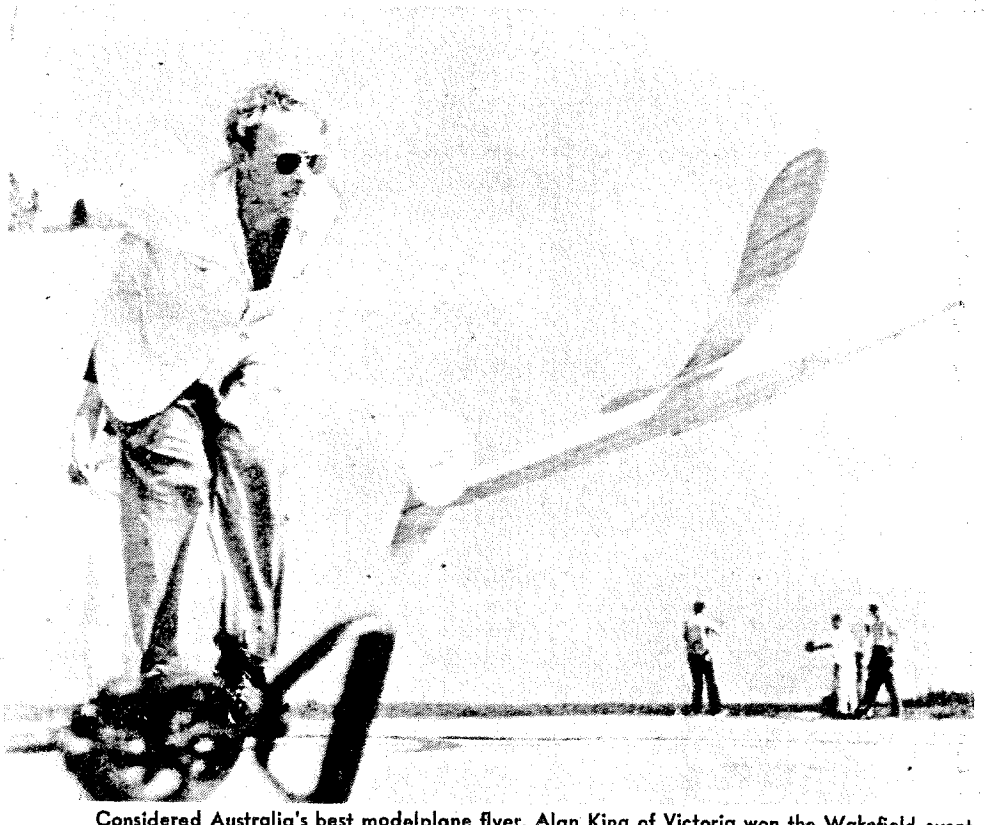
U. S.'s Joe Elgin fires up English entry which he proxy-flew for Ron Moulton; plane is an Amazon 444, designed by Mrs. Stan Hill. Great Britain scored 1,533 points; U. S. was first with 2,404

Defending champ Dave Kneeland of Hickman Mills, Mo., put up fine performance to take 3rd (783 points). Combined Wakefield and F.A.I. gas events were sponsored by Convair, aircraft manufacturers.

AIR OLYMPICS

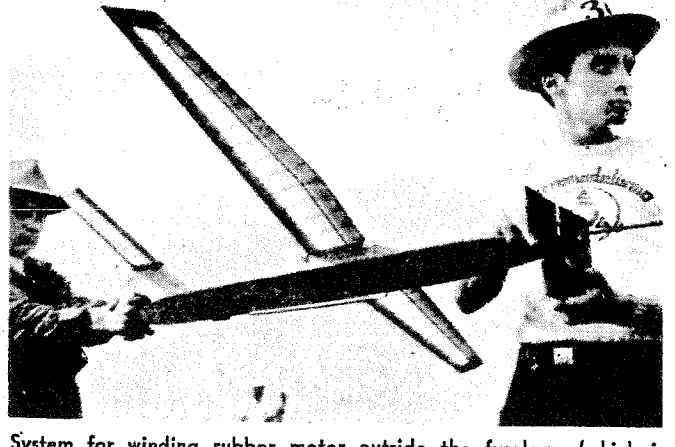
Australia's King Tops Wakefield





Considered Australia's best modelplane flyer, Alan King of Victoria won the Wakefield event with a perfect score of 900 points (5 flights of 3 minutes maximum each); he had to use a spare model for his final flight. Proxy flyers took 2nd for England, 3rd for Australia.

Hands-on-knees stance assumed by Robert Dunham, Tulsa, outstanding rubber flyer from Southwest. Bob was 5th to help U. S. team take 1st in group flying with 2,404 pts.



System for winding rubber motor outside the fuselage (which is guarded by a shield) was devised by Andrew Bobkowski from Guatemala. Guatemala team was eighth in both power and rub

Underpowered but undaunted was entry flown in person by Kiyotatsu Miyoski representing Japan. Assigned as his helper was the noted West Coast photographer and modeler Fudo Takagi of Convair.

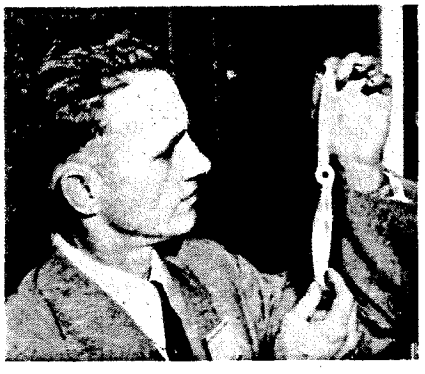
SHOWCASE:

Model Men

■ Each year the men who manufacture the kits from which you make your models journey to a great model industry trade show to show their wares—just like the pieman of yesteryear. Figuring you may have wondered what some of these folk looked like, this year the "AT" camera went along too. We managed to catch most of these who displayed their kit models, engines or accessories, although we did miss a few. This roundup which surplants the usual Showcase items found here will give an indication of what's ahead.

Lew Mahieu of K&B admires his Half-A "Flying Kiwi" design. With .049 Torp weighs 5 oz.; 35" span; 27" length; 200 sq. in.; $2.50.

X-acto's Sundel Doniger with that firm's new Aero-field kit (#73). The large assortment is $17.50. Has all manner of needed tools.

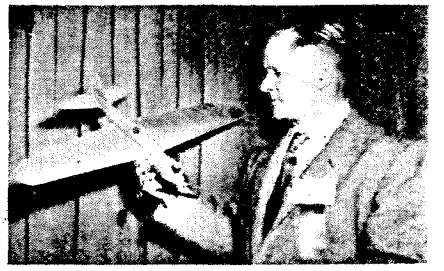


This is Anthony Grish, noted speed king, with his new 30¢ Tornado Plasticote 10" prop available in 3, 4, 5, 6 and 8" pitches.

Charles Brebeck (Sr.) of Herkimer Tool & Model Works with new OK .06 cu. in. (1 cc.) Cub diesel engine. Ht., 2⅝ in.; wt., 1⅝ in.

Ace's Gordon Babb with outfit's new Jaguar car in kit form for $1.25; 7½ in. overall. Pre-fabbed, plastic parts, rubber wheels.

Dr. Eugene Rodin of Helicopters for Industry with detailed, plastic model of Sikorsky S-55 rescue 'copter Rotor 15"; $2.49 with stand.



L. M. Cox of Santa Ana, Calif., with ready-to-fly TD-1 model. Powered by Space Bug engine. Spans 24"; 120 sq. in. area; 10 oz.

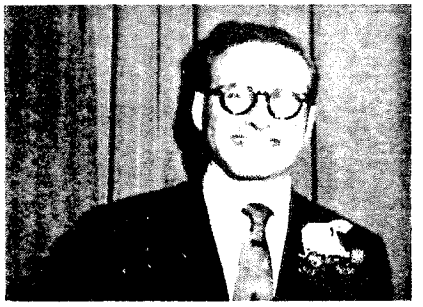
Al Gasdia of Allyn Sales Co. admires new Convair delta interceptor XF-92A available in "assembly" kit, $2.49, base included.

Bill Atwood, the Marvel of Microfilm, with his new .051. For $6.50: prop, wrench, g.p., clip, F/F tank, U/C back cover & motor.

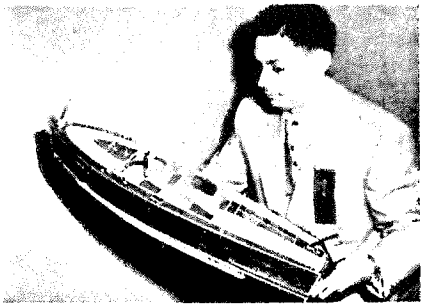
Dyna-Models' Percy Kemp and his F-84 Thunderjet scale model. Highly detailed, 10¼" span, ⅛ inch the foot, 9½" length.

"Boikley Bill" Effinger of Berkeley Models and the unique $2.95 Half-A powered Cloud-Copter. Overall, it's 22"; 28" vane.

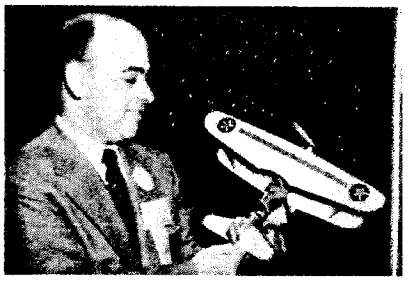
"Gentleman Jim" Walker of A-J (American Junior) Aircraft and his "Firebaby" Bi-plane supercharged engine, ready to fly, $9.75.



Lewis Glaser of Revell wearing his new Merry Oldsmobile Bakery Wagon as a boutonniere. This is 3/8" to foot scale, Series #3.



Ed Manulkin of Sterling Models with firm's Century Sea Maid "20" scale model boat; length is 27", 9¼" beam, pre-fabbed, $7.95.

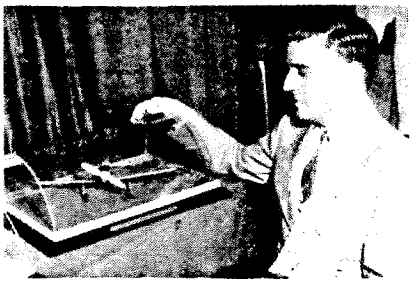


Scientific's "be specific" man, John Frisoli, with Curtiss Hawk P6E, prefabbed, 18" wingspan, 11" length, alum. cowl, etc., $2.95.

Harold deBolt of Dmeco (deBolt Model Eng. Co.) with his Half-A F/F and PAA-Load "Clipper"; 34" span, 26" length, 220 sq. in.

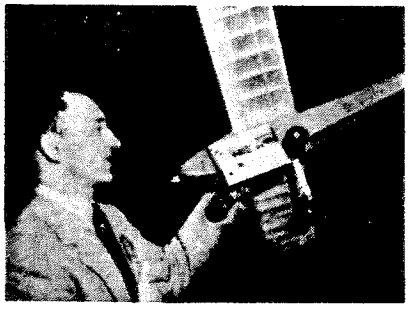
Richard Mates of Hawk Model Co. with his new MiG-15 all-plastic detailed scale model; 69¢. 7½" span, all ready to assemble.

Carl Goldberg of Top-Flite Models with new MiG-15 Jigtime Jet. Pre-fabbed, interlock construction, catapult launch to Mach .99.



Comet Model Hobbycraft's Morris Shamberg with $1 F-51 fighter flying model of 15 inch span. Pre-fabbed, plastic details.

Wen-Mac's Leonard McRoskey with new Automite $10.95 car. Price includes .049 Wen-Mac engine, alum. disc wheels, bridle.



Vincent Serio of North American Model Products, Warwick, Va. This is "Guided Mite" R/C kit which was under test 2 yrs.

Bob Reder of Monogram Models and new Speedee-Bilt F9F Panther which sells for $1. Spans 13½", prefabbed, plastic details.

Ross Guillow of Wakefield, Mass., with the new Guillow 25¢ MiG-15 flying scale model. Uses rubber and prop. Span, 9".

All the way from California! Randall E. Froom with his new two-speed motor control tanks which are just fine for radio control.

F-B Model Aircraft's Dick Newman with "Jag" XK120 model; 1/25th scale. $1.49 kit has balsa, metal and plastic parts; 7¾".

Enterprise Model Aircraft & Supply Co.'s Jerry Brofman with "Tow-Liner", 24" span, 1.5 oz., prefabricated $1 towline glider.

Torqueless Jetex Reaction Propulsion Power Plants Originated During World War II

■ The idea for a reaction - propulsion motor suitable for model work was conceived by Charles Wilmot and Joe Mansour following their work on rocket - propelled target models for the armed forces during World War II. Together they formed the Wilmot Mansour & Co. Ltd. of Southhampton, England. For the past seven years this firm has been producing Jetex motors and more recently model kits designed for use with their engines. Distribution in this country has been handled very capably by American Telasco Ltd.

Before the arrival of Jetex to this country, reaction-propulsion models were possible only when powered by big, powerful pulsejet engines like the Dynajet, or, at the other end of the power scale, the CO_2 capsule. Jetex fills the gap between these two extremes by providing a suitable means of power for models of the more popular sizes of free flight and flying scale models of jet aircraft.

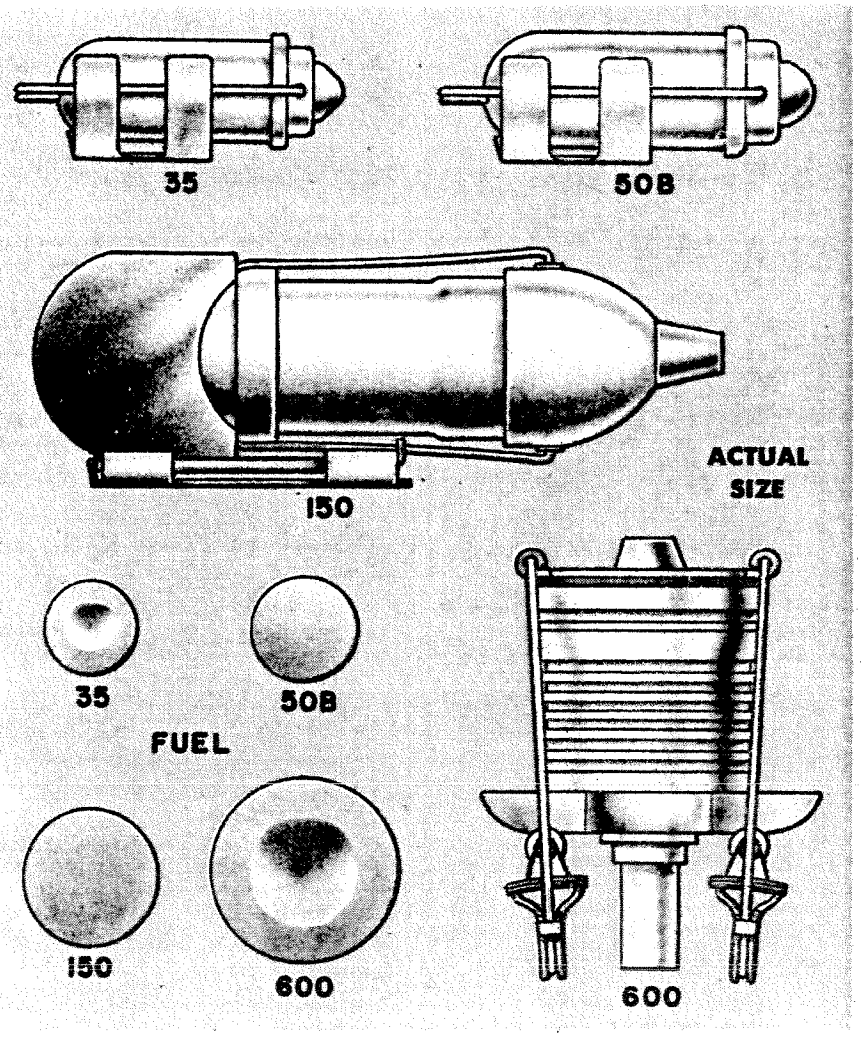
For use in the latter type model, Jetex has no equal. It is true that recent experiments with ducted fans show great promise but the Jetex engine is far simpler to install, maintain and perhaps most important, it has little equal for cleanliness and safety in operation.

Speaking of safety, although the Jetex engine may at first glance be likened to the Fourth of July skyrocket, any similarity is purely coincidental. Whereas the skyrocket takes off spouting fire and shooting sparks, no fire spouts out of the Jetex engine and only the faintest trace of smoke is visible when the solid-fuel pellet is burning and the model is underway.

To further disprove any kinship to the skyrocket, Jetex engines and fuel are sold in many localities where the sale or use of fireworks is strictly forbidden.

Since Jetex provides a solution to propulsion problems which cannot be met with the more conventional reciprocating engine, it is perhaps of little consequence to compare the two. However, to be objective, let's examine all facets of Jetex.

Specifications	#35	#50B	#150	#600
Engine Weight	.15 oz.	.2 oz.	.73 oz.	1.6 oz.
Fuel Weight	.1 oz.	.2 oz.	.27 oz.	.4 oz.
Total Weight	.25 oz.	.4 oz.	1.00 oz.	2.0 oz.
Thrust (av.)	.4 oz.	.6 oz.	1.75 oz.	5.5 oz.
Thrust w/Tube	.5 oz.	.75 oz.	2.25 oz.	7.0 oz.
Duration	10 sec.	12 sec.	14 sec.	10 sec.
Exhaust Speed	1200 f/s	1300 f/s	1400 f/s	1600 f/s
Overall length	1⅝"	1⅞"	3½"	2¼"
Max. Dia.	⅝"	11/16"	1"	1¼"
Model (span)	14"	20"	36"	48"
Weight Limit	1.5 oz.	1.7 oz.	5.0 oz.	16.0 oz.



As far as performance is concerned, the Jetex engine was not designed to compete with a good glow plug or diesel engine on a power-to-weight basis. The Scorpion 600, however, with a static thrust of between 5 and 6 ounces for a loaded weight of 2 ounces does not compare too unfavorably with a Half-A piston engine and propeller of similar weight.

The initial cost of the smaller Jetex units is less than for any other type, but the fuel expense runs a little higher. This added expense may well be offset by the money saved on propellers.

Jetex engines, if maintained properly can conceivably last a life-time. While they require considerably more time to fuel up, once this somewhat tedious chore is completed starting is instantaneous.

The greatest advantage of these reaction engines over the reciprocating type is their ability to deliver thrust that is completely torqueless.

No longer in production are the Jetex 100, 200 and 350 models with their complex multiple-coil springs. These springs had to be released one at a time by means of a special tool and a lot of "muscle."

In place of the 100 and 200, there is the Jetmaster 150 which embodies a single U-shaped spring-steel wire clip featuring a roller and leaf-spring which is both simple and efficient in operation. Replacing the 350 is the Scorpion 600. This is the most powerful Jetex engine yet produced; efficient in design, it is both lighter and shorter than the 350 that it replaced. Two spring clips similar to the type used on the Jetmaster have proven adequate for the Scorpion.

The smallest size Jetex, the Atom 35, and the most widely used model of them all, the 50B, use a simple wire clip.

The function of the clip on all models is twofold. Every Jetex engine has an end-cap with a jet hole in its center. The gas generated by the burning of the fuel pellet emerges, at great pressure, through this jet hole. The wire clip retains the end-cap under tension during normal operation. However, should the jet hole become clogged—a very remote possibility—the spring clip under excessive pressure allows the end-cap to act as a safety valve and lift away from the main casing. The internal pressure thus leaks out safely.

With the recent design developments have come improved fuel. A slightly faster burning compound, giving greater power, has been developed. Known as "Red Spot," this fuel can be distinguished by its red color as opposed to the yellow of the standard pellets.

The Augmenter tube, the latest development, when used properly with the Jetmaster 150 increases thrust approximately 25 percent. This gain is not quite as great with the Scorpion 600 or with the smaller engines. However, it does make it possible to fully enclose the engine within the fuselage of scale models. In fact, building the fuselage directly around the Augmenter tube has proven very popular.

These tubes are made of thin-gauge aluminum alloy and since the thrust is continuous, tube length is not critical, as it would be with a pulse-jet, and therefore it may be shortened or lengthened within moderate limitations, to conform to a particular model's requirements.

Tailpipes of 1" dia. and up to 13" lengths are supplied for use with the larger engines. ⅝" dia. 4" to 6" length tubes are available for the smaller engines.

Getting back to the engine itself, all Jetex engines as well as any reaction type jet propulsion device is based on a very simple fundamental principle of physics known as "Newton's First Law of Motion"—to every force there is an equal and opposite *reaction*. In the Jetex engine the primary force, called thrust, is created by the burning of the fuel pellet. The large volume of gas generated is allowed to escape through the tiny jet opening or nozzle in the end cap. At the nozzle, the gas is under high pressure and escapes at supersonic speed. The *reaction force* of this high-velocity gas escaping *rearward* is what drives the Jetex powered model *forward*.

Although at first glance all Jetex engines may appear the same inside, close inspection shows a number of differences. The Atom 35 employs a cone-shaped washer in the end of the case and the fuel pellet is recessed to fit. This was done to reduce thrust toward the end of the power run to obtain a smoother transition from power to glide.

The 50B uses a flat pellet and a flat washer. The fuel pellet for the Scorpion 600 is concave on its forward face. This cavity enlarges the burning surface thereby increasing thrust.

Oddly enough, although great care is exercised in formulating the pellets, no two similarly sized engines burning same-size pellets (even taken from the same box) will have the exact same thrust and duration. It is for this reason that we do not recommend the design of a twin Jetex model where the engines are located at any great distance from each other, say on each wingtip.

Without exception, failure to start is due to carelessness in loading, where the igniter wick is not properly pressed in contact with the pellet or because the pellets have been allowed to get damp.

Although every possible safety precaution has been taken into consideration in the design of these engines, the element of heat should not be regarded too lightly. Even though the exhaust gases are not hot enough to burn anything, the case gets quite hot and should not be handled until you are absolutely sure that sufficient time has elapsed between runs to allow for adequate cooling of the aluminum.

This usually requires from 2 to 5 minutes of time.

'Round the Track

You're looking at Stan Heckler's "manufactured proto" doing 130.81 mph during its world record tying run at the Bethlehem, Pa., Fox Speedway. Unusual photo made by Bob More.

Interested in model cars and scale vehicles? This is your department. Let's have your news and pix

■ Though the speed boys continued to race as usual, everyone with a chance to attend the Nationals at Anderson, Ind., was not so long ago tuning up his speedster for this big annual event. We will have a full story with pictures on this, so look for it soon in ATH.

A rundown of the winners of Regional races held all over the country is given below. These winners were to receive trophies at the Nats. *Western* (Ontario, Calif.): Custom—1. Bill Terra; 2. Bart Dimetted. Mfd. Proto—1. Donna Terra; 2. Vincent Dimattio. *Midwest* (Belleville, Ill.): Custom—1. C. Flynt; 2. C. Franz. Spur Gear—1. Jerry Pope. *Eastern* (Bethlehem, Pa.): Custom—1. Bob Loose; 2. Howard Fox. Mfd. Proto—1. Al Holicza; 2. Sal Lollo. Spur—1. Al Winters; 2. Howard Fox. *Southern* (Atlanta, Ga.): Custom—1. N. A. Olson; 2. Dan Dyer. Spur—1. Eddie Clayton; 2. Bob Sargent. Sportsmen—1. Bill Jacoway; 2. Bob Sargent. BB Class—1. J. N. Perkins; 2. Charles Bagley, Jr. Certificates of Performance and Track Record Certificates were also passed out at the National Banquet.

More complete notes on the Eastern Regionals were sent in by Bob More (66 W. Elizabeth Ave., Bethlehem, Pa.). Bob notes that Reading, Pa., has long been known as one of the racing capitals of the country, having produced such big car stars as Bill Holland, Joey Chitwood and Tommy Hinnerschitz, and has now produced a hot miniature car man in the person of Bob Loose; Bob showed up at the Bethlehem track and took top place in Custom with little apparent effort. His speed was 146.58, which tied the 1954 Track Record.

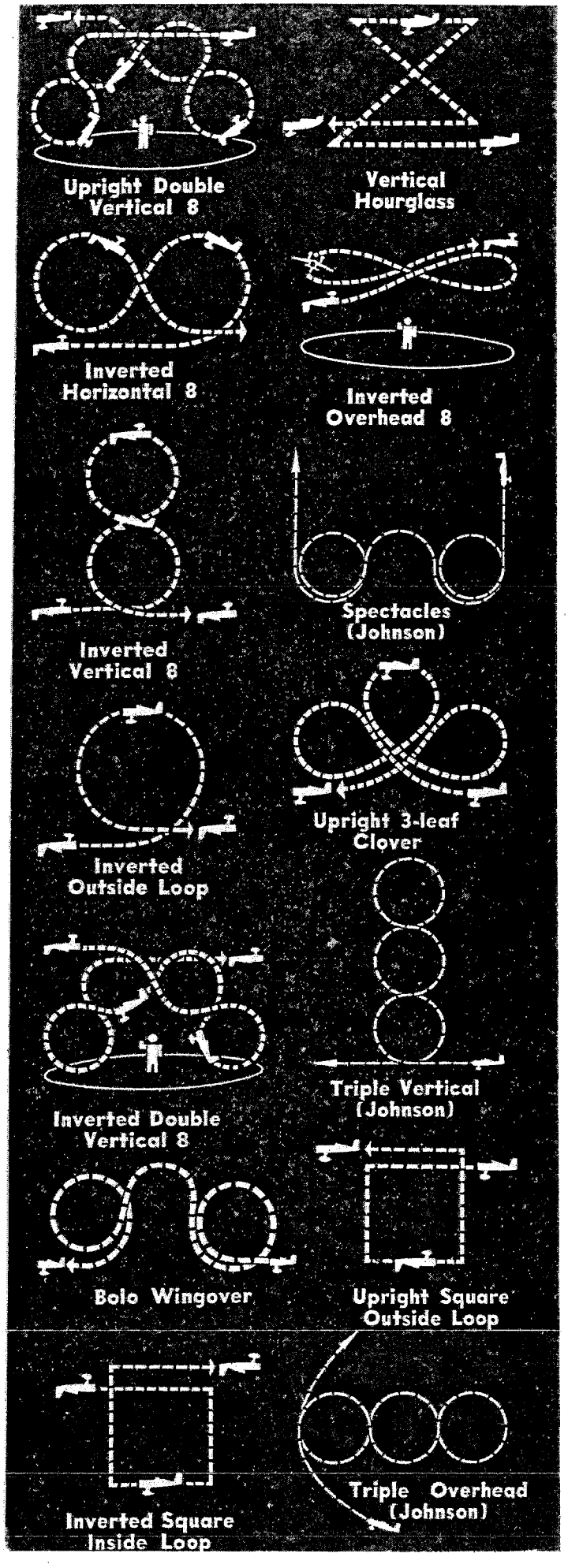
His car looks pretty much like all the other good ones, but there are internal features that enable it to get a "bite" on tracks where other cars slip and spin; the secret is in the balance, with a new pan design which is considerably heavier in some places than on the average car. This car also features the "pan handle" type of bridle, and is a slick job throughout. Al Holicza's 127.84 in Mfd. Proto is very good when you consider that the car must be run just as it was made, with no chromed parts, and no alterations of gearing. Al Winter of Philly made his very good 136.99 mph speed with a car that had not been run since last year's Nationals in Atlanta.

Members of the Paterson, N. J. Club had the idea for a "Nationals Tuneup Race," and offered to sponsor same at the Fox Speedway in Bethlehem; the offer was accepted enthusiastically by local racers, and the Paterson gang showed up with the necessary trophies, and willingness to do all the work. Though Howard Fox had high times in both Custom and Spur, his engine in the latter car got too hot and ended with a ventilated piston, necessitating a rebuild job.

Frank Higgins had lost 7 mph since the last time out, but swore all he had done to his car was to change the shut-off valve; Bill More ran well, but later discovered that the piston rings had stuck in their grooves, so *that* engine had to be torn down too. Ted Jacobs and Mike Tucci were searching frantically for lost needle valve settings, while Eddie Allaire said his new piston was no danged good. Jack Wolf's Arrow emitted strange noises, found to be caused by an assortment of loose gear teeth in the bottom of the pan. Sal Lollo's work bench seemed to show more engine parts strewn about every time it was checked, while Bob More broke an engine in half. Jim Petrakis had two "No Times" recorded, and looked so sour that our reporter decided not to ask what his trouble was! So the gang ended up worse off for upcoming Nats than before, but they did learn that the Paterson gang can run a fine meet and hand out beautiful trophies.

All those listed in Custom and first placers in the other two classes received trophies.

Several interesting rumors have turned up, one that Dooling will continue to make replacement parts, and that C-R will keep on making tires.



By **BOB ELLIOTT**

National Open Stunt Champion

Stunt Pilot Techniques

■ The old saying "practice makes perfect" is basically the only way a flyer can become a consistent winner. I see the pattern as a piece of chain, each link representing a different set of maneuvers, with each set smoothly joining the others. If I have a rusty link in the chain, I don't like to break the chain just to practice the maneuvers that need attention. Consequently, I practice the full pattern each and every time I fly my ship unless I have a bad needle setting. Using this method, you can not only improve your poor maneuvers, but your good ones as well. This may be considered a slow methed of improving those poor maneuvers, but I belive you will be satisfied with the overall results. As for size of maneuvers, large and small, it makes very little difference, but, in order to make your flight more uniform, keep all of your maneuvers the same size and as smooth as possible. For a much neater pattern, connect each set of maneuvers with smooth level flight.

Another important item is your airplane. In the past few years, the stunt event has changed with the addition of semi-scale stunt ships. Remembering the importance of appearance, select an airplane with proven, dependable stunt qualities capable of flying a winning pattern, if built properly. *Properly build your airplane.* If a modeler spends a good deal of time, effort, and money on an airplane and its performance is not up to par, maybe this is due to a few small but significant things he overlooked. Always keep your control system working smoothly. Be sure to make all pushrod connections snug and free from play. At all times use good hinge material, if cloth hinges are needed. Remember that all flaps and (or) elevators must be hinged as tightly and neatly as possible. In the construction of your wing, check and remove all warps. Before construction you can straighten each spar by careful bending.

If your completed plane has any tendency to fly with the inboard or the outboard wing low, adjust it to fly perfectly level by adding trim tabs, or adjust wing flaps. During construction be sure that your wing and stab are parallel to the thrust line. Positive or negative incidence can bring on headaches. Another cause of poor flying characteristics comes from too much engine and rudder offset. Some modelers have a false idea that very much of one or the other, or both, is needed to keep the ship tight on the lines. Actually, too much engine or rudder offset can cause the airplane to rock very badly, naturally hampering the smoothness of your flying. Above all put a good finish on your ship. Don't spare the elbow grease!

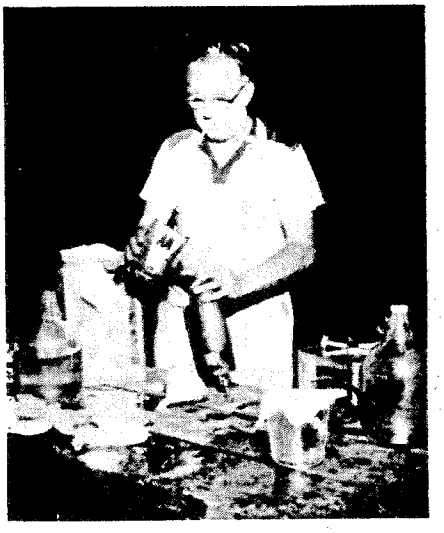
Select a proven engine that is recommended for your airplane; always keep it clean and well oiled when not in use. Be sure to use the best fuel for your particular engine. When an engine is completely cowled, sometimes it is advisable to use a slightly cooler fuel.

Youthful Jersey Pilots Team Up to Establish New World's Endurance Record

PHOTOS BY ERVIN F. HESS

Tired but happy team and proud Pops pose at 10 p.m. after end of flight. From left: Bob, Clifford Probst, Henry Himmelman and Gary.

Gary Probst, 12, left, takes over from Bobby Himmelman, 11, as wind makes things tricky. Detached fuel line dangles from low wire.



No, that cigarette wasn't lit! The senior Himmelman refueling pressure tank which held 1 pint of fuel good for 12 minutes of flying.

Another refueling operation: Poppa Probst supplies son Gary with soda pop and hot dog. Boys walked about 12½ mi.—in circles.

■ A new endurance mark of 11 hours, 25 minutes and 30 seconds is shared by two young Union, N.J., control line model plane flyers, Gary Probst and Bobby Himmelman, both members of the Union Model Airplane Club.

Flying a specially designed midwing monoplane, the "Jersey Skeeto," which operated at an average speed of 39.98 miles per hour, Gary and Bobby trudged around at the rate of 720 laps per hour. The record flight was airborne at 10:23 of a Saturday morning. They spelled each other in half-hour shifts to begin with, then cut down to 15-minute stints as the day wore on—and on into night.

The record-setting model, designed and constructed by the boys' fathers, has 43-inch fuselage and a wingspan of 44 inches. It was controlled by two 60-foot lines and for power utilized a Fox .35 engine. An average height of 15 feet was maintained during the flight. With yellow wings and a red and black fuselage, the model is a colorful one.

Approximately 5 gallons of specially mixed fuel were pumped from the pressurized "hip" tanks up a plastic tubing feed line into a small fuel tank in the model. Solder vibrating loose in the small tank apparently clogged the system as the flight neared the 11½ hour mark, thus terminating the performance.

In recognition of their achievement the team was awarded a trophy by the U.M.A.C. and received a letter of commendation from the Academy of Model Aeronautics. All equipment for the flight was supplied by the Union club. Vernon Davies is president of the organization. Officials participating in the record run included A.M.A. contest managers Harry Gregory and Adam Karp, who filed a formal report with the Academy. A picnic for club members was also held.

The 24th National Championship

Thermal Thumber Robert Dagand, Los Angeles, 3rd in Nats indoor glider event. AF's Stewart Savage had hi time—1:10.

Meet Brent Hawkins (above) from Morton, Ill.; this young fellow scored 4 first places in rubber events at the Nationals! You'll find more Nats photos here.

DOPE CAN

■ The 24th National Championship Model Airplane Contest conducted by the Academy of Model Aeronautics at the Los Alamitos, Calif., Naval Air Station, with the whole-hearted support of the United States Navy was probably the best of all "Nationals" from both the organization and flight performance standpoints.

Grand National Champion Willard S. Blanchard, Jr., 31, of Hampton, Va., who repeated his 1954 tops-in-model-props victory, had the super-distinction of receiving the warm good wishes of 1) Secretary of the Navy Charles S. Thomas; 2) Miss Universe (1955 version), Hellevi Rombin, 21, of Sweden; Queen of the Meet, Marla English, Paramount Pictures starlet; and approximately 700 fellow competitors.

Senior class championship honors went to Don Alberts, 20, of Albuquerque, N.M. Tops among the junior flyers was David Arne, 14, of Yuba City, Calif. National Team Championship crown was won by the Los Angeles Thermal Thumbers Club's Team #1.

Blanchard, incidentally, a B-24 pilot in World War II, placed only once in the first three top positions of any event (he took 1st in the PAA-Load International open class), but he competed in so many events and flew so well he won championship honors handily.

As is its usual custom "Air Trails Model Annual" conducted a survey among top winners and will have a complete rundown of the entire competition in its forthcoming issue.

Top Test Pilot Proxy-Fathers Modeler. Thanks to the North American Aviation (F-86's, F-100's, etc.) "Skywriter" we learned that when Bedford (Bud) Joyney, 14 years old, Memphis, Tenn., entered his 9 planes in the Los Alamitos NAS "Nationals," he voiced a loud "thank you" to one of North American's top test pilots, J. Ray Donahue.

Donahue acted as a sort of "model flying foster father" to Bud all because

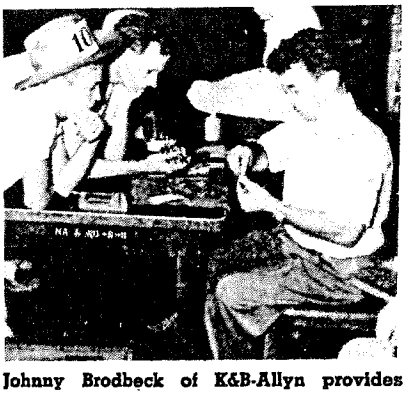
the company pilot was chairman of the California State meet last year. Bud and his father were planning to attend that '55 Nats together but the latter became ill and couldn't make the trip. Rather than force Bud to drop out his father appealed to the Exchange Club of Memphis for assistance.

The Memphis Club, familiar with Donahue's model efforts contacted the Westchester, Cal., Exchange Club. This group had no trouble locating the N.A.A. pilot—he's a member. The flyer was more than willing to "look after" young Joyner, he said. The father of four youngsters, himself, Donahue realized how important the competition would be to the Memphis lad.

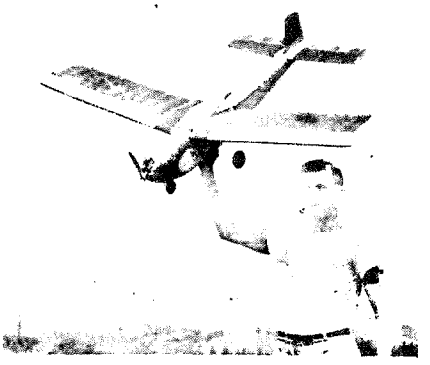
When Bud arrived at Los Angeles International Airport, Donahue met him, showed him some of California's points of interest, took him on a tour of North American production lines, then flew him to Los Alamitos in a company utility plane.

Certainly that was a trip, a reception, a tour and a contest that Bud will long remember. And the Exchange Clubs of Memphis and Westchester deserve a pat on the back for the part they played in this happy story.

Oxford, Iowa's Dorothy and Lawrence Conover are caught once with a conventional type model. He enters every Nationals.

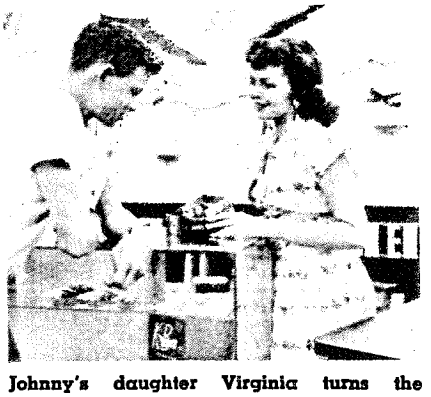


Johnny Brodbeck of K&B-Allyn provides his usual Nats motor repair service that has endeared him to many a modeler.



Oakland's Dale Root and "Ascender" job with 720 sq. in. wing. Babcock 3-channel.

Harold deBolt and his super-low-wing-loaded stunter. HdeB looks warmer than Swank (last column) with similar ship.

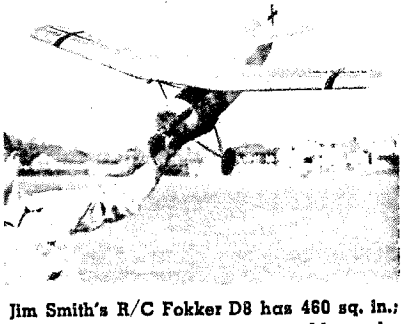


Johnny's daughter Virginia turns the charm on Jerry Sanders. How could he resist the motor or the salestalk?

A complete story on the R/C Event at the Nationals will be along; the following notes are taken from an early report sent to us by Howard Bonner, who was Director of this event. He says there were 27 contestants registered to fly in Multi, 21 of whom made official scores, while 46 signed up for Rudder Only, and 40 of these racked up points. It is apparent that the event ran off very smoothly; Howard had secured three monitor receivers complete with operators from the Navy, with the result that there wasn't a single claim of interference. Only a single flight line was used, as there were no contestants on 465 mc and only five on frequencies other than 27¼. Unlimited flights were possible, with contestants signing up to fly on a "ready list." There were about 5 flyaways and 3 or 4 serious clobbers. Top ten winners in each class, followed by points and type of equipment:

Multi Class; 1—Alex Schneider, 156.6 points, Rockwood 5-reed; 2—Bill Deans, 146, Racon 5-reed; 3—Dean Kenney, 138.6, Racon 5-reed; 4—Colby Evatt, 111.3, own 5-reed; 5—Dale Root, 103, Babcock 3-channel; 6—Dale Robbins, 82.3, 2 channel Tuned-Relay; 7—Dr. Hauck, 7 Babcock 3-channel; 8—L. D. Crisp, 75, Bramco 5-reed; 9 — R. L. Schellenbaum, 70.3, CG 2-reed; 10 — Gordon Gabbert, 70, Rockwood 5-reed.

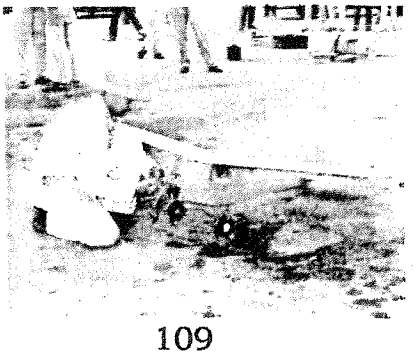
Rudder Only Class; 1 — Edward Friend, 76.3, Babcock single chan.; 2—Ernie Beakett, 72.6, Deltron; 3—J. H. Slovacek, 68.6, ??; 4 — Dick Austin, 67.3, Citizen-Ship 27; 5—Chuck Boyer, 63.6, Babcock single-chan.; 6—Vic Nelson, 63.3, Deltron; 7—Art Sargenti, 60.6, Lorenz; 8—Stan Powell, 60, Lorenz; 9—Howard James, 57, Citizen-Ship 27; 10 — Chuck Hollinger, 56, Babcock single-channel. In the Rudder group, all of those listed except the 3rd placer moved the rudder via a Bonner Compound escapement; Slovacek used a Bonner Standard.



Jim Smith's R/C Fokker D8 has 460 sq. in.; 42 oz. with Deltron; motor, rudder only.

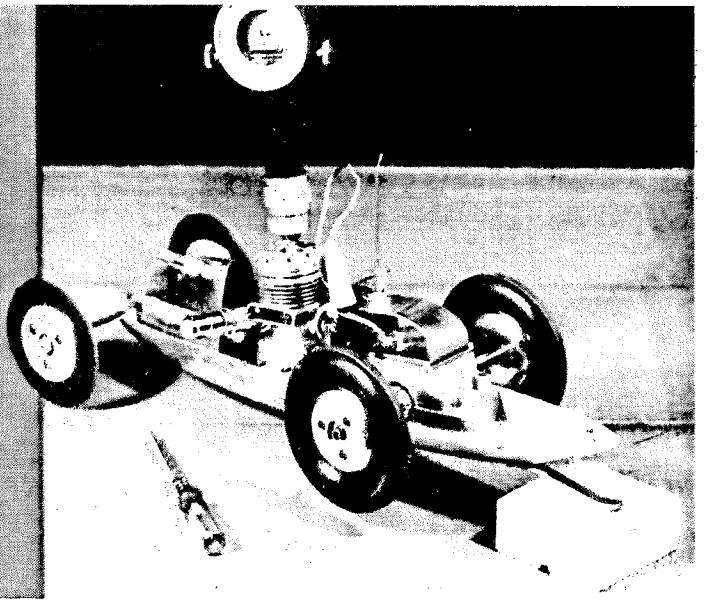
More National model meet photos: Winding indoor stick, Joe Bilgri who placed 2nd. He was 1st in open cabin, paper stick.

Again top man in radio control, this year champion in the multi-class flying: Alex Schneider of San Francisco. Hard to beat!



Jerry Gross of Lakewood, Ohio, and Dad. Jerry took second in indoor cabin and third in indoor stick as senior flyer.

Tuning Up For Winning Speeds



No mumbo-jumbo double talk here—just straight stuff from one of the country's best model car men: don't be misled by hop-up hounds whose tactics seldom pay off!

By ROBERT J. MORE

■ J. Bstflsk strides confidently through the fence opening. He sets his shiny four-wheeled package of speed on the track, hooks up the cable and gives the car a shove. She's off! Then faster and faster she speeds around the 24th miler. The engine seems about to scatter itself, so high is the rpm. Will he never call time on it? He does and there it is: 148 mph and an easy first place. Applause dies and a sort of murmur drifts through the pits. "Joe cut this or filed that." Jack Genius "set up" his engine for $$$—it *should* go fast. "He must have a secret fuel."

In every case they are wrong. There is no sure, secret way to winning speeds. Nine out of ten "secrets" fall through and prove to be merely a costly lesson. More attention to fundamentals, cleanliness, and slow development based on past experience are the only answers to how you can tune up for winning race car speeds.

The purpose of this opus is to show tyros and old-timers alike who have trouble that consistency and slow development are not only the sure road to speed but the cheapest and most enjoyable one as well.

So sit down at your work bench, take your race car apart and I'll try and give you the inside story on Speed Tuning. I guess the best place to start is on—

GENERAL CARE

Dirt is your worst enemy. Most parts —ball bearings, pistons, liner, pan—are precision machined and fitted. Nothing can shorten their lives more than abrasive dirt. Sure, a car gets dirty running on a concrete track in the open, but that is no reason why you cannot try to prevent wear on these parts as much as possible. When a day's running is over, always flush out tank, engine, and the pan with some sort of cleaning fluid. Rear wheel bearings should be flushed from the inside out and the front wheel bearings from the outside towards the center pole side of the car. In other words, wash grit out from the clean side of the bearing. Do not try to drive it through retainers and ball bearings.

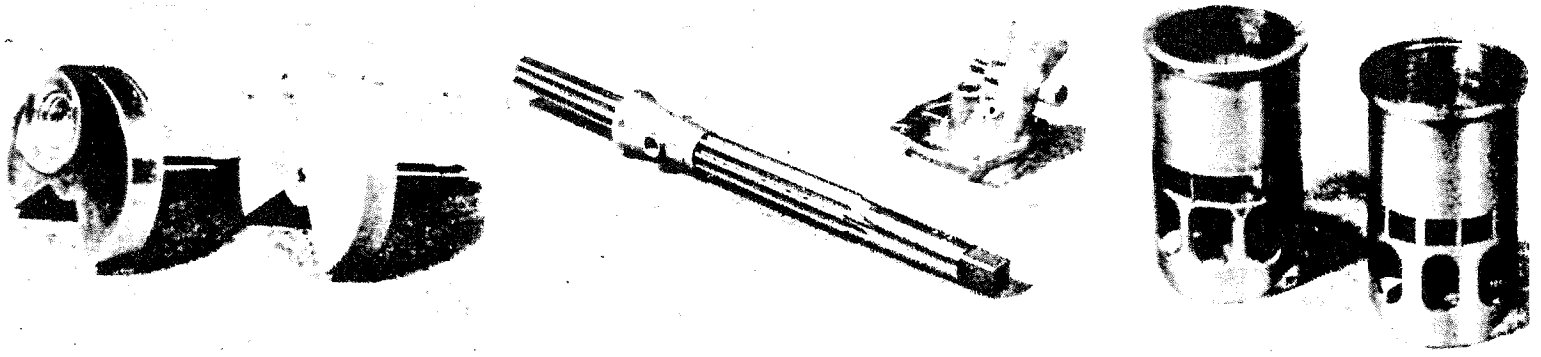
Have it apart yet? Periodically you should take pipe cleaners and wipe out all the boltholes in the pan. Pans are expensive and chips or dirt have a nasty habit of hastening thread stripping. Always use bolts with undamaged threads. Proper tools also should be used. And no gripping *engines, pans or such with a vise.* A vise is a fine thing to have around but do yourself a favor and use it only on really rugged items that can't be distorted, marred or thrown out of balance.

One more thing and we leave this subject of generalities. In running you may have had trouble with parts loosening due to vibration. This can cause a lot of damage. Allen bolts alleviate this greatly. They are hardened and can *really* be tightened and evenly too. Try to use fresh bolts and wrenches, though, for rounding of the wrench end and socket head will leave you with a hard-to-remove bolt. Okay, so now it looks like you're ready for the—

ENGINE

As the Offenhauser stands high and alone in big car racing, so does the Dooling .61 in today's competitive model car racing. Here you have a really precision piece of machinery. Filing, porting and those other old-style speed methods are not only of little use but can be downright damaging. For instance, weakness will result. A hard chrome liner that is round and straight with parts untouched is the main requirement. If you doubt your liner's trueness have someone measure it with a gun gauge. Piston clearance should be about .0025". Falling off of speed is generally traced to piston collapse. When the skirt is more than .001 inches out of round the piston must be replaced. For a bit extra *umph* out of that piston, radius the bipass baffle with a ball cutter

The author who has racked up five years' experience running model race cars, also put in three years of successful contest model plane flying. He presently holds the AMRCA Manufactured Proto Record at 144.46 mph set at the Bethlehem, Pa. track June 1953. The car was a Dooling 61-powered Dooling Arrow. This same car formerly held the International MRCA world's record and also was National Modified Manufactured Proto Champ '51 and '52. Mr. More covers the race car nationals in the current "Air Trails Model Annual."



Two rotors (left) illustrate graphically difference between a good one and a better one. One on right is stock; one at left is polished and relieved. Center pix: you bore out the venturi this far with #8 reamer. Backplate assembly shows plug in place on needle valve. At right: stock liner and a ported job. The stock one at far right is considered best by author.

in a hand grinder (or on a lathe using a post grinder), being very careful not to nick the "ears" on the piston top. Do *not* attempt to lighten or port the piston. Weight removed is negligible and only shortens the piston life with likelihood of skirt collapse.

Change rings when the ends become excessively rounded or surface is smooth (no grooves show). A larger I.D. venturi helps. Bore out standard one with numbered, tapered reamers until wall thickness at the mounting end is about 1/32" thick. Polish inside walls. Our club uses an even larger homemade venturi that increases speed even more. If you're using hot fuel (10 to 50% nitro) you can rid yourself of a big headache by throwing out that needle valve. The standard jet is just right for peaking at between 18 and 28 laps. Plug the hole where the valve was and forget about it. For added window dressing, relieve the outer rim of the rotary valve about .003" in the lathe, leaving a 1/16" seal at its face. This reduces oil drag. Set the rotor spacing at .005", never less. When the clearance increases to above .009" reset to .005", checking the shim for excess wear.

The front end should be exceptionally free so that the bob weight will drop and rock when the front end case alone is held between the fingers. Assemble all with care, making sure all 16 roller bearings are in place, and check compression ratio. Do this by turning over engine until the piston is at top dead center. Then count the number of drops of oil it takes until the oil is level with the top of the sparkplug hole. Pyroil A at or near 70° F.; 50 to 60 drops is good. A lesser number means the engine will be critical in operation and you'll burn and stick pistons. Any more than 60 means loss of volumetric efficiency. High and low compression heads are available, or if you desire have a bunch of brass gaskets turned out of .009" shim stock. Add or subtract these until you hit about the 55 drop mark. That about covers the engine room and the next logical step is—

IGNITION

To get the most power out of your fuel the engine must burn every bit of that which enters the combustion chamber—100% combustion can never be fully realized, but the hotter the spark the closer you get to complete efficiency. *Hot spark,* and you notice I emphasize hot, not only gives you more speed but saves you many sprints around the track.

Battery ignition is the old way. Most cars have it and many can't be converted to magneto. So if you must use batteries by far the most important part is the battery pack itself. Use only fresh batteries. Never apply heat longer than the minimum in soldering. Rosin core solder with high tin percentage and a hot iron do the best job. Put soldering paste on each end of every battery and pre-tin all connecting wires. A nine cell, 4½ volt pack is the maximum that can be used. By the way, it's amperage that counts in the spark department, not the volts. Connect the pack to the rest of the system with eyelets and screws. Trick jacks and connectors are unreliable.

In coils you have the Smith Firecracker (red plastic ends), Aero Quality, and the OK.

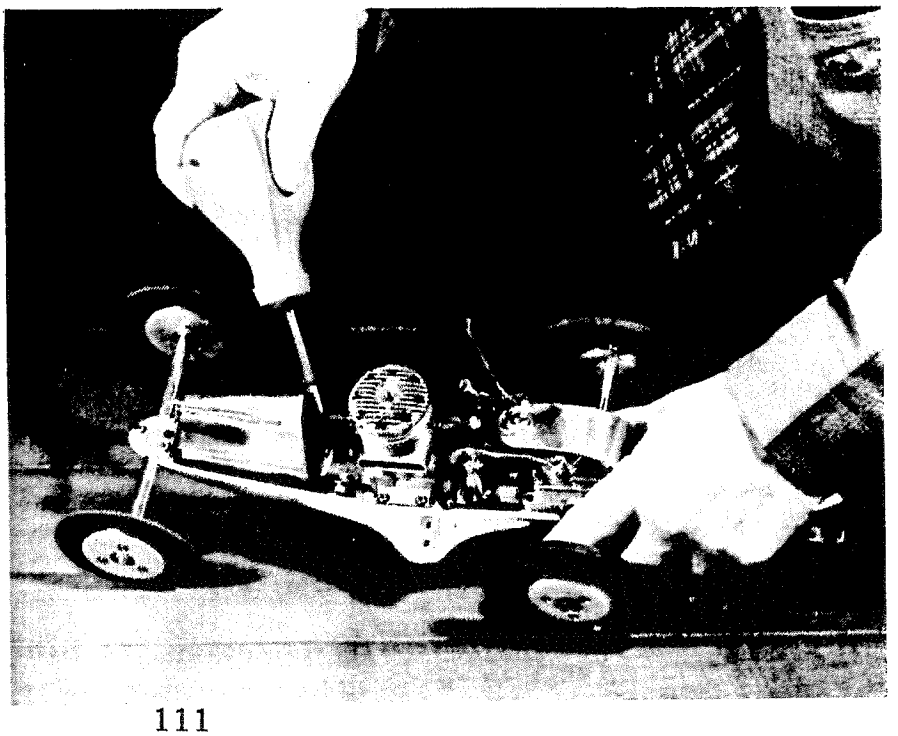
Not much can be said about condensers. Just check that the one you want to use is not shorted and that it is well sealed against oil. Never use a paper one. A large capacity Wico Automobile condenser is reliable and can just about be forgotten once installed. It is almost universally used on magneto-equipped cars.

Set the points at .006" and clean before every run.

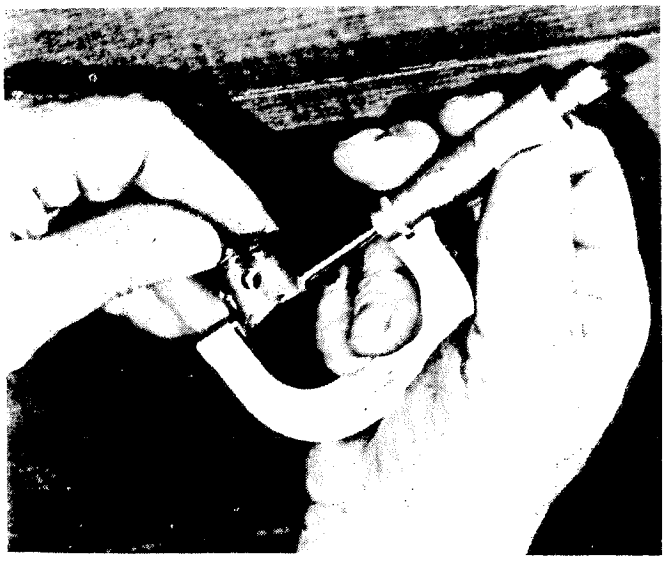
Magneto is by far the best type of ignition. Spark increases in intensity with rpm instead of decreasing as does battery ignition. Starting is easier and the replacement of batteries by a mag actually will increase the car's top speed by 2 or 3 mph.

The universally used Hornet magneto is set up in this manner: hook up your timing light. Adjust the flywheel so that just as one of the magnet retaining

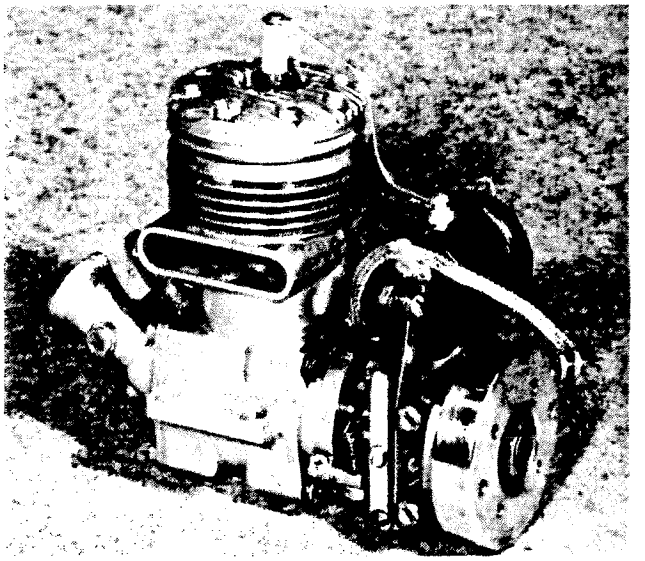
(Continued on page 112)



After each day's operation clean your car thoroughly with syringe bulb and cleaning fluid. Record-holder Bob gives some fine advice on just how important this is and proper steps to follow.



If car speed falls off "mike" piston skirt for collapse when changing rings. More than .001" out of round means she's shot.



Popular "power egg" for car racers: Dooling .61 cu. in. engine equipped with Hornet magneto. Note absence of needle valve.

shoe's leading edges lines up with the rivet that holds laminations together, the points break and the light goes out.

Test spark by running up your car without spark plug on a buffing wheel, using a screwdriver as the electrode.

If testing finds the spark to be weak, first reset the flywheel to the other pole (i.e., if S change to N), change the condenser, then the coil, then the points, or lastly have the magnets recharged. By testing and changing in that order you'll have found your trouble long before you get to the magnet recharging stage.

Using the timing light and a timing gauge set the timing at .190 to .195" ahead of top dead center. This is the best all around setting. Sometimes lowering it to .170" helps the car hold peak speed for six full laps.

That completes the power package and we must move back along the power train to the—

GEAR BOX AND TIRES

In setting up a gear box remember that vibration, friction and binding rob your engine of horsepower. As in a full-scale automobile, crankshaft-horsepower and rear wheel-horsepower are two very different things. Reducing those three things I have mentioned cuts mechanical loss and, thus, more thrust is delivered at the rear wheels driving the car forward faster.

Gears should mesh smoothly and appear to mesh accurately without much backlash. Endplay of the axle should be just enough so it can be felt. The axle *must* be straight, of course. Be very sure collars or retainers that hold the axle in the proper position are tight. If set screws are used to hold the axle, replace with new ones every time the rear end is dismantled. On my Arrow I dimple the axle a bit with a drill where one of the set screws bites into the axle. Why all the precautions? Well, if the axle shifts while the car is running a rapid extraction of every tooth on those gears will occur. Expensive and disgusting too, no?

The tire situation is a peculiar thing. Race car operators (big stuff or our models) are never satisfied with what's available. You hear the same gripes in sprint car pits as you do in model car pits. Throw treads, no life, no traction, and so on. Let's face it, fellows; we'll probably always be confronted by tire trouble. A revolutionary new tire would bring on higher speeds, greater centrifugal force and we're back where we started.

Currently, C. & R. Rubber Co. tires are the only ones available. Only those giving best speeds with a given gear ratio are listed:

Gear	*Tire No.*	*Quality of Rubber*	*Diam.*
1.5 bevel	#52	hard	3⅝"
1.75	#43	hard	4"
1.75 spur gear	#50, #49	hard	4"
1.84	#43	medium	4"

All with the exception of #48 spur tire are designed for use on 1⅜", Fairabend hub. #49 tire is designated for the C & R 1⅝" hub. Wedge type tires are designed for use on the Dooling hubs with lock rings. The Fairabend hub will give higher speed than the Dooling hub.

In general hard or medium-hard tires are best. Soft ones tend to flex and ripple at high speed, causing vibration. If you're experiencing difficulty holding the track (slipping), add up to 5 oz. of lead at the rear but as close to the rear axle as possible. The amount must be found through experimentation.

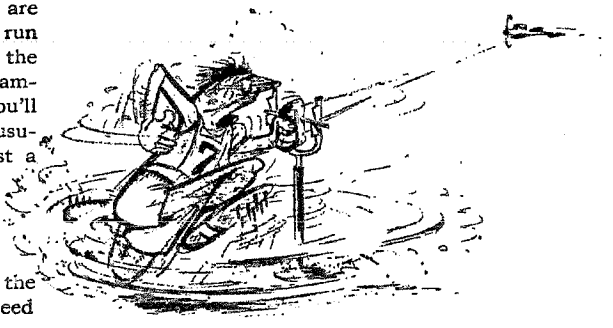
Caution—be sure all hub bolts are tight before running. After every run check the drive tires for cracks at the hub and discard tires that are so damaged. Ignore these warnings and you'll throw a tire. A thrown tire at best usually means a bent axle, and at worst a broken gear box or pan.

FEEDING

Like tires this can be one of the most perplexing problems in high-speed cars. Both are abstracts and cannot be positively measured or analyzed.

No two tanks give exactly the same type run or speed even though they may look alike. There are some excellent tanks on the market today—Fox, 1234, Dooling Arrow, and a few others. Good general dimensions for you guys with a pioneer spirit are: 3½" x 2½" x ⅝". Alter these to suit your car. Use at least .015" brass or tin and lap the ends to avoid leaks. As in any other part of the car vibration causes trouble. Mount your tank, whatever make, securely. If you aren't sure add another mount wherever you can.

There must be no leaks in the entire system. Change flexible tubing as possible. The shut-off system must be positive so that the air stream will not partly shut off fuel. Keep all air vents away from body parts to insure even positive pressure. If the engine runs too lean and quits, either increase the size of the air vent or move the tank to the inside (bridle side) about 1/16" or both. If the engine runs too rich move the tank to the outside a 1/16" or install a smaller jet. Hotter fuel or a larger venturi will lean it a bit too. The back end of the tank should always be swung to the outside ⅛". Try to adjust the fuel system so that the car peaks at 20 to 25 laps. A noticeable loss of speed will occur if the car peaks at say either 12 or 35 laps.



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Plane builder Jim Clem, engine expert Sam Beasley and contest flyer Dale Kirn tell you how to win and set records with jet powered M-Liner . . . fuel formulas are of particular interest here

By
CLEM-BEASLEY-KIRN

Kirn with record-breaking 166.60 mph Shock Wave at King Orange contest.

Mono-Line Control Record Jet Speedster—

166.60 mph SHOCK WAVE

■ Why aren't all jets fast? Time after time at contests you see the same flyers winning in jet. Most entrants' planes are usually of conventional and similar design, but the stop watch quickly separates the winning few from the also-rans. Just what is it that makes certain ones really go? We shall endeavor to bring you up to date with our findings.

This particular plane was the first Mono-Line jet we built as a team. Dale's last on-his-own plane was used as our basic outline. As you will note "Shock Wave" is fairly simple in design. A jet plane that is consistently a good flyer will often beat out the so-called "hot" ones. On its test flight it did over 150 mph on white gas. A little later we'll talk about fuels. If you haven't already suspected, there is something to it.

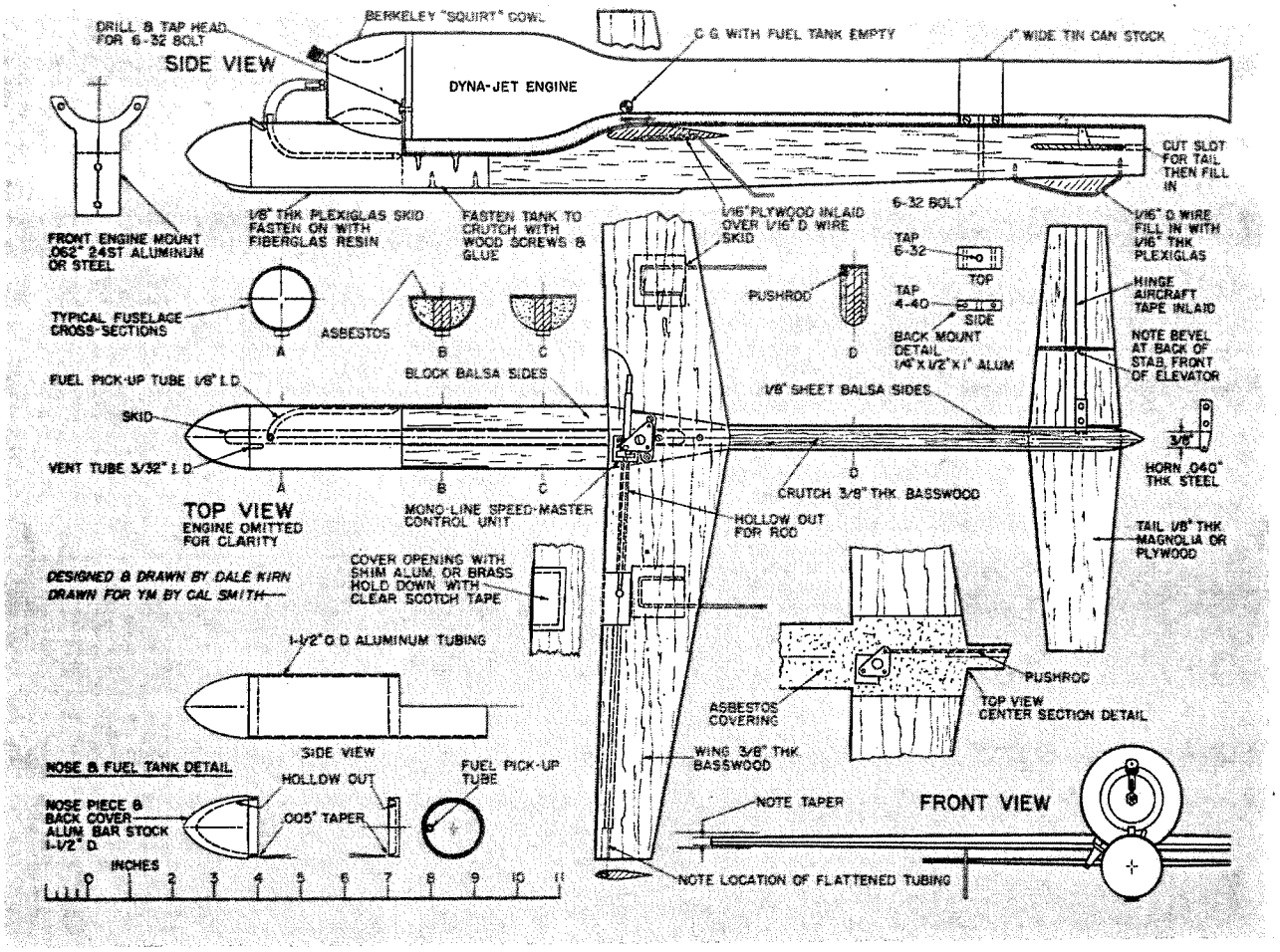
By switching to Mono-Line we picked up 10 mph and our planes were easier to fly. When installing a Mono-Line control unit more care must be used than when you put in a conventional bellcrank. The control system when hooked up *must* work freely. The old "Ah, it's good enough" attitude will only result in trouble. Main problem is the free hinge. Stiff hinges are a thing of the past if you intend on doing any Mono-Line flying.

Alignment of the line bearing in the wing tip with the control unit is also a very important factor. They must line up. If the line bearing is ahead or behind the unit it will bind when the plane is flying. Remember, the flying line goes to the back side of the bearing when forward motion occurs. If these factors are kept in mind during the construction stage you will be well rewarded.

One of the biggest problems of a jet ship is a good tank setup. Reason for a short tank is to get the fuel closer to the center of gravity. During flight (as the fuel is consumed) the balance change isn't as great as when the tank is way out in front. Plane must be balanced with tank empty to insure stable flying characteristics toward end of flight. First step in tank construction is to cut a piece of 1½" O.D. aluminum tubing to length. Tubing is overlapped onto the fuselage crutch for a more rigid mounting. Two wood screws (plus glue) hold it in place. Nose piece and back cover are machined out of aluminum bar stock. Allow a .005" taper on each piece so it will start into tubing. Press fit holds them in place. After nose piece is attached, install air vent and pick-up tubes. These are held with fiberglass resin. Be sure to rough up (with sandpaper) area that is to be fiberglassed on inside of tank. Pick-up tube is ⅛" I.D. and the air vent is 3/32" I.D.

Mounting of engine . . . first, turn down fins on head. Drill two No. 36 holes in the head and tap for 6x32 thread. Be careful not to drill through port openings. Mounting yoke is made out of 1/16" 24ST aluminum sheet. When bending tab be sure not to make a sharp bend as it will crack and break. A slight radius will eliminate this danger. Back hold down consists of 2 pieces. A ¼" x ½" x 1" aluminum block and a 1" wide strip of tin. Strip is held in place with four 4x40 studs. A 6x32 bolt holds the block to fuselage. Cowl is from a Squirt kit (Berkeley).

Fuselage crutch is made out of ⅜" sheet basswood. Cut to outline, then cut tail and wing locations. Fasten tank to crutch. When dry, glue balsa blocks



Full-size plans for C-B-K Shock Wave are available as Plan #1056A from Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (35c).

(fairings) into place. Add the ⅛" balsa sheet to the side opposite pushrod. Do not glue other side on until after controls are hooked up. Front Plexiglas skid is added. It is held in place with fiberglass resin. Engine mount is held onto fuselage with two wood screws. Drill hole for back hold down bolt.

Tail is made out of ⅛" sheet magnolia wood or plywood. Hinge is a strip of predoped aircraft tape. Both facing sides of elevator and stabilizer are beveled underneath hinge for freedom of movement. Cut control horn from .040 sheet steel. Fiberglass resin holds it to elevator.

Wing construction is quite different from conventional wings due to Mono-Line Speed-Master control unit. However you will find the wing stronger and easier to make using this system. Ample instructions for wing layout, mounting unit, etc., are included with each Stanzel control unit. (Note: the Jet control unit has bellcrank located on the top of unit.) Skids are imbedded on bottom side of the wing. They serve the purpose of keeping plane level during take-off, especially the inboard wing tip, and keep wing tops from getting chewed up. They are held in place with a small sheet of 1/16" plywood (inlaid). Wing is ready to glue into fuselage. As a safety measure two wood screws (plus glue) hold it in place.

Pushrod is cut to fit next. Be sure elevator is in neutral position before gluing tail permanently into fuselage. After control system is working properly the other ⅛" sheet balsa side of fuselage can be glued on. Hollow out a passageway for pushrod and make sure it doesn't bind anywhere.

durability reasons, it should be covered either with fiberglass or silk. Fiberglass is by far the stronger of the two. And it also makes a very smooth undercoat for the dope. Our ship was given 6 coats of yellow nitrate dope. Later it was wet sanded (#400) and rubbed down. Last step is to fasten the asbestos to the top of the fuselage and wing. Either fiberglass resin or water glass will do a satisfactory job. Weight of completed model should be from 24 to 27 ounces.

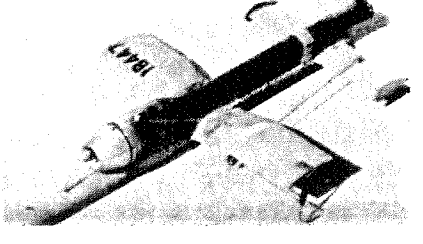
All Dyna-Jet engines require maintenance. There are four surfaces that must seal in order for your jet to put out its maximum power. They are: 1. Back of the head where the valves seat . . . this is the most important one. Remove valve retainer and check around each port opening to see if any pitting has occurred. If there is any, the head must be resurfaced. A small piece of ground glass and a sheet of #400 Wet-or-Dry sandpaper are all you need for this job. If the pits are quite deep, #320 sandpaper may be used first. 2. The small facing on the bottom of the valve retainer. Also check the retainer for any little nicks. 3. Facing on the front ring of the tail pipe. 4. Facing on back of slip ring (positioning ring). All of these surfaces may be refaced by the ground glass and sandpaper method. If all these parts seal properly your engine will be ready to start.

Now for the fuels . . . our flight of 166.60 mph was *not* set with straight white gas and a #4 metering jet. The fuel was 12% benzine (not nitro-benzine) and 88% white gas on a #3 metering jet. However, this is not an every-day fuel. Mixtures have to be tailored to the works one day will not necessarily work two days later. White or regular gas plus various additives will give you those extra mph you are looking for. (Note: Regular gas works fine in cold weather.)

There are several additives to choose from. Commercial diesel fuel, nitro-propane, commercial ether and benzine. In hot dry weather, ether (5 to 10%). Warm humid weather, benzine (10 to 15%). Cool humid weather, diesel fuel (15 to 25%) used with regular gas. The only way to cut out the guesswork is to keep a log book. Write down what fuel combination you used and the speed you turned. A humidity gauge is very helpful to determine just how much "additive" you can add. Work out these combinations before the contest.

You will note that we do not show a dolly. We always skid our entry off. There is an art to doing this. First thing to do is to *whip* the model into the air. If you ever give the model a chance to come in at you—it's usually curtains for the ship unless you are exceptionally fast with your footwork. Always take a jet off with *full* up. Remember, there is no torque problem with a jet.

External mounted Mono-Line jet '52 job.



With Joe Stanzel doing the holding, Dale Kirn demonstrates single-line VTO takeoff.

YOU ASK....THE EXPERTS ANSWER

Will Half-A Planes Perform on Single Line?

THE QUESTION: Asks Rod Saunders of Oklahoma City: "I read how single line control models walked off with all the national honors in speed flying. But how about the small slower-flying Half-A models? Can they be flown on a longer line than you use for the 'conventional' two-wire system?"

THE EXPERT ANSWER: To get the very latest on the Mono-Line (single-line) picture, "Young Men" put this question to Dale Kirn who is currently touring the country demonstrating the Stanzel single-wire control system for modelplane flying. Answered Mr. Kirn:

Mono-Line is really made to order for A/2's, as well as the other phases of control line flying. Two-wire Half-A flying, as a rule, is more often all work and no fun. By this I mean the flyer really gets a workout—running, whipping and trying to control his plane, all at the same time. And then, when he does get it operating properly, he's spinning like a top due to the fact that the lines are so short. On a model flown by Mono-Line Control these problems are eliminated. No more of this running around to get the lines tight. You see, with Mono-Line you always have control whether the line is tight or slack. And, you get the same amount of control with the line slack as you do when it is taut. How many planes have you cracked up due to "no control" when you needed it? Several, no doubt. This positive Mono-Line control narrows crack-ups down to "pilot error."

Yes, Mono-Line control enables you to fly on a longer line. On A/2, for instance, instead of 15- or 20-foot lines, you start out with a 40-foot line. At present I fly the A/2 Trainer on a line (.018" diam.) between 50 and 60 feet long. Remember, you are not dragging two wires around now. This one wire has less drag (air resistance) even though its actual diameter is a little more than that of one of the two wires of conventional flying. To the average A/2 flyer, a 50-foot control line sounds pretty long "and fantastic." Did to me at first, but not any more.

By flying on, say, a 50-foot line, it helps eliminate dizziness. This has always been a problem for beginners and has, no doubt, discouraged many potential modelers. On larger Mono-Line models (.19 powered) we fly on lines from 70 feet to 100 feet long. The plane is going a little faster than it would on two lines but it is further away from you, hence you do not turn around as fast as you did before. Result: you have time to enjoy flying your airplane.

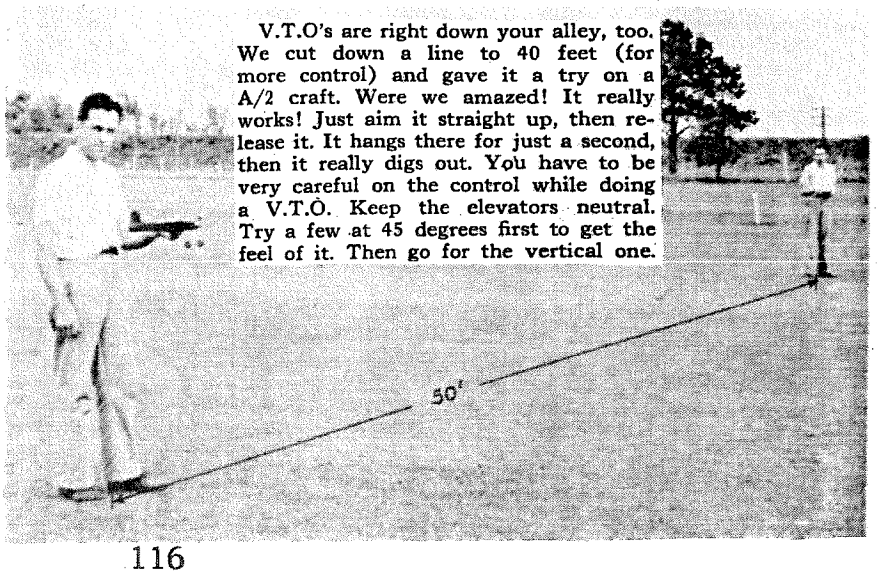
You are probably wondering just how fast the plane reacts to the controls—and, is there a "time lag" element involved? It's instantaneous, just as it is with two-wire (when lines are tight). The response (elevator action) is strictly a reflex deal. Move the actuator on the handle slow and the plane reacts slowly. Move it fast—it reacts fast. You see, there is no time element from the moment you apply control until it responds. There's one thing I'd like to stress. When you give your job control it reacts whether it is tight on the end of the line or not. Those who are used to having no control when their lines (two-wire system) are slack, will be in for a pleasant surprise.

Counterweight on the outboard wing tip is a "must." It shows its usefulness when you have a poor engine run by keeping the line tight, without your whipping action. And when you are flying in a wind, it really is a life saver as it prevents the model from turning in on you. Your elevator control is always positive even when line is slack; however, that is of no avail if model does a wing-over in at you. The amount of weight you use will depend upon the diameter and length of line you fly on. Inasmuch as half the weight of the line is being carried by the inboard wing, counterweight should be approximately one-half the weight of the control line.

Recently we flew two A/2 Trainers in the circle at the same time. Both planes were on 50 feet of line and no trouble was encountered. Had so much fun we filled 'em up and flew again and again. I feel it is easier to fly two Mono-Line ships in the same circle than two conventional control line craft, due to the fact that if the line does become slack, you don't have to run around your partner to regain control—you still have it. When the line is slack the plane continues to fly smoothly, since the elevators remain locked in position, whereas on a two-wire baby with slacked lines the elevators will flutter or flop. You know what follows—running, ducking (your fellow flyers) and hoping you'll make it in time.

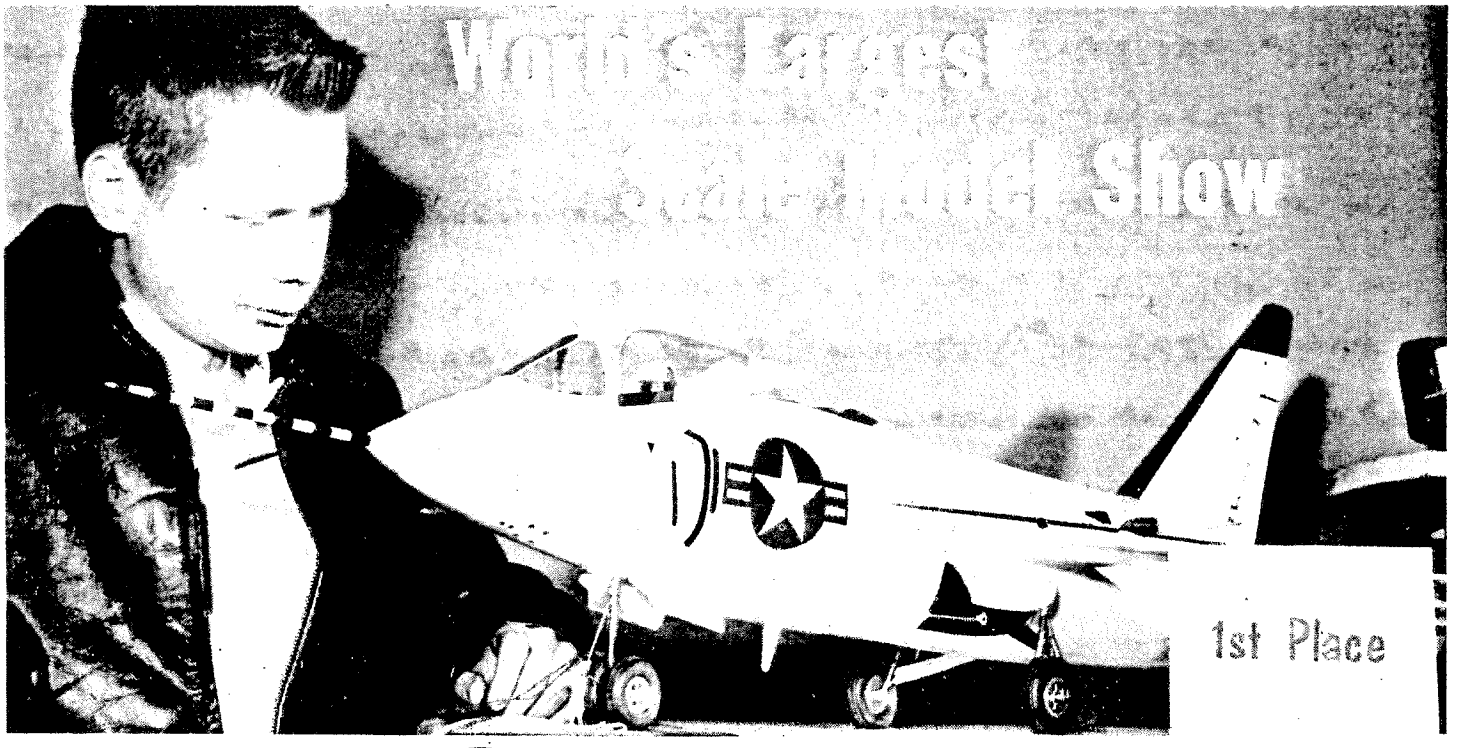
The smoothness of a plane like the small Trainer is downright amazing. Reason for this is that you don't use as much control as on two-wire models. Over-control can be dangerous, especially on a small job. On a Mono-Line A/2'er the control unit limits the elevator movement so as to give you about 10 degrees up and 10 degrees down. This doesn't sound like very much elevator movement, but remember you always have it. On Mono-Line stunt planes, using the special Mono-Line Stuntmaster control units, considerable more movement is used. But for sport and trainer Mono-Line flying a 10-degree travel is sufficient.

Half-A size models (those with powerplants under .050 cu. in.) can be flown on a single line from 40 to 60 feet in length, according to this month's expert, DK.



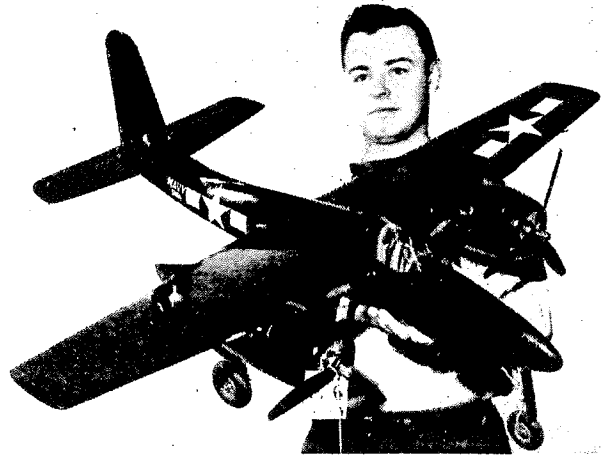
V.T.O's are right down your alley, too. We cut down a line to 40 feet (for more control) and gave it a try on a A/2 craft. Were we amazed! It really works! Just aim it straight up, then release it. It hangs there for just a second, then it really digs out. You have to be very careful on the control while doing a V.T.O. Keep the elevators neutral. Try a few at 45 degrees first to get the feel of it. Then go for the vertical one.

World's Largest Model Show



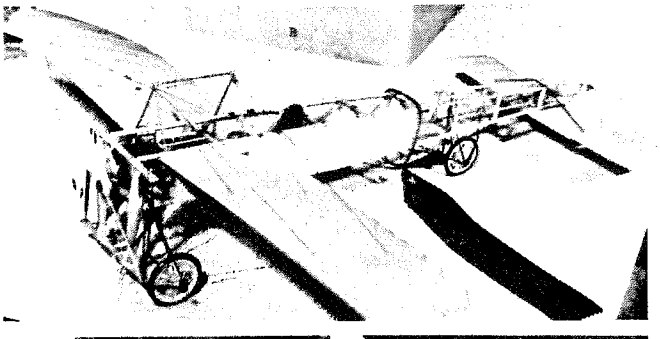
■ The country's biggest scale model craftsmanship contest for detailed replicas of full-size aircraft was a huge success in Cleveland where a tremendous fleet of 2500 models was entered in four plane-type divisions of the Ninth Annual National Model Plane Show. There were six age classes of entrants and 22 separate events. A crowd estimated at 30,000 persons attended the show over the two-day period. Sponsors were the Cleveland Chamber of Commerce and the Air Foundation. Categories of planes were: built-up scale, solid scale, powered-scale, and futuristic.

Shown (counterclockwise, from top) are some of the outstanding planes and entrants:



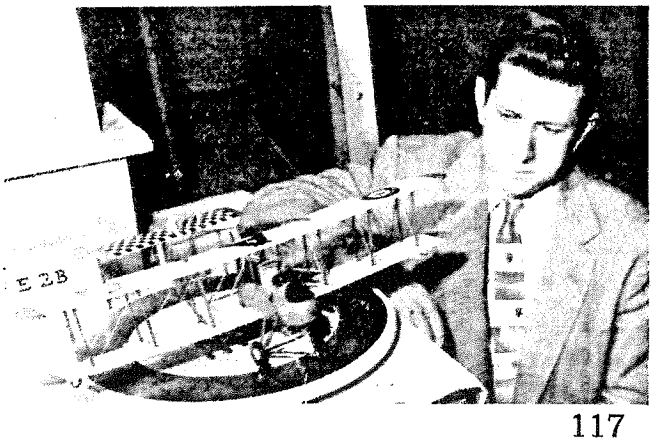
Grumann Tiger jet fighter with Dyna-Jet engine won first for Pete Allison, 14, in the 7th and 8th grade class for powered scale jobs.

Clarence Pick, 26, of Cleveland, had the slickest finish of any model entered on his Navy Grumman Tigercat and won Merit Finishing Co. trophy. The plane was third in the powered-scale open division.

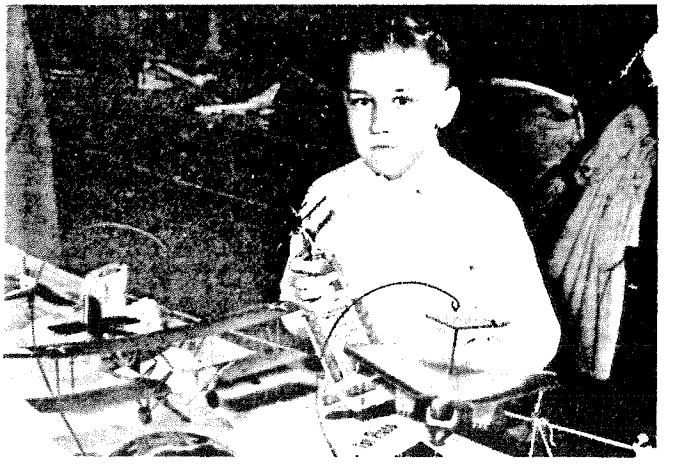


Dennis Ballash, 18, of South Euclid, O., won the Cleveland Women's Chapter National Aeronautic Assn. trophy for the best historical plane. His was this 1909 Bleriot, first to fly over the English Channel. The model was a marvel of workmanship, complete with turn-buckles, nuts and bolts.

Colorful detailed British FE-2B won open solid scale event for Ernest Vagi, Cleveland. It was mounted on British wing cockade insignia stand.

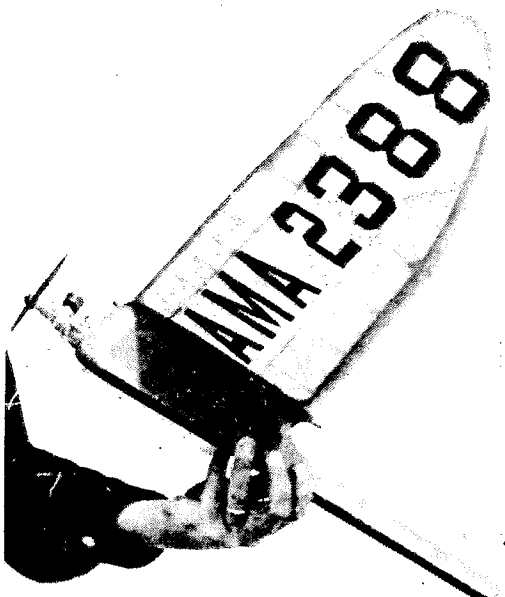


Dan Tracy, 10, of Lakewood, O., was high-point champion, winning firsts in futuristic and built-up scale for fifth and sixth graders. He used a 22-inch span replica of the Douglas World Cruiser complete with detailed Liberty engine and removable nose cowling to win in built-up. His futuristic model was a vertical take-off job fitted with atomic engines that swing from straight down-blast to rearward thrust. He received the Weatherhead Co. Trophy.



Bob Hunter's Styrofoam VTO Half-A

SATELLITE



Jennie Hunter with 8' span job.

■ In a constant effort to utilize all the power of current half A engines, modelers have tried every combination of size and weight to find a model which would offer a fast climb and a real floating glide, without the dire consequences resulting from a tricky small ship, or the dissatisfaction of an overweight behemoth. Styrofoam has provided the answer. It also has benefits which were totally unexpected.

For those who are not familiar with Styrofoam, it is a polysteyrene plastic manufactured by Dow Chemical Co. It has many commercial uses, from floral packaging to use as a filler in the wings of our fastest jets. It combines a weight of 29.32 ounces/cu. ft. with a tensile strength of nearly sixty-five pounds/sq. inch. Model cement melts Styrofoam to a small puddle, so water soluble glues are used as an adhesive for all planking. I use Wilhold White glue, a product of Acorn Adhesives Co.

Styrofoam may be obtained from your local plastics house or at almost any florist's shop, at one-sixth the price of balsa. Easily cut with band saw, jig saw, or even a sharp knife, an entire fuselage of many compound curves, can be sawed and sanded, ready for planking, in an hour. A simple box fuselage could be ready in ten minutes.

Interested? Right! After several tests on small pieces, a 1" x 6" x 36" piece of Styrofoam was obtained, and the Satellite was on its way. As work progressed, I found a feather weight fuselage resulting, which would stand terrific twist and strain, and even though covered with 1/32 and 1/64 balsa sheeting, had a smooth hard surface which would take a high gloss paint job without scalloping. Now, even more sure that an answer was near, completion of the wing and stab was rushed (for Sunday) and it certainly was no disappointment. Testing was soon completed, due to the stability resulting from the large area, and full power applied to the Holland Hornet. Easily as fast as any ship on the field, it pulled out into a tight left glide at the end of a smooth, open, power pattern and seemed to almost stop as though suspended.

Construction: With a ball point pen, draw the fuselage side profile on the Styrofoam and cut to shape. Using the ball point, scribe a center line from front to rear, top and bottom, and outline firewall, beam mounts, keel and fin. Cut slots for beam mounts, keel and fin, wing pegs as noted and install, using a smooth even coat of glue. It can be applied by fingers or a brush and will wash clean in tap water. After these installations are made, sanding may be completed, using cross sections on plan as a guide. I use 20 x 2" flat pine blocks with ½-60 3M Garnet paper attached by contact cement, for flat surfaces and straight sanding. One inch and ½" dowels with garnet serve as blocks for sanding compound curves.

Although the exact cross sections are not critical, maintain the wing and stab angles as specified. Plank the bottom first with 1/64" balsa sheet, lengthwise, and 1/32" sheet cross grain at the nose section and over firewall edge. In planking, cut sheet to approximate outline, and dampen outside of sheet with a damp cloth. Apply a film of glue to dry side, and set in place using straight pins where necessary. Allow to set a few minutes and trim edges to shape.

Now for the sides. If care is taken, both sides may be obtained from one 4" x 36" piece of 1/32. Place sheet against fuselage, press in gently at the rear of the pylon to fit the concave curve. Mark from opposite side with ball point, allowing some overlap as a margin of error. Cut and fit and make the other side from this pattern. Now, apply one side only, using same method as bottom and, since the balsa is wet, it will curve in two directions easily. Use masking tape to pull tightly into place and around edges, spiraling it down neatly. Let dry and remove tape. Sand edges from opposite side and apply other panel in same manner. Remove and glue residue on the outside with a damp cloth. Attach wing and stab platforms, sand, and apply gauze as specified, with several coats of cement. Attach V.T.O. peg and hold-down wire to fin. Finish with one coat of butyrate sanding sealer—Jap tissue—two coats of clear and one color dope, or three coats of clear dope. I use all-butyrate for its fuel proof qualities.

Wing and stab are of conventional construction. Use care in selecting wood, and a light, strong, structure will result.

Make a plywood template of the center ribs for both wing and stab. Utilizing the reference lines at the leading edges, move the template out, making one rib at a time. Keep the template leading edge always on the reference line and mark actual leading and trailing edges on the template at rib junctions. Cut two ribs of medium soft sheet at a time so that a matching set will be made. Mark correct depth of leading and trailing edges on each set and using the top of the ply template, cut camber from correct marks on template. This gives a wing and stab which taper correctly spanwise and in depth. Lay out leading, trailing edge, laminated tips, 1/16 bottom caps (wing only) and lower spars for wing and stab. As ribs are set in, cut spar slots for a close fit. Angle center rib of wing outwards 5 degrees at top for dihedral angle. Top spar cuts may be made now on inboard wing and stab, starting from center and laying in 3/32" spars as you go for alignment. Raise wing tip 15 degrees from outer dihedral joint with a ⅛" shim added at the trailing edge for washout. Install tip spars now in same manner as center and 1/16" anti-warp bracing. Join left panel, install center dihedral, blocking one tip up ten degrees at outer dihedral break. This gives 5° in each inboard panel.

When dry, remove wing and stab from plan, sand, install stab hooks of 1/32" wire, cover, using Jap tissue and three coats of clear butyrate dope.

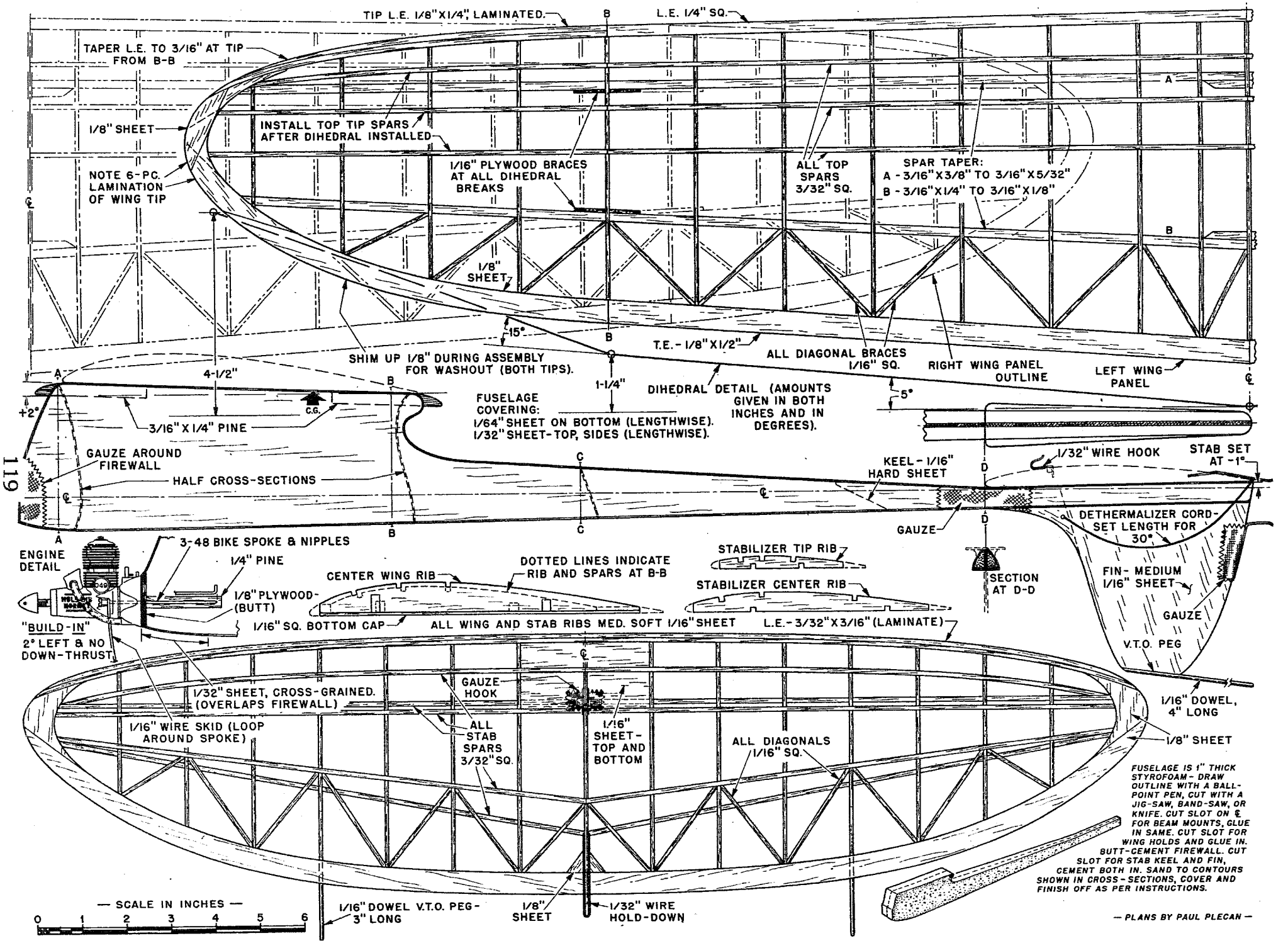
Attach V.T.O. pegs to stab, .040 to .625 wire landing skid, dethemalizer limit string, and don't forget the fuse!

Power pattern should be a wide open right spiral. Tilt stab for a left glide by shimming 1/32" full chord between stab and platform, on left, when viewed from rear. Spot glue shim in place.

Since the ½A Satellite was completed, a slightly larger version has been built (1300 sq. inch), using Styrofoam also, with 3/32" planking. Since then I found 1/16" planking would have given it all the rigidity necessary. This ship, powered by a Super Tigre "60" has a total lifting surface of 1840 sq. in., weight 70 oz. including a 9 oz. nose weight (because of the short nose moment).

Experiments toward Styrofoam-filled leading and trailing edges, box spars, and complete glider wings of extremely thin sections show great possibility.

Any correspondence along this line would be appreciated.


TIP L.E. 1/8"X1/4", LAMINATED.
L.E. 1/4" SQ.
TAPER L.E. TO 3/16" AT TIP FROM B-B
1/8" SHEET
INSTALL TOP TIP SPARS AFTER DIHEDRAL INSTALLED
NOTE 6-PC. LAMINATION OF WING TIP
1/16" PLYWOOD BRACES AT ALL DIHEDRAL BREAKS
ALL TOP SPARS 3/32" SQ.
SPAR TAPER:
A - 3/16"X3/8" TO 3/16"X5/32"
B - 3/16"X1/4" TO 3/16"X1/8"
1/8" SHEET
15°
T.E. - 1/8"X1/2"
ALL DIAGONAL BRACES 1/16" SQ.
RIGHT WING PANEL OUTLINE
LEFT WING PANEL
SHIM UP 1/8" DURING ASSEMBLY FOR WASHOUT (BOTH TIPS).
4-1/2"
1-1/4"
DIHEDRAL DETAIL (AMOUNTS GIVEN IN BOTH INCHES AND IN DEGREES).
5°
+2°
C.G.
3/16"X1/4" PINE
FUSELAGE COVERING:
1/64" SHEET ON BOTTOM (LENGTHWISE).
1/32" SHEET-TOP, SIDES (LENGTHWISE).
GAUZE AROUND FIREWALL
HALF CROSS-SECTIONS
KEEL - 1/16" HARD SHEET
1/32" WIRE HOOK
STAB SET AT -1°
GAUZE
SECTION AT D-D
DETHERMALIZER CORD - SET LENGTH FOR 30°
FIN - MEDIUM 1/16" SHEET
GAUZE
V.T.O. PEG
1/16" DOWEL, 4" LONG
1/8" SHEET
ENGINE DETAIL
3-48 BIKE SPOKE & NIPPLES
1/4" PINE
1/8" PLYWOOD - (BUTT)
"BUILD-IN" 2° LEFT & NO DOWN-THRUST
CENTER WING RIB
DOTTED LINES INDICATE RIB AND SPARS AT B-B
STABILIZER TIP RIB
STABILIZER CENTER RIB
1/16" SQ. BOTTOM CAP
ALL WING AND STAB RIBS MED. SOFT 1/16" SHEET
L.E. - 3/32"X3/16" (LAMINATE)
1/32" SHEET, CROSS-GRAINED. (OVERLAPS FIREWALL)
1/16" WIRE SKID (LOOP AROUND SPOKE)
GAUZE HOOK
ALL STAB SPARS 3/32" SQ.
1/16" SHEET - TOP AND BOTTOM
ALL DIAGONALS 1/16" SQ.
— SCALE IN INCHES —
0 1 2 3 4 5 6
1/16" DOWEL V.T.O. PEG - 3" LONG
1/8" SHEET
1/32" WIRE HOLD-DOWN
FUSELAGE IS 1" THICK STYROFOAM - DRAW OUTLINE WITH A BALL-POINT PEN, CUT WITH A JIG-SAW, BAND-SAW, OR KNIFE. CUT SLOT ON ℄ FOR BEAM MOUNTS, GLUE IN SAME. CUT SLOT FOR WING HOLDS AND GLUE IN. BUTT-CEMENT FIREWALL. CUT SLOT FOR STAB KEEL AND FIN, CEMENT BOTH IN. SAND TO CONTOURS SHOWN IN CROSS-SECTIONS, COVER AND FINISH OFF AS PER INSTRUCTIONS.
— PLANS BY PAUL PLECAN —

FREE FLIGHT NATIONALS

■ The West has its Freeways, the East its Turnpikes, and for many a modeler they all led to Willow Grove and the 57 Nationals.

Twelve hundred write-in entries, largest on record, started the affair. Later it topped 1,500 with 5.3 events per flyer! If you got there Sunday there was plenty of table space available in the huge work hangar. But just try to work. Someone shaking hands and howdying all the time. "You see the same old faces every year," says John (A.M. Camera) Schneider. "Why take new pictures?"

Lakehurst has blimps, balloon hangars and sea air. Tuesday it had indoor fliers, too. 160 feet of ceiling is not tops, but few were reaching it in HL Glider. Best times during the morning were Kintzele and Andrade with 1:02.8 and 1:03. Wondered about the 1:10 to 1:12 predicted. Rambo remarked, "Maybe we're getting old."

Well, about then this stringbean of a guy, 19-year-old Lee Hines, uncoils and slings 1:15. Next launch we all watch close. He takes a short run. The glider is spring-loaded in his fingers, grip on left side. On the last loping step that long arm moves forward, up, and out in an easy sweeping motion.

"Glidette" goes slick to the ceiling making barely a quarter turn before it rides out smooth on top. A slow large circle to the left. No one moves. The watches agree, 1:17. He throws again as everyone admires. 1:17.2, topping Degand's open record so long standing. Lowest of Lee's nine flights was 1:04. In open Bill Dunwoody led with 1:04.6.

Joe Bilgri had a big mike job, 200 square inches, 36-inch span, .040 ounces weight. On one 18-inch loop of .070 Pirelli with 2,000 turns he went up to 145 feet. Came down dead stick in 32:53. This would have been a new record except Ernie Kopecky of New Jersey had turned in 33:09.4 just two weeks before. Joe is ready to put in 100 more turns when the rain started. When it rains outside at Lakehurst Hangar #6, it also rains inside. Comes in windows at the top center. It was lightning, thunder and aqua for 1½ hours. Felt like a shower room. About this time a young sailor in whites comes up and explains that the place is air conditioned. All 1,200 feet of it. Seems they have to do it to keep the climate the same all the time for the blimps. "Real important," he said. "If the temperature goes up they rise, valve out helium. Deadly stuff. Kill you in seconds!"

Well, we decided this was a good time to cut-out for Willow Grove!

Wednesday was a good day weather wise. Early fliers got surprised though. Unlike other parts of the country downdrafts were numerous before 10 a.m. Linthicum and Ritz battled it out with long jobs in Unlimited Rubber . . . 75 and 76 inches fuselage length. Lots of holes in the sky. Best time was Bob Hatschek with 13:13.

B-C Gas was well populated and times were teriffic. The weather got better as the day went along. It took 3 maxes-plus to hit the top money. Jack Moreland, a senior, turned in 3 fivers plus 13:35. I wonder how he got it back? It took more than just good flights. You had to have an efficient retrieving system. Trees, houses, and black raspberries were the hazards (man, they were good). Best flying time was from 10:30 a.m. to 1:30 p.m.

A-1's were all over the place. Good

Quite some shindig that 1957 competition! Larry Conover provides this word and photo description of the big Willow Grove championships—the events with absolutely no strings attached (except in the case of those towline gliders!)

event. Aiglets (from England) apparently well liked. Top time was 13:12 via Merl Shammo.

Helicopter was about the same as last year. Par Schoenky had the most machines and turned in the largest number of flight points. Many have suggested something new is needed to give it a boost. How about adding some cash to stimulate interest, Stanley? Or perhaps a Flying Platform with which to chase models!

Thursday morning the flying site was moved twice because of wind shifts. ½A's were climbing up to become tiny specks, then falling back through descending air. Still took double maxes to place.

Nordic A-2 was a busy line. Picking out a thermal five times was a real challenge. No one did it. Those risers at Willow Grove were spotty and small at the 50 meter level. You had to launch before they breezed by or you missed. Higher up they got fat fast and many ships went out DT'd.

Darrell Dolgner demonstrated a unique chase method. He carries a break-apart Para Troop bicycle in the car trunk. Better than running on foot; he says, "Only way to retrieve."

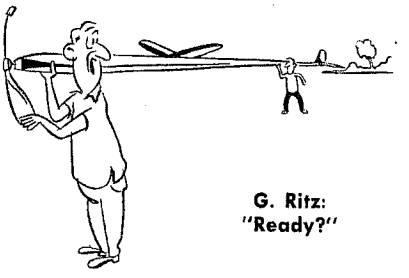
Later I heard about one of the disadvantages. Darrel is peddling like mad down this tree-lined road. He is looking back, trying to keep a lead on his Nordic. A low tree branch swats at him and he is all over the road for the next 100 feet. No sense of balance.

Don Gurnett is a sharp senior. Stated flying contests three years ago when 15. We've seen him do a lot of good glider flying, but nothing like the test tow he made early Nordic day. He has just launched by himself and is paying out the line like a U-Reely flier. The battle scarred Altair follows half way up. The runway comes up with car traffic like a Parkway at 4 p.m. Gurnett keeps plodding along, watching only the cars, paying out line. Finally threads his way through with his Altair on auto-pilot for a full minute. Clears cars, turns around, releases overhead. Just like kite flying!

Many International PAA models sported diesels, although Torps and O&S Max 15's were in the winner's circle. Eleven minutes top time in both age groups indicates how FAI Power may be with the new rules.

Friday was clear, thermal winds about 9:30. Calm periods off and on all day. HL Glider men had a deuce of a time finding thermals. Except for R. F. Tanner. After his second max he made *only* 2:41. With 12:41 he copped the Tulsa Glue Dobber's Cup. He got back all his gliders . . . and he doesn't use DT's. Must lead a good life.

The new Rocket Event was very popular. Many HL gliders with Jetex 50's stuck on top. The larger built up ships did better in the wind. Stayed in sight longer. Rocket models require a different design philosophy. Odd parts thrown together do not work too well. Lots of stability problems too. Saw three "150" deltas. Stable, fast.



G. Ritz: "Ready?"

A gas was a tournament of maxes. Six triple marks in Open, with a 15:00 fourth flight. If you missed one second off a max you were out. Fifth place was 21:00 minutes plus.

Gerry Ritz tells about his Hothead model they are following. Goes OOS straight up after 12 minutes. What do you do now? They went on ahead about five miles down wind. Sure enough, about twenty minutes later the model appeared. Poop-poop-poop, right down. He caught it!

The work hangar each night is a Mardi Gras of modelers, as colorful as their hand painted entries. Activity everywhere. Building, fixing. Serious discussions on aspect radio, subcritical Reynolds numbers, nitro content versus humidity, and a thousand R/C gimicks.

Late into what should be sleeping hours the atmosphere inside the hangar remains blue from the exhaust smoke of engines run outside the hanger . . . *just* outside, that is.

When you're in the sun all day you radiate heat all night, even after a shower. Who has time for that? The water fountain never seems close enough or wet enough (the Navy provided four of them). The hobby shop is always busy, with occasional cries of, "What, you don't have a left hind gasket for a Snanafrantz .60?"

Christine Zaic, Miss Jetco, made some interesting discoveries. "You know," she said, "These people are just remarkable. I saw a young lad buy one of our larger kits at the shop here. He was going to make it, all of it, right here. That's not all. He intends to fly it day after tomorrow! It's simply marvelous." (Nothing to it, Christine; Stan Stanwick once won a Nats free flight event with a model he'd built in half the previous evening!)

Saturday is a short day. Cut off at two in the afternoon for the Air Show. While most of the guys would prefer to fly models there's no doubt about it, the Blue Angels are terrific.

Windy and hot which helped ROW models get off the short pond. A number of ships skipped off the far shore on long takeoffs. Times were low. Quite windy, bad chase country, small forest lurked three minutes down wind.

Many used ping pong balls for rear floats. Ed Linthicum, Kirkwood Thermaleers, tries to buy some with his usual luck. Asks girl at hangar hobby shop. Reply is, "Never heard of them."

Goes to Post Exchange: "Sorry."

Tries nearby drugstore: "We don't sell such things."

Finally drives way into town. Next two hours best left untold. Returns and marches triumphant past hangar hobby shop, from which, sad to say, they are dispensing ping pong balls from the large box on the top shelf.

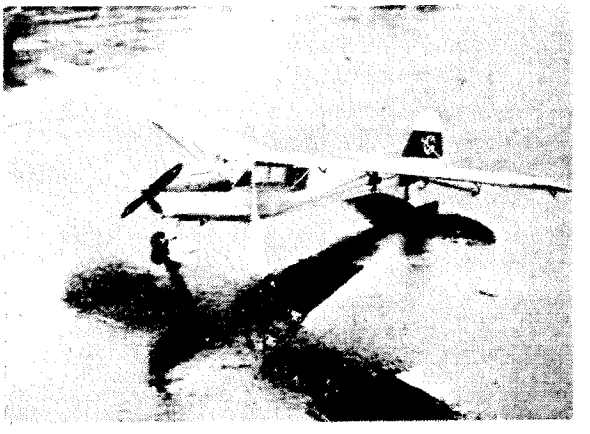
Wakefield is an expert's event, and the winners read like a Cranfield "Who's Who." All-maxes was a "must." Weather worsened toward the last as evidenced

(Continued on page 123)

From left: Dottie Conover & the delta shape in Rocket models; Dolgner & bike; science-teacher, modeler Clarence Mather.

James Lang from Canoga Park, Calif., had this somewhat different approach in Jet PAA-Load. Flew well, too.

Senior champ Don Gurnett with 1st place Lucky Lindy in FAI, Webra power. See next issue for LL plans by L.C.

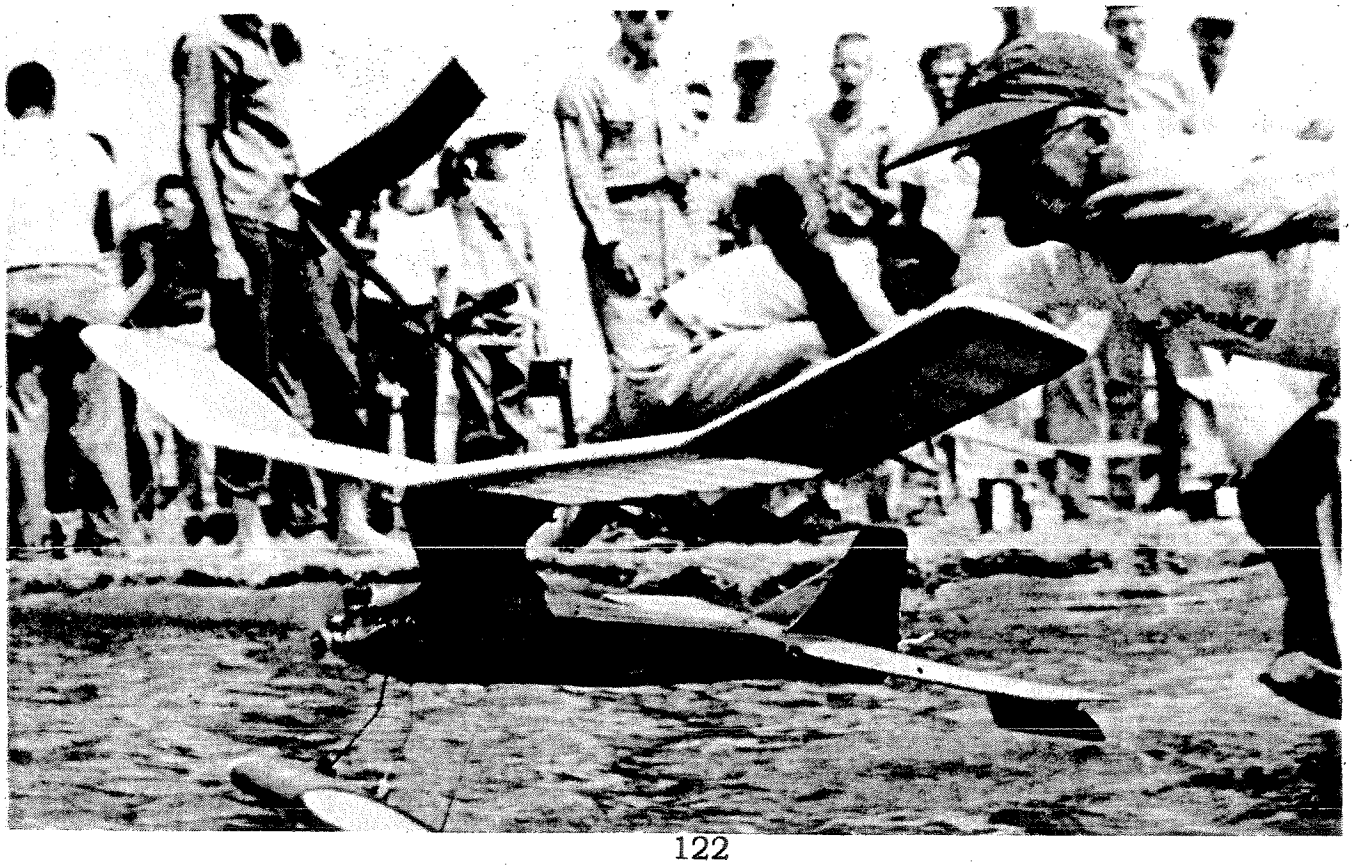


Lang's Fiesler Storch was 2nd FF scale; 50 in. folding wing; Taifun Hobby engine; shock gear.

"The" man in outdoor HL glider, R. F. Tanner of Memphis, turned in two maxes plus 3:41.1. Some fling!

Gerald Ritz claimed he stuck two standard Wakefields together to get this Unlimited rubber entry.

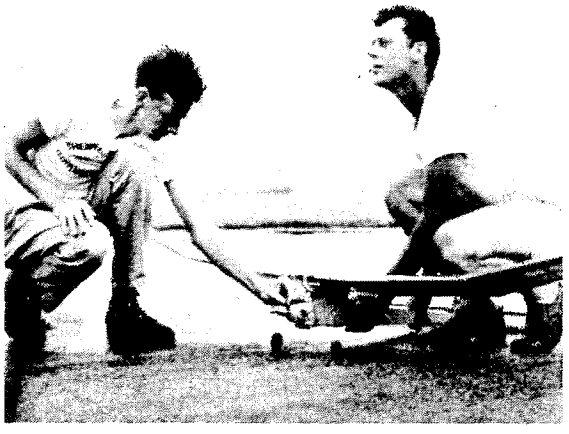
Zipper upped 1½ times by J. Humphreys of Canada had Super Tigre .60; 1,000 sq. in.; 104 oz. all-up.



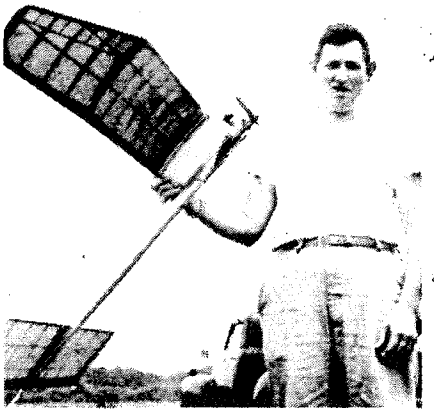
Carl Rambo looks like he's poking fun at Chi Prop Nutz job held by contest director Pete Sotich.

Carl Goldberg grins after his new "Blazer" flew so fast it lost tail surfaces in mid-air; no damage.

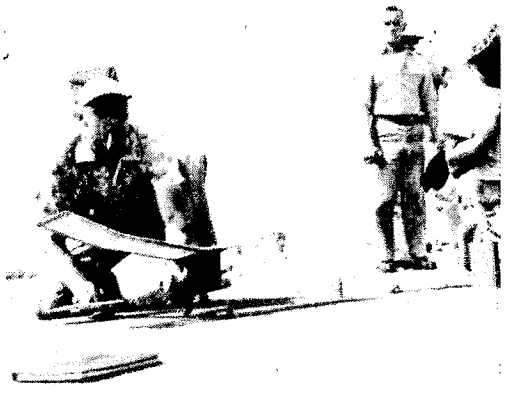
C.O. (the-model-builders'-delight) Wright from Topeka turned up with new 700 sq. in. Clipper Cargo entry.



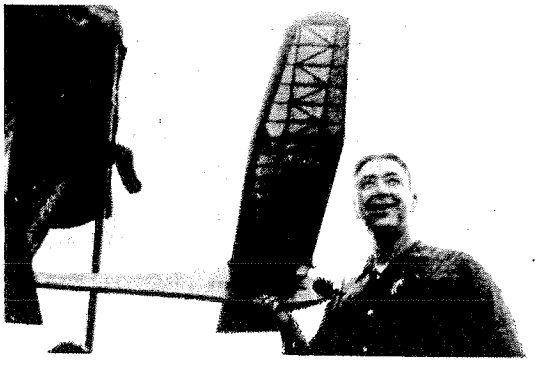
McDonnell engineer John Yardley has T.H. tuned by fellow Thermaleer. Cargo wheels fixed, axle turns.



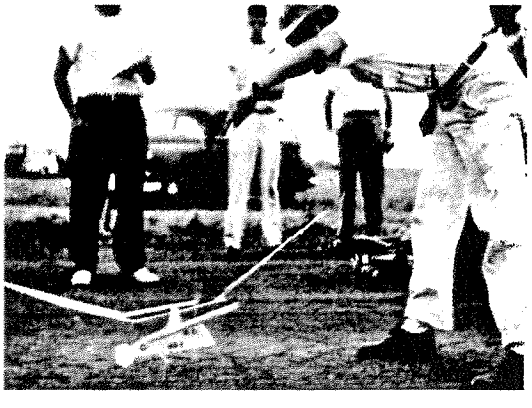
One of Frank Parmenter's many hot jobs. He flew as member of Brain-Busters. Note Southern drawl.



Buddies Dale Hindenberg (left) and Dutch Hess from DeKalb, Ill., with ½A versions of Dutch's design.



F. L. Swaney showed on FAI-day he had the touch. Below, Par Schoenky with rubber copter. Right, Max Ripken added Styrofoam to main float.



(Continued from page 121)

by only 2:54 for top man in flyoff.

The wind was hard on scale. Event director cut the required point flight time to 40 seconds. Some beautiful ships were roughed up. Jim Lang had large stable Fiesler Storch. Slots and flaps, 50-inch-span, 14 ounces, 1 cc Taifun Hobby engine. Remained whole.

Jr. Jet PAA had about ten entries last year. This time the usual Pan American success story, 54 fliers. Brent Hawkins wins again. Consistent. Gary Feekes, Cedar Rapids, Iowa, close behind flying a Blaster.

Sunday dawns a cloudy quiet day. Perfect weather for FAI Gas. No thermals, just nice light air. Everybody was making maxes. One mph wind drift. By 10 a.m. eight FAI'ers had joined the all-max club. In all 11 made it. Then it became a question of when to flyoff. Random flyoffs are not really what the name implies. That championship flavor is lacking. Most guys flew before the approaching storm. Frank Parmenter, BrainBuster from way back, had high time of 6:57, flying close to bad weather. Later they announced a half hour extension of the contest a la Payload flyers' requests. For FAI men who had already flown flyoff flights this was a subject for protest. And up comes good weather after the rain. Dan Sabola and others rightfully make good flyoff times, and nose out some of the early birds. What was this about "pleasing all the people, all of the time?" Thought for the day: one guy made five perfect flights and didn't even place in the first ten!

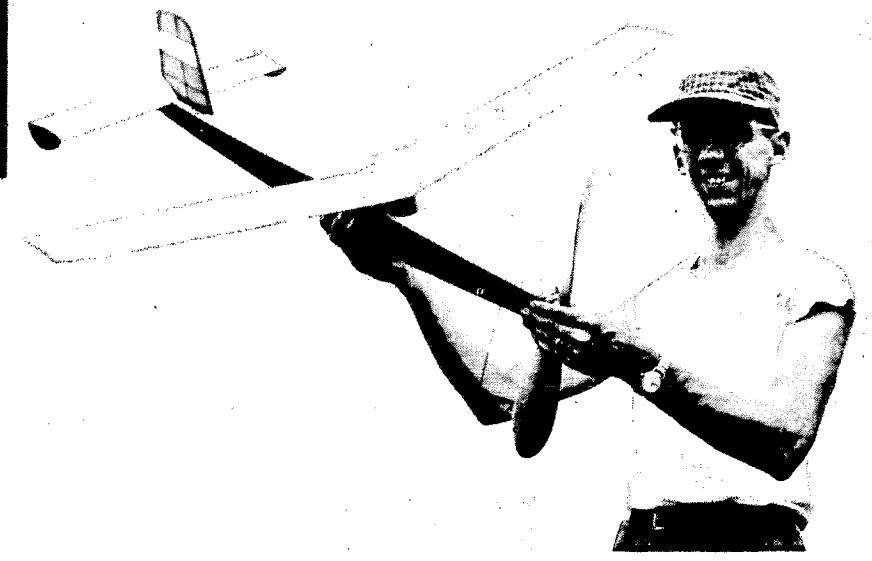
Jet Payload had a huge flight line waiting. ROG's through water puddles were spectacular. Jets hissing, blue rocket, smell of burned Guanadine Nitrate (Jetex fuel you know).

Just after the rain a real gentleman flier, Fred Pearce—white shirt, black tie and all—hangs into a low thermal and the Jet-Loader rides around for five minutes about 300 feet out. No one else could repeat. Times were quite good for near still air. First five in open were all over four minutes.

Cargo flying, they say, is tough and not a kids' game. Got to do it real scientific. So 17-year-old Don Gurnett brings home the PAA bacon with a total of 100 ounces. This is 33 ounces per flight; the ship carried more at home, but here Don is cautious. So what happened to the rest of the Cargo crowd? C. O. Wright had tough luck on a landing with his new 700-square-inch ship. Par Schoenky had engine trouble, as did many others in the 100% humidity. John Yardley was nosed out of second place by a mere ¾ ounce in Jim Scarborough's ship. Yardley had a very clever self-tracking gear with a rotating axle clean through. Woody Blanchard had wing breaking troubles. Jim Lang had just plain troubles. Conover was busy flying other events. Rain pools on the runway prevented some ROG's. At times 40 seconds can be hard to do!

See you in Chicago?

nats



■ Whether your interest is speed or duration, scale or original, free flight or control line, "indoors" or out, radio control or rise-off-water, there was plenty to keep you busy at the 26th running of America's modelplane championships, the annual Nationals (or "Nats").

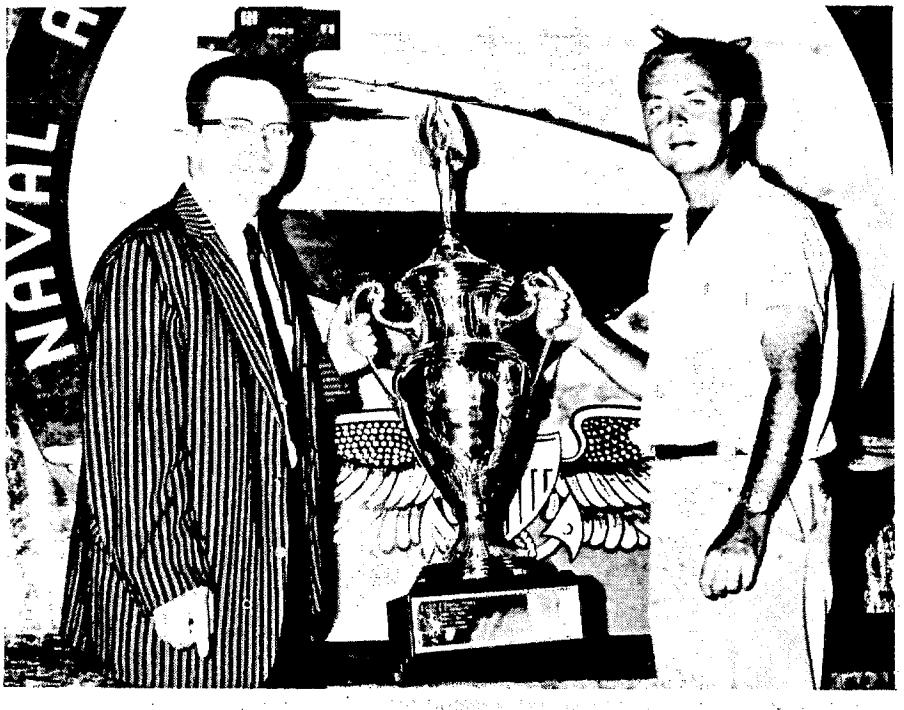
The skies above Willow Grove, Pa., were alive with models; the concrete runways of the Naval Air Station were covered with control line flyers, radio experts and free flighters by the hundreds.

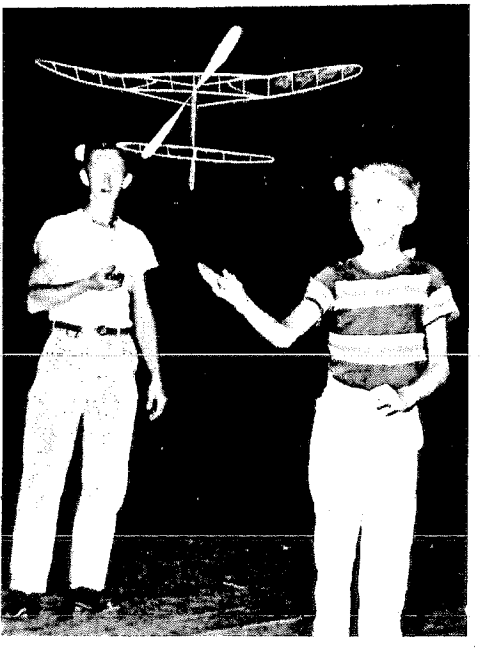
Now that you've met the new champs (on page 4) we want to show you some other contestants and their interesting craft.

Starting upper left and working our way around counter-clockwise we find first Don Mackenzie from Montreal, top man in the Wakefield flying. Don's total time of 17 minutes, 54.2 seconds was 80 seconds better than the next highest entrant, Dan Sobala of Massachusetts. Projected span on Don's Wakefield was 44", length was 38½", power was 12 strands of ¼ x 1/24 Pirelli rubber with 900 turns.

Accepting the Testor "Best Finish" award is Joseph Coles, Mt. Holly, N. J. Making the presentation is Frank "Stripes" Brophy of Testor's. In control line scale Joe placed fifth in the open age class.

High time in unlimited class for rubber powered models was hung up





pics

by Robert Hatschek of Douglaston, N. Y., with a total of 13 minutes, 13 seconds. Nearest contender was California's Joe Bilgri who had 8 seconds less.

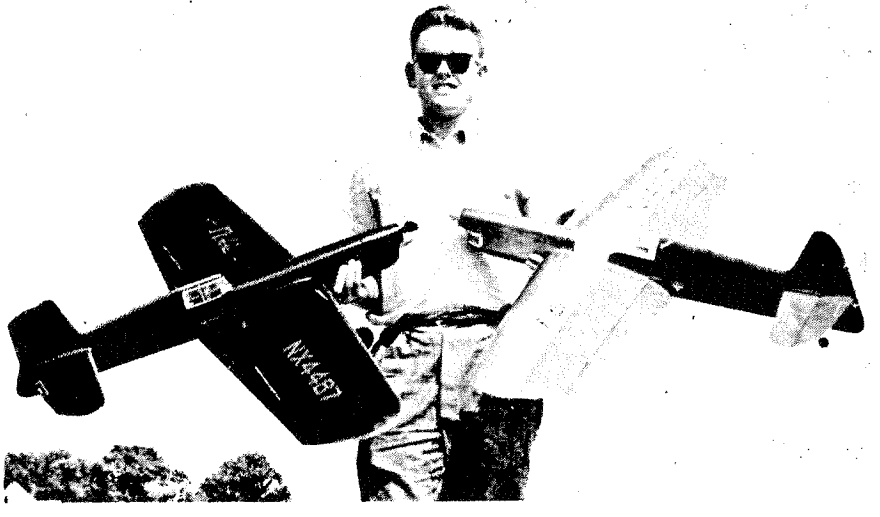
Contemplative take-off is that by Dan Lutz in the free flight scale contest. His Aeronca Sedan used a Sky Fury engine. Dan's from Hawthorne, Calif.

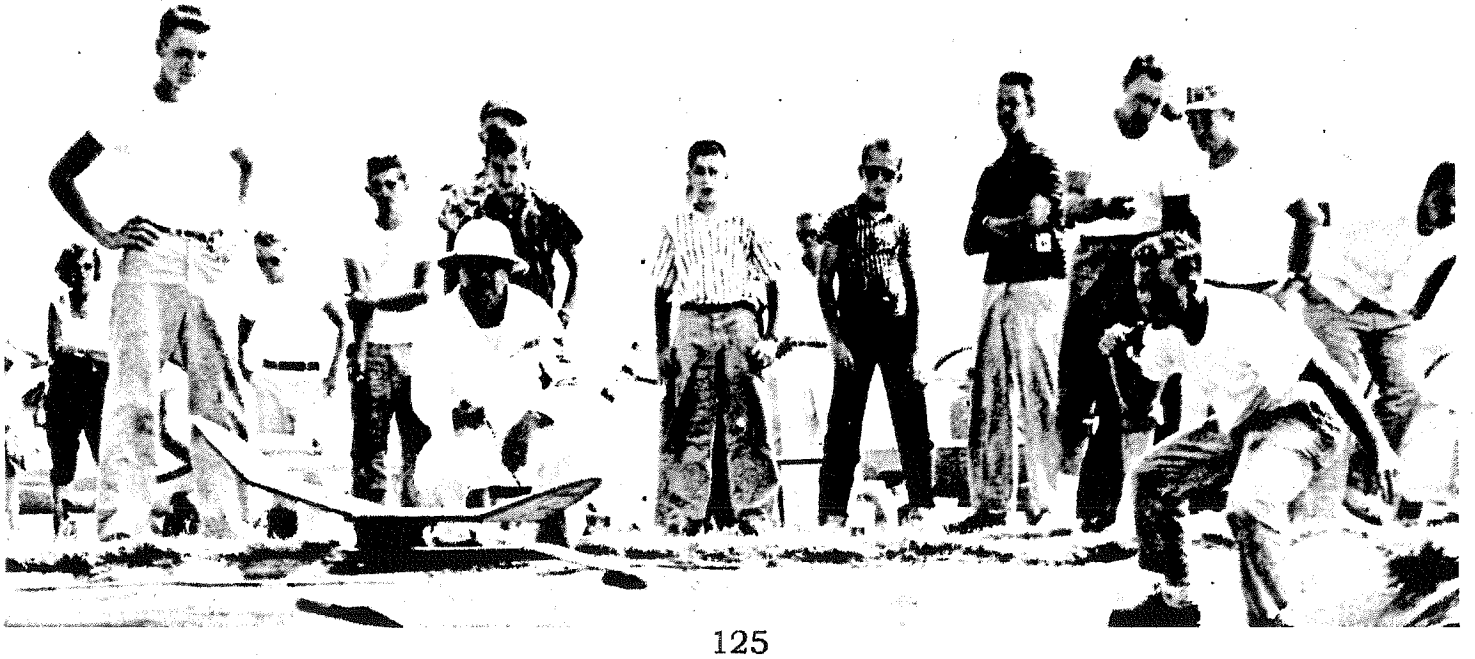
Wide-eyed launch by Stephen Stackhouse, 10, of Levittown, Pa., ended as a "first" in Junior age class indoor microfilm-covered stick model flying. Steve's time was 12 minutes, 8.8 seconds. He also placed 4th in indoor cabin and 2nd in indoor paper-covered stick. Quite a performer!

Best man in off-the-water competition, Robert Kleinfelder, Hamilton, Ohio, is seen launching his K&B .15-powered Comet Zipper. His total time of 12 minutes is a new national record.

Repeating a previous national victory, George Aldrich of Tyler, Texas, won top stunt honors with a score of 618 points. He's shown holding two Noblers; he flew the dark one which was powered by a Fox .35, weighed 46 oz., had 30 coats of dope over paper.

Polishing up his Vought Corsair is Michael Burke from Louisville, Ky. Mike was first in senior control line scale with this K&B .29-powered plane built from a Sterling kit.





National Championships . . . Radio Control

Best in multi-control flying at the 1957 National Championships was Bob Dunham (left) of Norwalk, Calif.

■ Top honors for size was taken by the week-long 1957 Nationals at Willow Grove, Pa., N.A.S., which drew the largest number of contestants ever. As expected R/C also had a record-size turnout, complicated this year by fact that there are two new events, Pylon and Scale.

Here are the main results and some comments on the R/C event; detailed coverage is planned for the forthcoming *Air Trails Model Annual*.

Radio got off to a sensational start before official flying opened, when R/C Event Director Verne Kroamer set a new World Record for straight line flight, piloting a scale model J-3 Piper Cub from Turner Airport to the Naval Air Station, a distance of 4½ miles (previous record held by Russians was 1.49 mi., set in 1956). Total weight of plane was 6 lb., 9¼ oz. with fuel,

After ROG takeoff, Kroamer "piloted" plane from an open convertible car, had to circle model over car at traffic lights and during other ground tieups. Flight checked for F.A.I. by Carl Wheeley.

Added Attraction. Since no test flying was allowed at Willow Grove, a regular "Little Nats" ran all week long at Kroamer's Airport, about 17 miles to the N.W.; here the "boys" who had trouble ironed out their bugs, or practiced for their contest attempts.

We believe that over 300 "entered" R/C, but as is usual case, many of these didn't actually try a flight; probably 125 signed up and did complete or make an attempt. With this huge number on flight list, contestants were lucky to get one flight per day. Nats R/C event is simply getting too big, and a meeting was held to try to get ideas for taking care of this huge growth; we'll have full info in later issues, as soon as ideas have jelled.

Flying this year was very good, and most top contestants in Multi tried every maneuvered in the book as 1957 saw first Nats use of ailerons, which enabled users to do fine rolls, Cuban eights etc. In other respects planes and equipment were much like 1956, but fliers had had more experience.

New rules worked out well generally, though there was some confusion in Rudder category (should entrants be allowed to use brakes, steerable wheels etc., a problem that is now before AMA Contest Board; it was ruled that *only* Rudder and engine control could be used in Rudder category at Nats). As in 1956, this magazine sponsored *two* sets of prizes in Rudder category—for Open and for Jr-Sr contestants—so that latter would not have to compete with the hotshots.

Who Won What. *Rudder Open* winners were 1) R. C. Allen (Apalachin N. Y.) 106.5 points; 2) Leon Shulman (Cranford N. J.) 106.5—tied for first, his second best flight was lower than Allen's; 3) Walter George (Wyandotte Mich.) 99.5.

Jr-Sr. Rudder: 1) Dick Bennett (South Bend Ind.) 80.5; 2) Frank Boykin (Richmond Va.) 64; 3) Jerry Nelson (Livermore Cal.) 56.

Intermediate was not too well patronized, but some good flying was seen; winners were: 1) Don Brown (Woodbury N. J.) 139 points; 2) Wm. Gilkey (Pitman N. J.) 84.5; 3) W. R. Davis Jr. (Newcastle Del.) 79.

Multi: 1) Bob Dunham (Norwalk Cal.) 266.5; 2) Harold deBolt (Williamsville N. Y.) 266; W. A. Good (Bethesda Md.) 265.5.

There were about 20 entries in *Scale* but only a few of them could get in a flight; winner George Kilbey (South Bend) totaled 102.5 points with his beautiful Waco biplane.

Not many entrants in *Pylon* event but tremendous interest shown and we predict this one will really grow. Some of the planes showed plenty of speed (especially the job flown by Jerry Nelson, which amazed pessimists who'd said it would be impossible to attain any sort of speed with planes built to the AMA engine and wing area restrictions of this event!) but lack of practice in this sort of flying was evident. Several modelers put smaller engine in their regular stunt planes to enter, did fairly well too, second and third place men J. W. Jones and Don Brown being among these.

Winner was Keith Storey (Pasadena Cal.); as might be expected from this charter member of F.A.S.T. club and long-time Team Race booster, he had a near-scale copy of Steve Whitman's "Bonzo" Goodyear racer. Plane has practically no dihedral but flew very

Keith Storey (left) past president of AMA, flew this pylon radio racer to first place at the Nats. Second in "multi" flying was taken at the Willow Grove competition by Harold deBolt (right, with pipe) of "dmeco" fame.

by Howard G. McEntee

Bob Dunham Tops in "Multi"
Dick Allen Wins Rudder

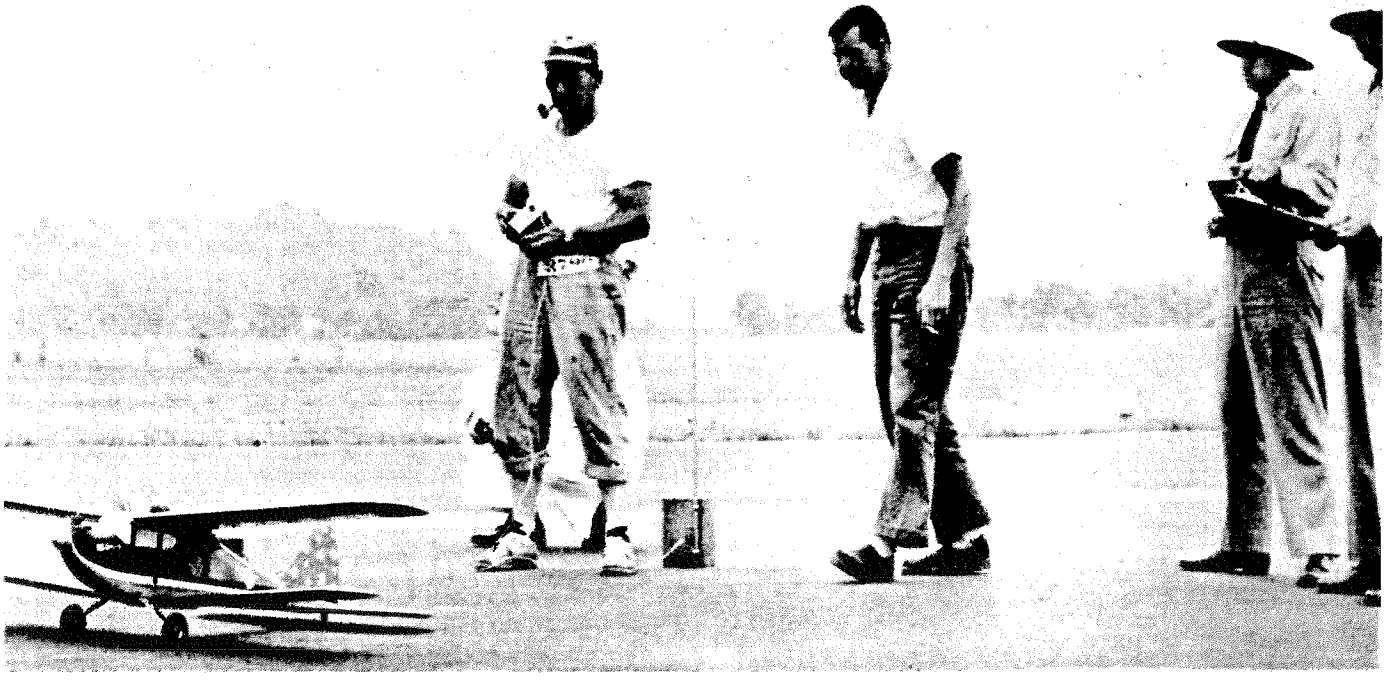
well indeed, should make some real times when Keith has had time for more pylon practice with it.

A considerable number of R/Cers left Willow Grove determined to start immediate construction of special Pylon plane; '58 running of this event should be something to behold!

F.A.I. Speed trials were run off at Kroamer's Airport, but some of the fastest planes, such as Dale Root's Ascender just wouldn't run right, so no record. Matter of fact, engine trouble seemed prevalent throughout meet; possibly the weather contributed, but necessity of very low idle speed to do ground work called for in new rules also is contributing factor.

All in all, '57 Nats R/C was about most interesting—and undoubtedly the most crowded—ever seen.

Winner of first Scale division in national radio contest was George Kilbey, Jr. (right) with his 6' span Waco F-3. At left, Howard McEntee admires 13-lb. bipe.



COMMERCIAL ITEMS. Line of battery cases by Acme Model Engineering Co. (4703 3rd Ave. Brooklyn 20, N. Y.) now includes 80 types! No hobby shop could be expected to carry them all, so if you want a case for a special job, ask your dealer to show you the latest list, or send to Acme for one.

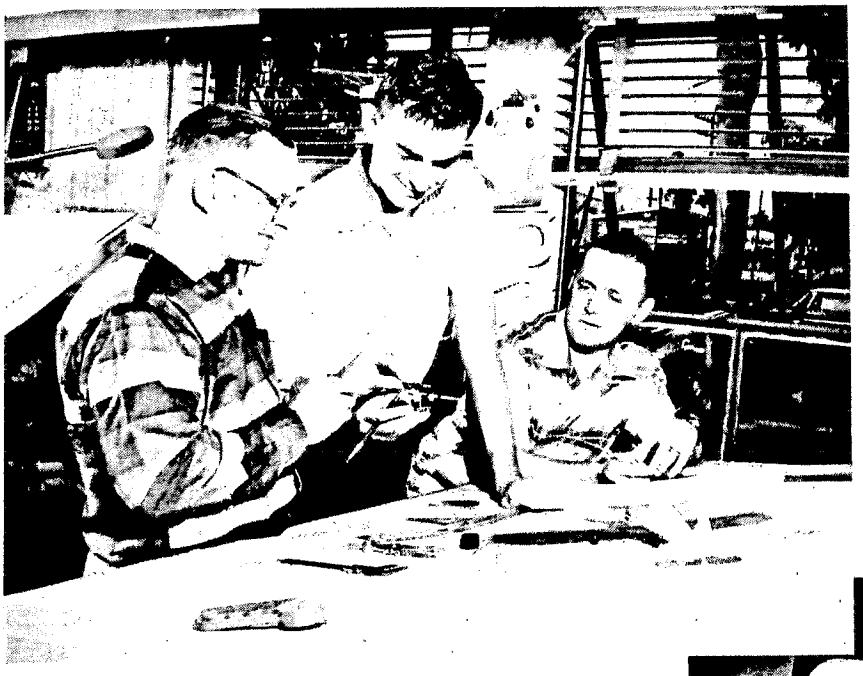
Relays for printed circuit use, as well as standard types, used in R/C, double and triple-pole types, SPDT units with insulated armature, illustrated in new folder from Jaidinger Mfg. Co., Inc. (1921 W. Hubbard St., Chicago 22, Ill.). Gives retail prices in coil resistances from 50 to 10,000 ohms.

New line of rechargeable storage cells will be marketed through all outlets for equipment of CG Electronics Corp. (Albuquerque N. M.). Type VO.5 is half AH 1⅝" dia x 5/16" thick weighing an ounce. Cell sealed in steel case, said to be rechargable 500 times. Can be charged indefinitely at about 40 ma (thus keeing it always fully charged) and can also be fast charged at higher rate; $1.95 cell produces about 1.2 V under load. Special holders will be available. Other sizes of nickle-cadmium cells also may be had from CG. It is not generally known that CG type RT-1 single channel AF tone receiver comes with either tube or transistor detector. If you buy the finished RT-1 you will get transistor front end, while the kit receiver has tube followed by transistors. Both work equally well; all-transistor job needs no A battery. CG 8-channel reed receiver is fully transistorized.

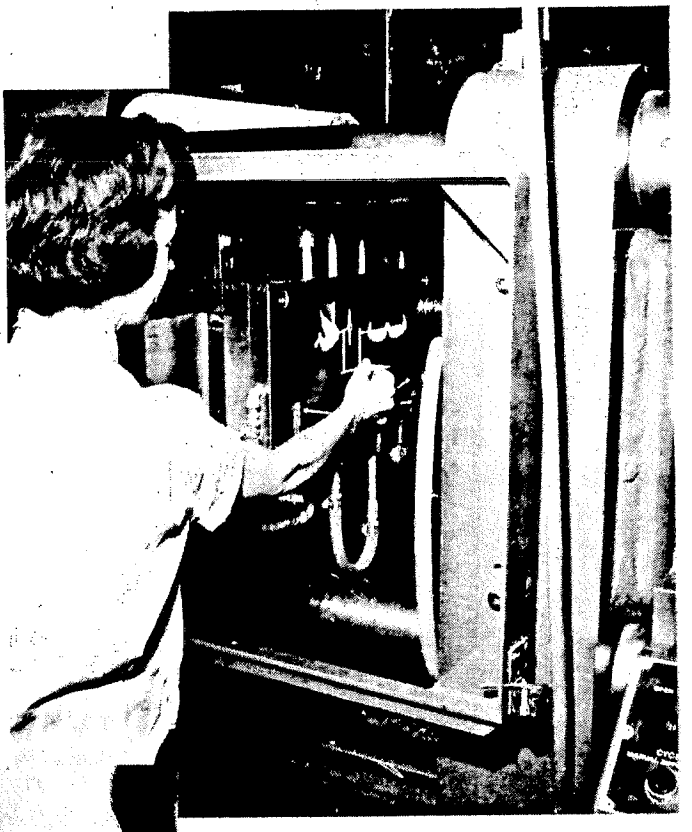
Readers have asked where they may obtain lightweight 4-position escapement. The efficient Good Bros. escapement may be had from Harry Geyer (81 W. Bruceton Rd., Pittsburgh 36, Pa.) for $9.50 postpaid. Weights ¾ oz., works on 3V at 200 ma drain; drain is put on battery only when escapement position is to be changed. No power is required to hold position. This is the original Good Bros. escapement with efficient 2-coil construction, suitable for rudder operation, motor control etc.

Made to fit inside Bramco 5 and 8 channel transmitters, type VSO1C vibrator power supply by ESSCO (58 Walker St., New York 13) has voltage regulator to hold steady output needed for reliable reed operation. Power supply and BB54 2V cell to run it both fit case. Regulated voltage output is 150, and current drain on battery is about 5 A, well within capabilities of BB54. Unit may be used with other makes of transmitters, will produce regulated 150 V at up to 30 ma. It will also put out unregulated 180 V at about 20 ma; 4¾" x 2½" x 4¾" high; ready to use, $14.95 less 2 V cell. ESSCO expects soon to have 4-tube superhet receiver, using either crystal or tunable oscillator; this type of receiver is extremely selective and sensitive.

New size of lead-acid storage cell being sold by Gyro Electronics Co. (325 Canal St. New York 13). In either 2 V or 6 V size, both being 25 AH; $3.95 and $7.96 respectively.

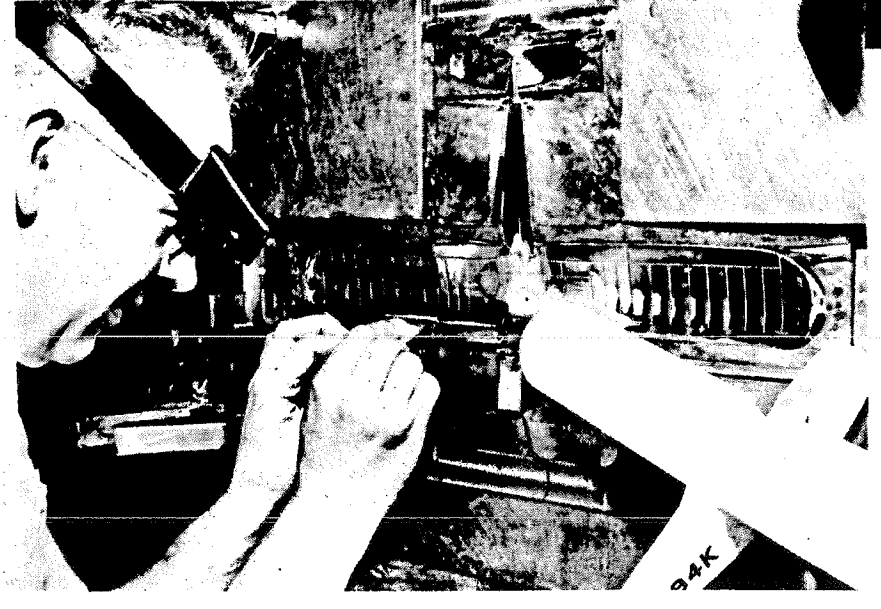


How long does it take you to turn out a new model? Days? Weeks? You might be surprised to learn that 18 months are required to develop a new ready-to-fly plane like the Thimble-Drome Piper Super Cub 105. Here, Roy Cox (far left) confers with his engineer and draftsman on new .02 cubic inch Pee Wee power plant. Roy usually test hops all new models; he's also a talented full scale pilot with his own Navion. Every 30 seconds, 24 hours a day, 7 days a week the molding machine below forms a set of elevators, rudder, struts and bellcrank for the "105".



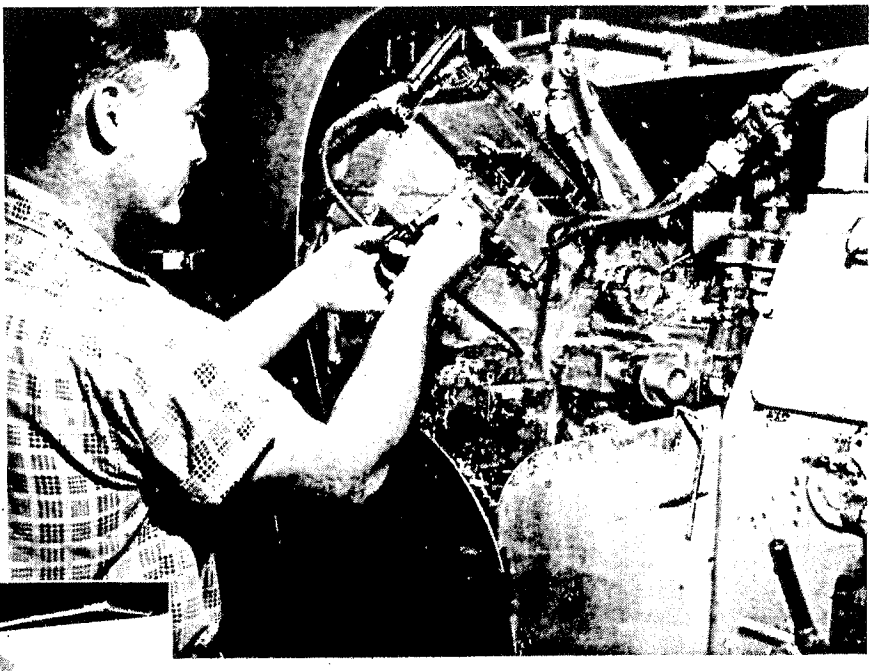
Where those planes and engines come from

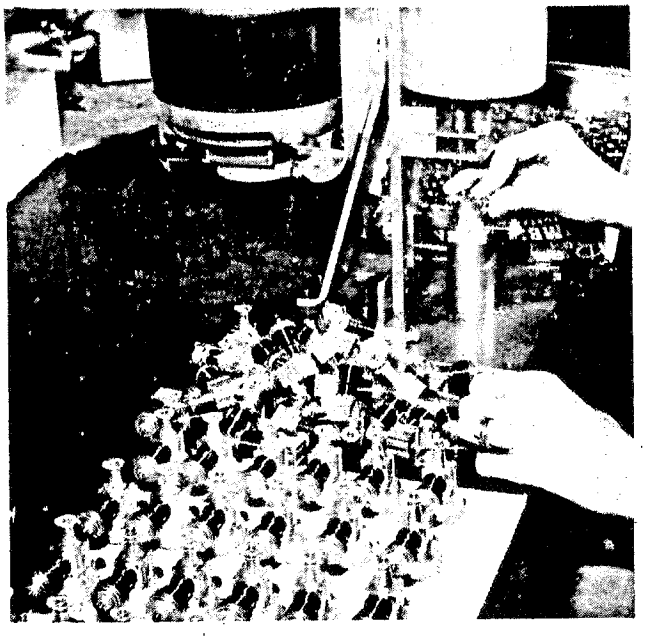
Prehistoric animal tracks? No, just the molds for Roy's latest plane



Looking much like prehistoric animal tracks you've seen preserved in stone is the imprint of the Cub's wing and fuselage. This 1½ ton steel mold receives final touch from skilled moldmaker. Weeks of cutting and polishing with gem-hard tools preceded this last step. Sometimes $50,000 may be spent before a mold is judged ready for work. In the case of the Super Cub, eight preliminary tests, involving mold and part changes and consuming four months were required. Injection molding machines are another expensive item costing upwards of thirty thousand dollars apiece.

How can a model engine be made to sell for $3.95 when the manufacturer receives less than half that sum? Ingenious manufacturing and rigorous cost control are two answers. The Cox concern utilizes 14 multiple screw machines (right). Parts are produced in a bath of oil to control temperature and eliminate friction. Up to 1,000 an hour come off these machines. In a temperature-humidity controlled room where the air is washed and filtered pistons and crankshafts are ground, cylinders inspected and honed. Tolerances of 7-millionths of an inch are the order of the day.





Special purpose machines eliminate costly time-consuming hand operations. Above, an automatic slide feed permits operator to fix a prop drive washer to crankcase housing with minimum of movements. Center right, machine tightens all four screws on a carburetor plate in a single movement with adjustable torque on each screw. Finally (right) plastic planes and Thimble-Drome engines meet on the assembly table. In foreground, spring starters are attached to power plants; in background, wheels and bellcranks are added. Maybe your workshop needs a turntable?

Record-holder Wisniewski with Class A "Pink Lady" (left). From top, Ladies are Class A, FAI and A/2. Full size plans for "A" version is on Group Plan #858 from Hobby Helpers (75c).

Bill Wisniewski's remarkable record-holding Pink Ladies

■ The "Pink Ladies" have quite a history. The class "A" model detailed here has won every contest it has entered . . . with speeds varying from 138 to 154 mph. It has held the A.M.A. record for class "A" since 1955. The first record was set at 141.40 that year at the Nationals held at Los Alamitos. This mark was upped to 145.10 during the California State Championships at Santa Ana in 1956. Shortly after the State Championships I went to the Nationals at Dallas and raised the record again.

Latest achievement was during the 1957 Nationals at Willow Grove, when the little beasts turned 154.58 mph. (An interesting note is that the 1956 record was broken three times at the 1957 Nationals by three different people, Nick Sher, Arnold Nelson, and myself.) I have used the same airplane since 1955 and it is still in good shape, picking up speed all the time. Pink Lady "A" has been clocked unofficially over 157 mph.

I don't know exactly what is making the airplane go as fast as it is, unless it is a combination of Mono-Line control, airplane design, and fuel. The engine is the same old Torpedo 19 that has been so successful in the past. Reworked just like the article in June, 1957 *American Modeler*. The fuel also is the same as in that article.

Mono-Line is one of the greatest advances in speed flying. The models seem to trim out better. The reduction in drag is quite evident. Speeds have gone up at least 10 mph in all classes because of the switch to Mono-Line.

Assuming you have mastered the Mono-Line control you must learn to get around the pylon. The best way to do this is through practice. Always fly from a pylon when testing your airplane and you will soon learn how to keep from stumbling.

You should also have a reliable take-off system, either a dolly or hand launch. I prefer a dolly. A good one is sketched. The airplane should bind a little on the two prongs going into the pan. This will assure a take off without jumping the dolly.

Your helper or your mechanic is very important. Pick an interested modeler to help (not necessarily experienced as he can learn along with you). Learn to be familiar with the sound of a rich or lean mixture in a running engine. Reworked engines combined with hot fuels should be set rich on take off. Just how rich will have to be determined by trial and error. Always let your helper set the needle valve to become familiar with the sound. Since (unless you have unusually long arms) you cannot change the setting from the pylon.

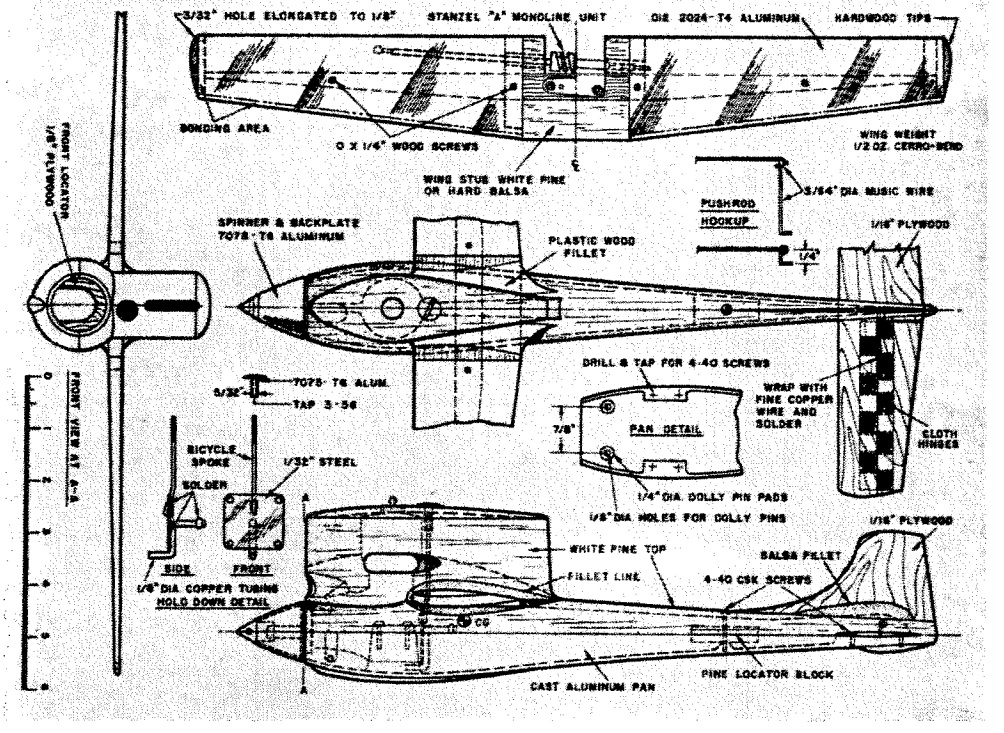
Making the pattern for the pan is simple. First select two blocks of white pine or basswood 1" x 2" x 14". Install wood screws about ½" from the ends to hold the blocks together. Turn fuselage on a lathe or carve by hand to the shape shown. Leave it approximately 1/16" heavy all over. Take apart and hollow one half to approximately ⅛" thickness except where stab bolts on. Leave this part solid. This half will be the pattern for your pan. Carve blocks for the motor mount pads allowing approximately 7° draft angle and cement in place. This enables the pattern to be lifted from the mold without breaking it. Taper ¼" dowels for the dolly pin supports and cement in place. Also cement a small piece of ¼" dowel for rear hold down bolt. Pan pattern should be smooth finished by applying 4 or 5 coats of sanding sealer, sanding between coats.

Finish with coat of lacquer or dope. Have your local foundry cast your pattern in aluminum or magnesium. If you can't find facilities for having them cast write to me at the following address: 4261 Petaluma Avenue, Lakewood, California. I can supply you with a pan at nominal cost.

Construction of the airplane itself is fairly easy. Sand the top of the pan to make it flat. Drill and tap for the engine. File the pan to 3/32" thickness and file the front to fit the spinner—which can be machined from bar aluminum or cut down from a 1¾" Froom spinner.

Cut out the other half of the turned fuselage to fit over the engine. Spot cement the fuselage top to the pan. After the cement has dried carve and sand the top to fit the bottom and spinner as it was left oversize when turned. Remove top from pan and hollow to ⅛" thickness.

Next comes the wing. Select a straight grained piece of hickory for the spar. Cut to the dimensions shown. Two pieces of white pine make up the wing stub. Cement the aft end of wing stub to spar permanently. Spot cement the forward end of stub. Cut out the fuselage to take the wing. Lay wing on the fuselage and mark where fuselage joins the wing. File the airfoil shape in the wing stub except where the wing joins the fuselage. That part is left flat. No incidence is used. The wing panels are made as follows: Lay out wing pattern on .012 2024-T4 aluminum. Bend in center on a brake or



over a straightedge to a 30° angle. Form the airfoil by hand. Make wing tips from hardwood. Sand areas to be bonded with coarse sandpaper. Clean with acetone or Methyl-Ethyl Ketone. Apply a coat of cement (Acorn #177 or brake bonding cement) to each surface. Allow to dry to an aggressive tackiness. Clamp trailing edge together with wing tip in place. Clamp only 1/16" of trailing edge. Otherwise the airfoil will flatten out. Note that the tips are washed out slightly. Bake in an oven at 275° for 3 hours. Notch the wing stub and file spar to slip inside the wing panels for positioning. Mark area to clear Mono-Line unit. Remove forward end of wing stub and cut to clear Mono-Line unit. Install Mono-Line unit on spar (note the angle). Drill hole to clear stem of Mono-Line unit to allow free movement in inboard side of forward wing stub. Cut outboard side of forward wing stub to clear other end of Mono-Line unit. Cement both pieces in place permanently. Pour ½ oz. of melted "cerro-bend" into outboard wing panel and slip panel into place over spar and stub. Cerro-bend is a low melting point alloy used to bend tubing. This might be of interest to you tricksters. It is also used to make those spoons that melt in hot coffee. If cerro-bend hardens before you get the panel positioned simply hold wing over the gas or electric burner of your stove until the cerro-bend melts. Drill a 3/32" hole in tip of inboard wing panel and elongate to ⅛". The aft side of hole should be in line with stem of Mono-Line unit to assure no-bind operation. Drill two 1/16" holes in each wing panel and 1/16" into spar in position shown on plans to take #0 x ¼ wood screws. Cement wing in place on fuselage.

Cowl is made from a block of balsa wood 1½" x 4¾" x 1⅞". Drill a 1-5/32" diameter hole for cylinder. Carve the outline leaving 1/32" wall at the hole. Carve to fit over the exhaust stack and to fit fuselage. Cut off top of cowl to allow 3/32" of the cylinder head to stick thru when fuselage top and cowl are positioned on the pan over the engine. Carve the baffles to the outline and depth shown on the plans. Make the top from a piece of hardwood. Carve to clear cylinder head. Drill a ⅜" hole to clear glow plug. Coat inside of cowl with a heat resistant paint or fiberglass resin. Sand smooth. Cement the top on the cowl. Do not cement the cowl on the fuselage at this time.

Make the rudder from 1/16" plywood. Sand to a symmetrical airfoil. Cut out to clear pushrod and control horn as shown. Slot the rear of the fuselage to take the rudder. Cement the rudder in place. No offset on rudder. Cement 1/16" balsa covers over clearance cutout in rudder.

Stabilizer is made from 1/16" plywood. Mark area where stab is to set on pan. Sand to a symmetrical airfoil except where stab rests on the pan. Leave this area flat. Cut the elevator from the stab and sand the cut edges smooth. Cut a slot in the stab to clear the control horn. Make the control horn from 3/64 music wire. The height of the control horn is critical. It should be ¼" plus or minus 1/32". If it is too long there will not be enough control. If it is too short there will be too much control. Notch the elevator to take the control horn wire. Install the control horn. Drill a series of small holes through the elevator approximately ⅛" from control horn stem. Thread thin copper wire through holes around control horn stem and solder. Install "Z" type cloth hinges. Drill two holes in stab for hold down bolts. Drill and tap the pan to match. Make the pushrod from 3/64 music wire. Install pushrod and bellcrank. Fit the rear alignment block and cement in place. Make the pushrod cover from balsa. Cement in place. Be sure that control system works freely. Cement cowl in place. Form wing fillets from Plastic Wood. Fill all cracks and joints with Plastic Wood. Allow to dry at least 8 hours. Use a rat-tail file to file all fillets as it is easier to control than sandpaper. Sand all surfaces smooth and apply 3 coats of clear dope. Drill holes for hold-downs and cut the front of fuselage to clear Dooling type needle valve assembly. Cover all surfaces including inside surfaces (except inside the cowl) with #120 glass cloth using cement as the adhesive instead of resin. Sand surfaces to remove rough spots at breaks in the glass cloth.

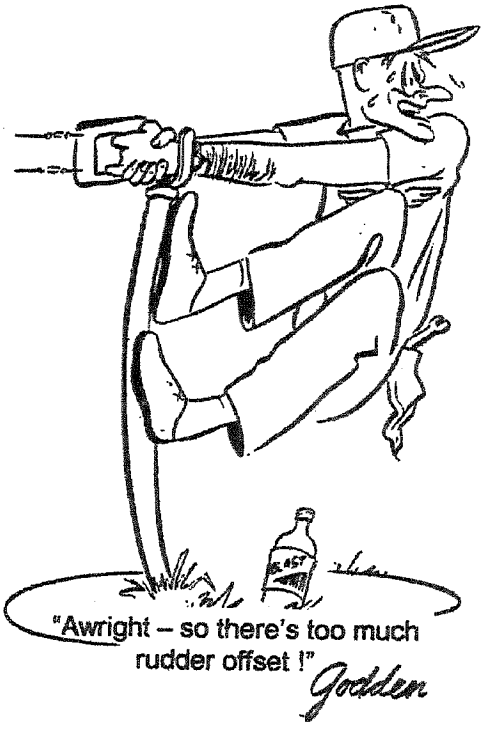
I have been using Ditzler synthetic primer for finishing as it is fuelproof and is very easy to work with. It comes in 4 colors: White, Red Oxide, Grey, and Orange-yellow. I use white with a little red enamel added to give a pink color. It works best if sprayed on. The number of coats depends on how smooth the airplane is before applying primer. I usually use 3 coats. Wet sanded with 320 wet or dry sandpaper between coats. Wet sand with 400 wet or dry sandpaper on the final coat. Then use rubbing compound to smooth it out. A coat of wax will give a slightly glossy finish.

Make very sure your controls work freely. If they don't your model will be washed out the first time flown.

The tank is the old standard "pen bladder" type made from a natural rubber ink sac. Get the smallest ink sac available. Cut off to 1" long. Cut a piece of ⅛" O. D. brass tubing about ¼" long. Insert it into the end of a 1" piece of neoprene tubing. Slip the ink sac over the end of the neoprene and brass tubing assembly. Cut a penny balloon about ¾" longer than the ink sac and put about 7 drops of castor oil in it. Insert ink sac and tubing into balloon and wrap entire assembly with thin wire or thread.

The dolly should track to the outside of the circle. If you fly on grass or dirt more track-out is required than on cement or asphalt.

Pick a calm day to test fly. You should have no trouble flying this model.



Theresa Grish at Plymouth Internats

INSIDE STORIES OF THE MODEL INDUSTRY:

Herewith the pitch on Grish

■ How'd you like to own and operate a thriving manufacturing business out in the country away from the crowded city, next to a 27 hole golf course and with a nice big lake on your property?

Lots of good hunting and fishing country nearby; Chicago within a few hours drive; good roads leading in all directions.

Sounds like paradise? Maybe so. Actually it's a description of the Grish Brothers' operation at St. John, Indiana. Meeting this quiet band of expert modelers and dedicated manufacturers, you'd never guess that their Tornado props are known and used 'round the world. One season all European speed winners flew with Tornados. In fact, if reticence means modesty, this bunch takes top honors in the model-hobby business.

First, it's almost impossible to find the Grish establishment unless you've some pretty exact directions to go by. Stop by a St. John filling station and ask where the Grish boys are and you're apt to get a cold stare. Not that Grish isn't a respected name in St. John as well as in air-modeling, it's just that these Hoosiers don't want the peace and quiet of their little hamlet disturbed by a lot of noisy outsiders.

Insiders, of course, can be about as noisy as they want. Take the Grish testing rig that turns experimental props at 30,000 rpm. It's powered by an old 90 hp Buick engine; the model prop tips travel at twice the speed of sound. That's plenty loud.

But we've traveled all the way to St. John to run down this band of brothers so let's introduce them. There's Frank (don't call him by his right name, Francis), Stanley, Benny and Anthony (known only as Tony). A few years ago you'd have met beautiful Theresa, but centerfielder Al Pilarczyk of the Orioles claimed her. Last year you'd have smiled at gorgeous Rosalie . . . but she's been keeping steady company with a musician.

Tony, Stan and Theresa have been the model flyers in the family. Tony got started in free flight in 1933 between shifts at the St. John golf course where he was caddie master. He constructed a twin-pusher rubber-powered plane using bamboo for the frame and covering glue made from flour. Sheet aluminum covering came from cars.

After World War II Tony and Stan teamed up to compete in control line speed. At one time various Grish entries held six world's speed marks. Theresa built and flew speed models, creating considerable confusion around National Meet and Plymouth International speed circles.

Her appearance in the Speed circle usually produced two comments from those who hadn't seen her perform before: 1) "Don't tell me that doll is going to fly that model?" Then 5 minutes and 10 laps later, 2) "Did you clock her—my watch must've busted—you got the same time—oh my achin' back—this is no event for a poor little male like me!"

How did the Grish family get into this prop deal anyhoo? Mostly it all goes back to an ancestor who came over from Poland loaded with mechanical ability. A master foundry worker who specialized in the impossible, this fellow was an early do-it-yourselfer. As an example when he decided to settle down he built a sawmill from two Model T engines then cut all the wood for his own house. No doubt, a great deal of this ingenuity has rubbed off on succeeding generations of Grishes.

As a result of their own free flight activity, Stan and Tony decided to make their own model engines. Thus was born the short-lived Tarzan .60. It was a light job for its day. The boys did their own casting work and machined the motor heads. Of course, they needed props. In typical Grish fashion the pair decided they didn't like what was available so designed their own.

These props proved to be pretty good; nearby modelers started asking for some. So the brothers knocked their heads together and soon designed a prop making machine. Before long they were so busy manufacturing propellers they had to forget about the engine. (They had turned out about 100 of 'em.) Next came large orders from other concerns who started distributing props under various brand names, but all made by the Grish gang.

Just as they tooled up to produce big props for lightplanes, war clouds over Europe put a damper on civilian flying activity here. But the Grish experiments with plane props did not go unnoticed. Soon they were turning out all kinds of airscrews for the N.A.C.A. at Langley Field. Such crazy ones as 24-35 and 22-75. They often wondered how they were used. Came more orders, all hush-hush of course, from aviation firms like Sikorsky. In this way the St. John prop plant played an important part in the development of numerous planes during the war. The Sikorsky orders, it turned out later, were for helicopter tail rotors.

More recently the Grishes have developed special props for such out-of-this-world devices as Dr. Lippisch's aerodyne. They've tried just about every shape combined with all possible diameters, pitches. Right now they have something up their sleeve that will make the speed flyer's eyes pop, but in typical St. John fashion, they're not talkin'. Could be impellers, superchargers, ducted fans, or maybe some 3½-12's based on those wierd NACA jobs!

If you offered them $64,000 for the correct answer, not one Grish could tell you how many model props they've turned out. Certainly 15,000,000 is a conservative figure. Now they're deep in nylon props. (Their experiments with plastic for props started in 1938.) Again, and typically, for the production of these they constructed their own massive specialized molds.

Much too busy now to compete in contests, Tony does keep an eye on radio control development, vows to get a plane made one of these days. Maybe so, but that lake looks awfully inviting and the fish are jumping.

NYLON PROPS, LIKE CHEESE, IMPROVE WITH AGE

Nylon being an engineering material and not an ordinary plastic, does set up stresses in the molding process. A fresh propeller is liable to break because of these internal stresses. These stresses are relieved by aging or heat treating.

The aging time is uncertain, from 6 weeks to 8 months depending on exposure, temperature and humidity. This aging time can be shortened by heat treating. Immerse propeller in water and boil for at least 15 minutes, half hour is ample. Add cold water to cool somewhat. Remove. As it cools, keep blades aligned by slight bending if necessary. DO NOT IMMERSE IN COLD WATER.

Propellers may be permanently colored if so desired by adding any good Nylon dye to the water. When properly aged or heat treated a Nylon Propeller is virtually unbreakable. Even so a very small percentage will break due to unknown and unseen defects. Return broken propellers for replacement.

In the Northern climates this heat treating is a must to assure the long use expected. Southern climates are almost sufficient for aging and heat treating is not necessary.

—Grish Brothers

Willard Regains Endurance Mark for U.S.

■ Ken Willard and "Big Breathless" have done it again! Topping his previous Calif.-to-Catalina flight Ken has kept his plane in the air officially for 5 hours and 29 minutes.

During the recent FAI meeting in Los Angeles, Ken, Keith Storey, Russ Nichols, Johnny Brodbeck and Bill Glick breezed on out to the Los Angeles Model Airport in the Sepulveda Basin with one thought in mind—to smash the world's endurance record for R/C models held by the Russians of 3 hours, 6 minutes.

On a Saturday their first attempt was cut short when the model locked in right rudder and dorked. Sunday was spent in repairing the plane. Monday in checking everything out, then at 6:32 a.m. on Tuesday, April 15th, the model took off after a run of 210 feet to later land a minute short of 5½ hours.

"Big Breathless" was a light six foot model to which a small lower wing of 148 square inches was added to be sure to be within the rules. Total area was now 828 in the wing, 148 in the lower wing and 305 square inches in the tail or 1,281 total, well within the maximum loading of 16.38 ounces per square foot. The model with its 45 ounces of fuel weighed in at 7 pounds 11½ ounces.

For R/C equipment the new Orbit single channel receiver was used. Two Babcock BCT-2 transmitters were used alternately. The Torp 19 had a Roberts' exhaust restrictor in the form of a sliding vane over which control was obtained on the 3rd escapement position. A Bonner servo motor wired to turn in one direction moved a continuous double thread screw much like a level wind on a fishing reel so that the restrictor could be moved to any position with only one command, since it automatically reversed itself when it got to either end of the screw.

A 11-4 Tornado nylon prop and Supersonic 100 fuel was used. Escapement used was a Babcock Super compound with rubber power.

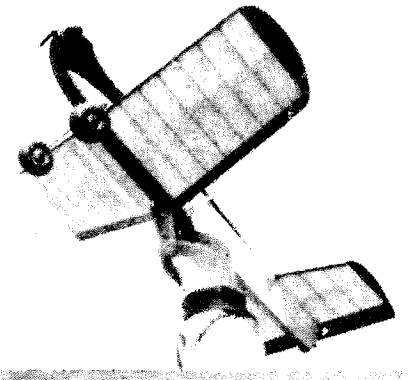
Ken wishes it be known that without the help of the Larks Club this record could not have been made—he stresses that it was a Lark's effort.

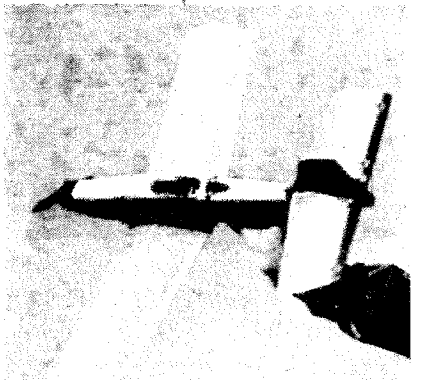
Four large balloons were pressurized in the Jim Walker system and fastened to the bottom of the top wing, two on each side of the fuselage. A Jim Walker pressure regulator was used in the fuel line.

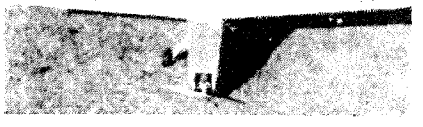
On the humorous side, the Russian delegates had been invited to witness the attempt, but due to "previous commitments" they could not attend. Ken is still trying to figure out what they could be doing at 6 in the morning.

Also in the excitement of getting ready for the record he forgot to fill in a Lark's endurance attempt card so he didn't set a new Lark's club record. Plane flew an estimated 110 miles.

It was a full five minutes after the ship had landed that Ken let out a big warhoop, the world's longest delayed action . . . he was a real tired guy. Willard is Director of Industrial Resources at the University of Southern California.



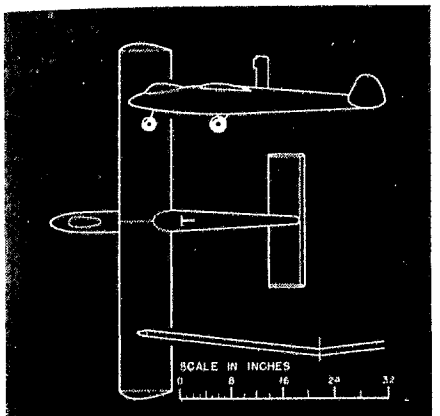




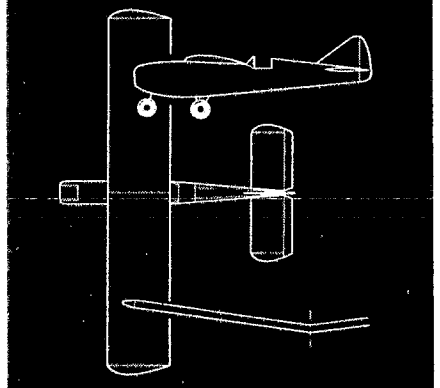
Willard's Wee One. One of the first .02 R/C planes flown in the Los Angeles area, Ken Willard's tiny low winger is a 24-incher, powered by the Cox Pee Wee. It weighed 9 oz. with Deltron all-transistor tone receiver; escapement moves the tiny rudder. Obtaining sufficient antenna length is a problem in these tiny planes; Ken runs an antenna wire out to tip of one wing; another wire, soldered to B plus ("ground" for this receiver), runs to opposite wing tip.

The low winger, a hot performer, has nice flight characteristics; put into a turn it will hold turn until taken out. Unless held till it becomes a vicious spiral dive, the little plane keeps its nose up very well in turns. Not a model for the R/C newcomer says Ken—a bit tricky to adjust and trim out, and plenty hot to handle in flight. Later, a "haywire" cabane structure was added for a top wing; weight went up to 11 oz., but it flew fine.

National RADIO CONTROL Championships



Dr. Carl Mohs, Madison, Wisc., flew 57" span high center-thrust; motor on 1/16" dural strut.



Thomas Dion, Toledo, had 58½" span .35-powered original. All views are to the scale shown.

■ Anticipating a plenitude of modelers in all events—especially in R/C—a Qualifying Championship setup was used for the first time in this premier meet. Generally it worked out very well. R/C was larger than ever before, giving certain evidence of continued growth. Despite the pre-entry requirement 282 R/Cers registered to fly before the meet started (as against 345 radio entries in 1957). But about 225 of these actually *tried* to fly, while only 207 were processed in '57 (and quite a few of those never got out to the flight line).

With pre-registration in force the R/C officials were able to decide beforehand the number of modelers they wanted to qualify each day. Since there were four qualifying days, the totals were divided by four, and it was expected that chosen as best each day would be five Multi's, four Open Rudders, two Intermediates, two Jr-Sr Rudders and three Pylon men each day. Total entries in these categories respectively were 102, 99, 29, 12 and 16; final qualifiers in the same order were 21, 14, 8, 5 and 12, a grand total of 60. Scale entrants were handled separately.

In contrast to the 1954 Nats at Glenview, when days of flying were even less than the usual six at Nationals meets, there were seven days this year (though flying on both Saturday and Sunday was somewhat curtailed by the 3 pm "cease flying" signal when the full scale airshow began). As soon as a modeler was qualified he ceased competition flying till Friday when the Championships began. Some modelers thus had four days in which to qualify and a few racked up seven flights doing so. Qualifiers each day were simply the top scorers; best qualifying score in Multi was 71½ points, with 43½ for Intermediate and 38½ for Open Rudder.

Qualifying flight pattern consisted of unassisted ROG, (item 1c in the AMA rules under Maneuvers), followed by the "Precision Pattern" in the order listed, but minus the Rectangle. Then the flier was asked to perform in any order he wanted a wingover, Immelmann, single inside loop, single outside, single horizontal roll. His landing was scored on Perfection only, no points being given for spot landing. Maximum total points for the qualifying flight is 84, and a 6

Portion of radio plane line-up at the 1958 National Championships held at Glenview, Ill., Naval Air Station.

Top multi-control winner was Bob Dunham who repeated his 1957 victory. Astro Hog had Torp .35, Bob's Orbit rcvr.

William Hershberger's daughter holds his winning Pylon job; flew on both Torp and Tigre .19. Hez from Arlington, Va.

minute time limit was imposed. The rectangle was omitted from this flight pattern in an effort to save time, but many now feel such omission was a mistake; the rectangle *looks* easy but is one of the toughest to score high on—particularly for those with jumpy stunt planes!

Some fliers qualified in a single flight, of course; they didn't get anywhere near as much practice as those who fought it out all four days; but few dared take the chance of loafing on the qualifying flights in the hopes of getting in more flying.

For the finals the same sets of judges were always used to score the same category—thus Multi judges took care of Multi fliers only. And the toughest judges were picked for this category! This may be one reason why scores were much lower this year than your are accustomed to seeing. The other reason, of course, is that the entire "Precision Pattern" was omitted from the Championship flight schedule, since the modeler had already shown he could do these maneuvers in Qualifying.

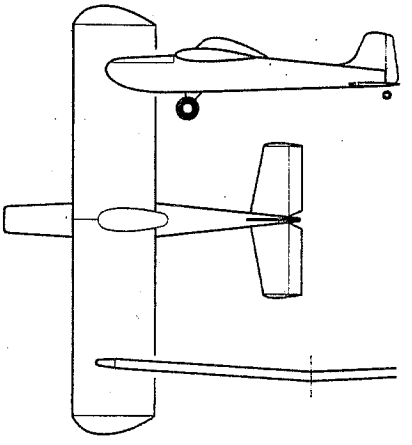
A perfect score of all maneuvers in the AMA rules is 309, so the maximum anyone could possibly get at Glenview was 270. Since the top score recorded by winner Bob Dunham was 213 (for a lot better flying than he showed in 1957 to win) it can be appreciated just how tough those judges really were!

Time limit for Championship flights was 7 minutes. Those who tried everything found they had to hustle to get down on the runway in time to have their spot landing scored; quite a few didn't make it.

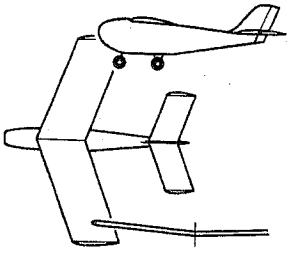
Pylon event qualifying took place each evening at about 6 pm, with all those who wanted to try getting the same number of attempts. Two stop watches were held on each flight, and those three who had the lowest times (meaning highest speeds) each day were automatically "in". Times racked up in Pylon may look a bit high, which could possibly be due to the way the rules were interpreted; paragraph 23.22 could be considered a bit ambiguous as to how many turns are actually required to complete the course. Since the rules call for "5 complete laps" the interpretation was that you had to make 10 pylon turns in all, thus the plane would be released for ROG takeoff and would have to fly over a line on the same side of the pylon to finish the course.

We understand most big plane pylon races are timed this way. However, as far as we have been able to check, most model pylon flying up to now has required only nine pylon turns, with the finish line on the opposite side of the pylon from the starting line.

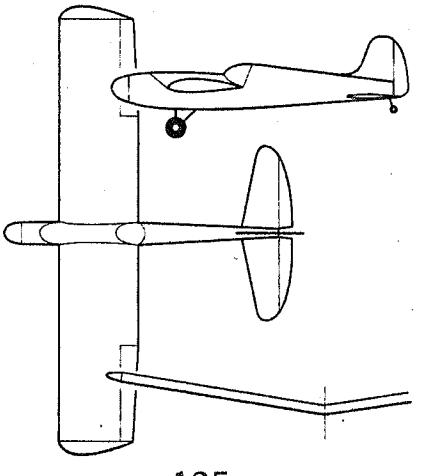
It made practically no difference at the Nats since everyone had to make the 10 turns; but you can't fairly compare Nats pylon finals with those made in races calling for only nine pylon turns, for that extra turn added an average of 5 seconds to total flight time of even the top fliers. Again to speed things up a bit, Pylon Qualifying flights were for only four laps but the Finalists had to travel the specified five.



Omaha's Richard Nelson had original design spanning 68" (above). Power was OS Max 35. Airfoil is modified 2415.



Conrad Lange's little 33" span job used either .049 or .09 engine (above). Fuselage is only 30" long. Below—Jerry Nelson from Calif. flew this 70" span, 47" long entry on K&B .35. Airfoil is 2415; 10 deg. dihedral.



In the Multi event most of the Championship fliers were called up five times with a few getting six flights; Dunham was one of the latter but he averaged a surprising 179.6 for these six flights—a better *average* than all but the top three winners (including himself) scored on their *best* flight! Event directors now feel that fewer should have been qualified to give the Finalists even more of a chance to prove their worth.

Qualifying scores had no bearing whatever on the final results, of course, other than to point to selection of the Finalists. And no particular pattern can be observed between early Qualifiers and top winners in the final score listing, though four of the top five Multis qualified on the first two days—but not with the highest daily scores.

Apparently you have to learn anew each year what the Navy pilot judges like to see in certain maneuvers. As an example, at Willow Grove in 1957 it was learned that *those* judges preferred to see a plane fly inverted for a short distance at the top of an Immelmann, before it flipped over in a half roll. At Glenview it was different—at least with one judge. Two of them were overhead discussing an Immelmann that had just been performed, with one opining it looked about perfect to him, since the plane *did* hold the inverted flight as noted above. It was the way Navy pilots were taught to do it, he felt. "Nuts to that," the other said, "*I* judge 'em perfect only if they flip over as soon as they get to the top of the half loop. In the big planes if you hold 'em inverted that way all the dirt from the floor falls into your eyes!"

As noted previously, scale entrants were handled differently, without the need for qualifying. There were not many of them and those who did show up for judging had their planes checked over on Friday. On Saturday and Sunday the Scale planes were all flown as a group. This didn't take long Saturday, for practically every one either cracked up or flew away. Each of the two final days, Scale planes were given just a single chance to show their stuff in the air. Whether this is a fair split of the total Championship time, considering that Pattern and Pylon planes all had about two flights each day, and on three days at that, is under

(Continued on page 136)

debate. Maybe the R/C officials had a crystal ball at that, for few of the scale planes were able to fly again after that first disastrous day!

Scale actually showed up even more poorly in number of planes that actually flew (under radio control, that is) and number of entrants than in 1957. It seems the scale boys still spend far too much time on building and finishing their planes, and far too little in testing and adjusting them before the Nats. We'll wager that the big majority of those entered had never flown before they were brought out on the runway at Glenview!

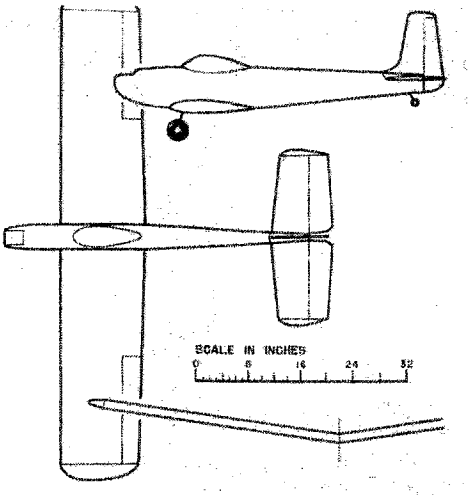
We've used quite a bit of space to describe the method of R/C flying at the 1958 Nats, since it is something quite new to most of us, and also because it will doubtless be used at the Nationals from now on. Perhaps at other multi-day R/C events as well. Despite a few beefs (but *surprisingly* few considering the list against that for 1957, to trace out such factors as the growth of 8-channel equipment. Of the 117, there are 35 proportional planes listed, a surprising figure considering that this year's Nats was well out of "proportional territory" while the Willow Grove meet was right in the midst of it. We also find 31 escapement planes listed, a large trend to low wingers (most of them Astro-Hogs); there were eight of the bottom-wingers among the 21 Multi Qualifiers.

If we can't see any other trend, 1958 was certainly "Aileron Year". Virtually all of the Multi Finalists had them. Four of these modelers had ailerons tied in with rudder and working all the time. These were all on dual proportional planes and definitely pepped up the roll maneuvers made by these planes—but the top dual-prop scorer (Good) had no ailerons!

While there were fewer Pylon planes than had been expected, this was a most interesting event. Quite a few planes were specially designed and built for it, a large percentage of the total Pylon entrants qualified and another large percentage of these actually made respectable times. It was apparent that a lot of time had been spent by many fliers in practicing the turns; in contrast to last year we saw some really *good* flying over the course, often with several planes fighting it out at once. That this was a crowd-pleaser goes without saying! Initially several tries were made at "mass" take-offs but it didn't work out. Thereafter planes were flagged off when they were individually ready, but often there were three up at once. The winner was a fairly conventional mid-wing job with dual proportional very well flown by Hershberger; his time of 1:56 equals a speed of 31.03 mph, which would have been appreciably higher except for the necessity of rounding that "136" pylon at many entrants who weren't able to make the Finals) it was generally considered to have worked out very well.

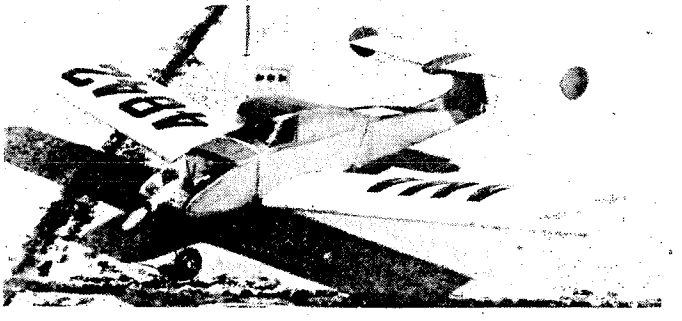
And now what of equipment—and planes? Regarding the former, we noted that the trend in 1957 seemed to be toward ever more and more reeds in the multi-channel line. However this seems to have stabilized at eight, used by only a relatively few fliers at Willow Grove. However the number of 8-reed outfits has increased tremendously and in fact this is the only type of outfit now made by most of the suppliers of such equipment. There was only one 10-reed job at Glenview this year—a homemade job by Bennett.

Air Trail Model Annual will publish later its usual detailed coverage of entrants, including practically all of those who qualified. The list includes a total of 117 planes, more than we have ever listed before. It is interesting to compare this

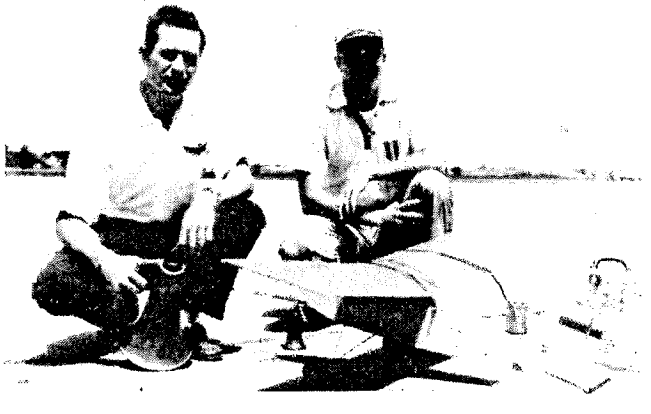


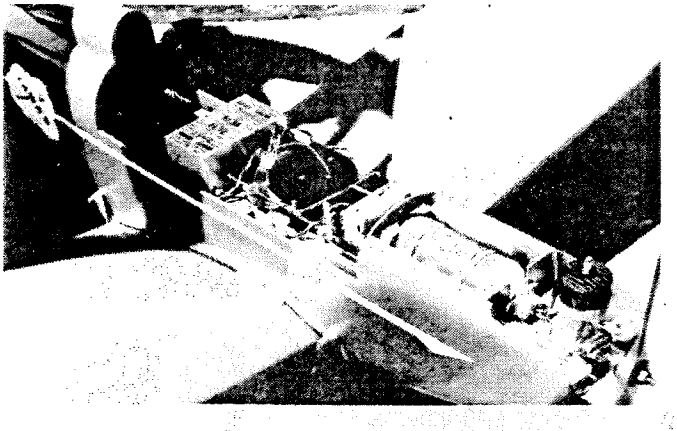
Dale Roof's Low-Ender has 77" span and length of 50". Weighs 7 lbs. Plans for this will appear in future "A.M."

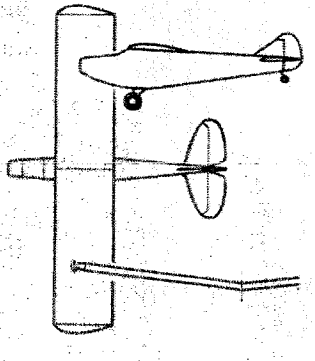
Carl Cantera and his Mrs. ready Smog Hog which placed 12th in Multi; Johnson .36; Bramco 8 receiver on 27¼ mc. Below, we want you to meet hard-working Ernie Kratzet of Detroit who directed the R/C Nats along with Red Hillegas. With Ernie, Ted Rohweder, who placed high in Rudder.



Brayton Paul of Baltimore flew this Hi-Tail-It in Rudder with Torp. .09; Flyball actuator; 2-tube Lorenz receiver (above). Full complement of equipment (below) is stuffed into Bill Deans' Astro-Hog. From Downey, Calif., Bill (W6MQC) took 3rd in Multi category. Orbit 8 receiver on 52 mc; .35.







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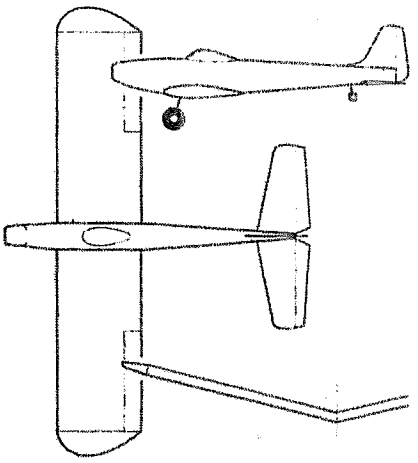
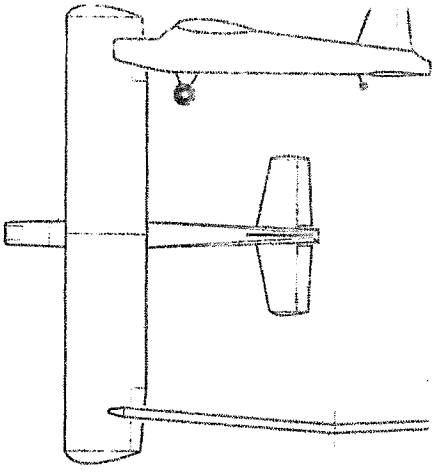
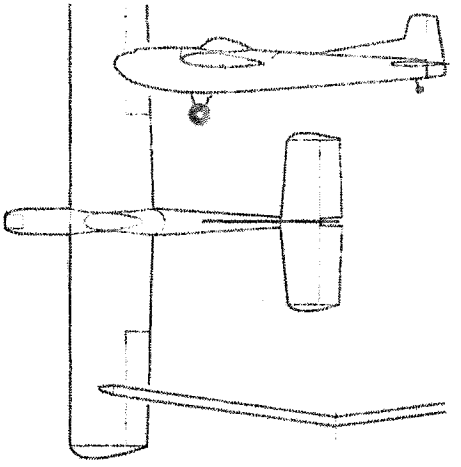
Flying on Torp .23 Jack Lemon, Jr., Berkeley, Mich., used Davis No. 5 airfoil; 51½" span, 34" long original.



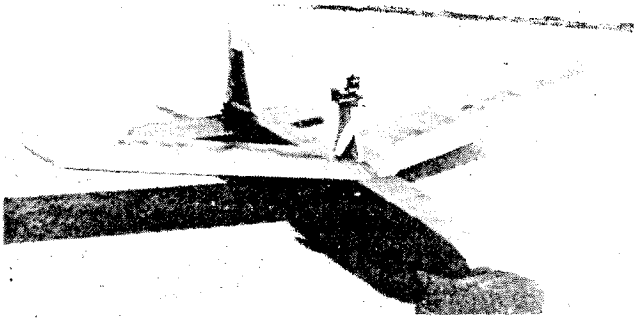
Another original design (and all these are to scale shown) by Edward Keck, Rochester, N. Y. Spans 70"; .35 power.



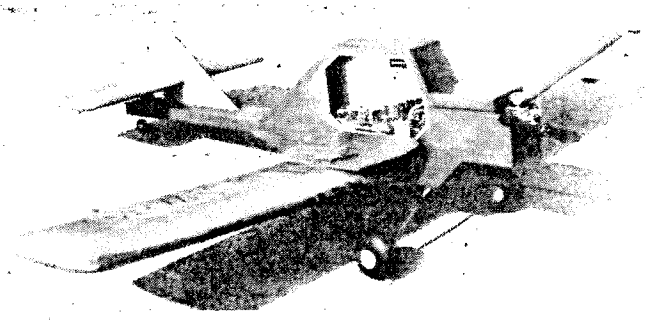
Developed from Good's Rudder Bug, this 72" span entry is by Jim Martin, Maryville, Tenn. Weighs 6 lbs; 50" long.



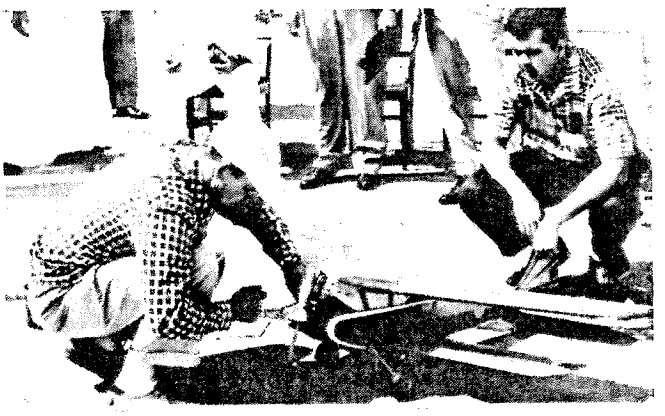
Dallas's Gordon Gabbert uses this mid-winger of 74" span. K&B .35; 52" long; 8 deg. dihedral; 2415 section.

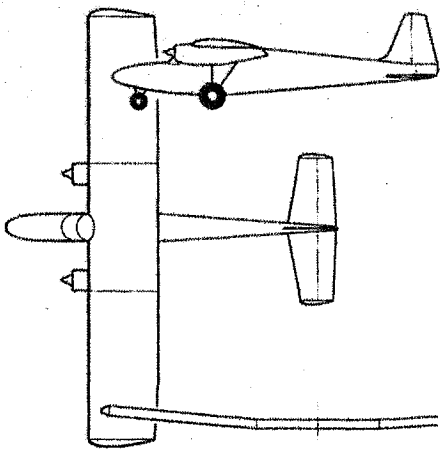


Dave Burt is another who likes to high-mount his power atop a glider-like design. From Evanston, Ill., this Rudder job (above) used OS Max 15, Gazistor. In Multi L. D. Crisp flew this original (below) with K&B .35, Bramco 8. Sixty inch span, 720 sq. in area, 12/5 prop, clank tank; 29½ mc.

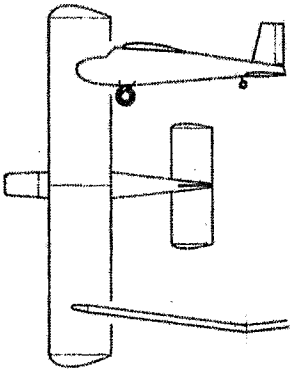


Ed Abbott of DC/RCers entered the "Flying Girder" (above) which used Fox 15 and Annco throttle, C-5 475 mc rig for rudder-motor control. Harold (demco) deBolt fires up his Plyon racing bipe while Dick Branstner holds on. Harold took 2nd in Pylon with time of 2 minutes, 8 seconds.

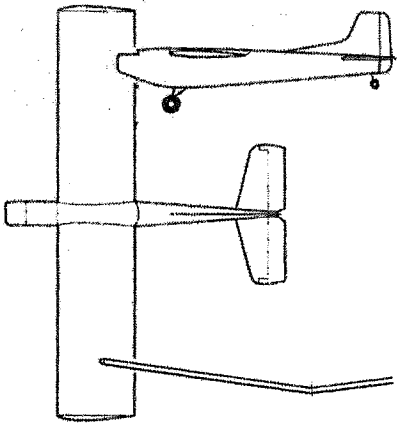




Another original by Conrad Lange, twin Cub .19 of 68" span. Clark Y section: 52" long: weigh 5 lbs.



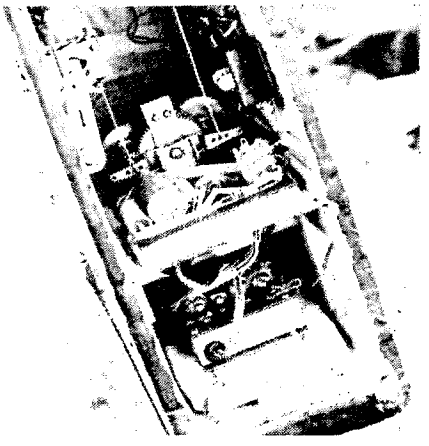
Ted Rohweder's Fox .19 design had aerodynamically balanced rudder. Span. 57"; 33"; 3½" dihedral.



Pylon victor was this original by Bill Hershberger. Spans 65"; 43" long. Used Super Tigre .19 with K&B throttle.

Lois Johnson looks after E. Paul's Intermediate entry; 72" span had 1008 sq. in. wing area; bottle tank.

Second in Open rudder was Dick Allen. His "Lancer" innards below: Robot rcvr, Fox .35; Robot Synchro; Newx esc.



Not only did R/C contenders come from all parts of the U.S.A., but from Mexico (above) and Canada, too.

(Continued from page 136)

the end of the final lap. Several deltas were entered; they had not had much pre-Nats flying and only two got into the air, but they will be worth watching.

Any doubts as to whether a plane built to the AMA Pylon specs (large wing area—fairly small engine) will "go" were dispelled by Howard Bonner, who entered a 7½ lb. Astro-Hog fitted with a .19 engine and took third. It handled very nicely on the course, but since the .19 had been installed as a last minute rush job there was no throttle. Pylon planes have to touch down within 4 minutes of takeoff and at least once Bonner had to fly his makeshift racer at full speed into tall weeds to get it on the ground within the time limit. This took some doing since these planes must be adjudged capable of immediate flight again after each landing (broken prop is allowed) in order to have their time counted. This plane was fitted with ailerons as were many of the others in the event; most fliers felt ailerons helped in making the necessary pylon turns except Hershberger who did not have ailerons. Furthermore, it isn't necessary to have a complex system to do nicely in the event; both Jackson and Allen (they place 5th and 7th) had the simplest form of dual simultaneous rudder-elevator control—Galloping Ghost. Both undoubtedly lost some speed because of excessive gallop and their planes will be much faster when trimmed out better, but they got a lot out of the simple, cheap controls.

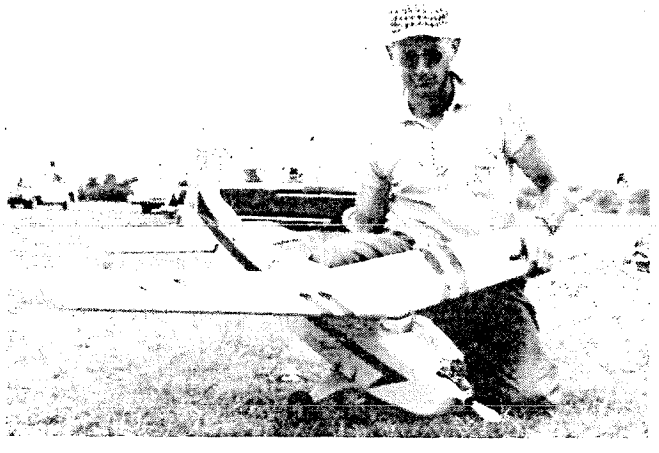
We couldn't see any particular trend in Rudder. As has been the case for the past several years, *American Modeler* sponsored a complete set of trophies for Junior-Senior Rudder entrants, but only four fliers were able to score in this category, and they didn't total very high. The Open Rudder modelers scored much better, especially in view of the fact that the judges were making no allowances at all for the fact that Rudder fliers can't go into most maneuvers from straight and level flight nor can they recover the same way. Despite the 99 Open Rudder entrants only seven made any score whatever, a much poorer showing than in any recent year. Maybe this reflects a larger number of beginners going into competitive flying.

Intermediate was a big disappointment, both in number of qualifiers and in the final scores, which were all lower than scores made by the Rudder winner. It seems these boys might do better with their elevators blocked off! No one can say for sure just why the Int. fliers do so poorly, unless it's because they are mostly experimenters who spend lots more time tinkering than they do practicing for contests. We were interested to hear from several sections of the country, including the west coast (which was responsible for the Intermediate category in the first place but has all but deserted it) that this type of flying seems to be on the increase. We sincerely hope so—and that the quality of Intermediate flying is raised drastically. Otherwise the category won't be with us on an official AMA basis much longer.

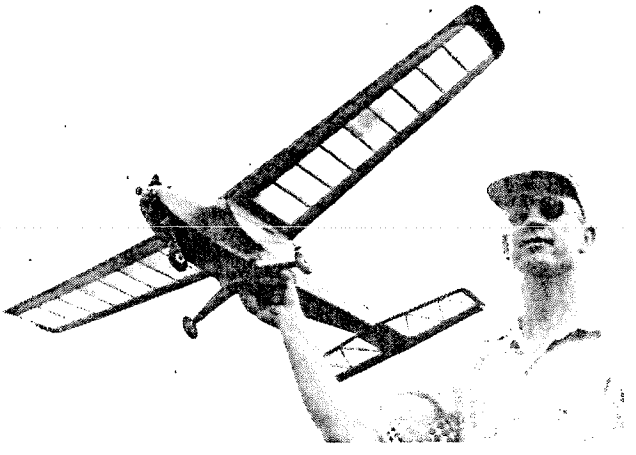
The entrants (and the officials) couldn't ask for much better weather than they had at Glenview. Aside from a few periods of moderately gusty wind it was about perfect. No rain (till just after flying was officially closed on Sunday) either. As usual there were quite a few instances of interference, often traceable to thoughtless individuals testing on the field. A continuous watch was kept on 27¼ with a monitor receiver. Fortunately, meet officials had been able to persuade the Chicago Traffic Dept. to restrict their normally random use of a powerful traffic light control 27¼ mc transmitter (which blankets the area including Glenview) to a few set periods during the day. Flying was completely suspended (on all frequencies, not only 27¼ mc) twice each day for this transmitter, which was on for about 25 minutes each time. There was a similar on-period in the evening which effectively stopped pylon flying or the fun-flying session which always followed it. But at least you knew exactly when it would come on.

R/C Directors Ernie Kratzet and Red Hillegas ran a "tight" and most successful radio Nats. A real vote of thanks should go to them, their civilian and Navy assistants, the Judges (yep, to the toughest ones too) and all others who helped to put on the biggest radio meet ever run.

Look for the details in ATMA.

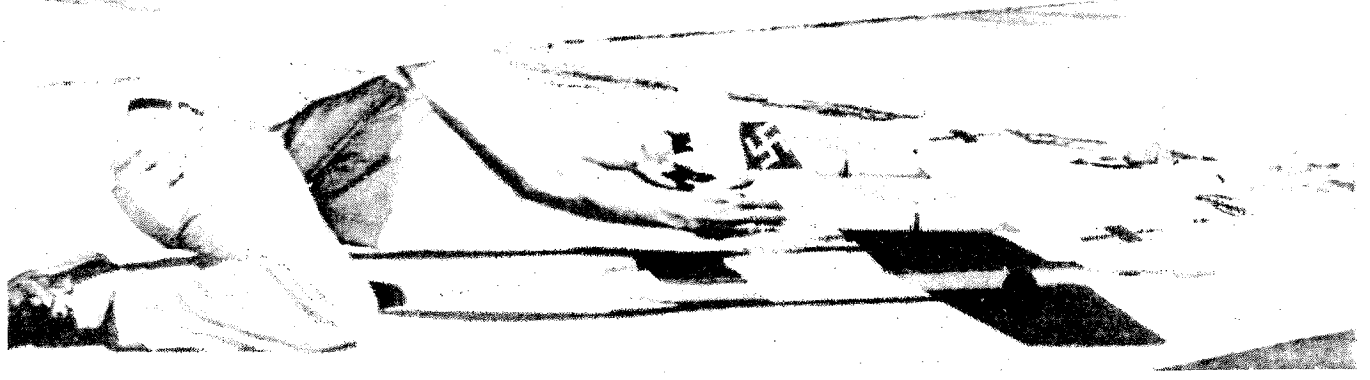


Here is Dick Allen from Apalachin, N. Y., with original design "Lancer," runner-up in Open class Rudder-Only flying. Dick's a member of the Aeroguidance Society modelers group



Another N. Y. Aeroguidance Society flyer, Ralph Jackson, hails from Vestal. Ralph placed 2nd in Intermediate event and 5th in Pylon racing. This is his K&B .15 powered Inter.

AMERICA'S 1958 CONTROL LINE CHAMPIONSHIPS



With the cooperation of the weather man and the United States Navy the U-Control "Nats" were a solid success. William (Wild Bill at rt.) Netzeband gives you a director's-eye view . . .

■ In order to be ready and alert for this big meet we stayed up all night the previous Saturday leaving home at 4:00 Sunday morning for Glenview. Jack Lipka went along, and proved to be a real valuable asset to yours truly. On many occasions he helped me to be in two places at once, which is naturally hard to do by yourself.

We were supposed to be on the base ready to start training Stunt judges at 8:00, but we dragged in at 10:30. Upon arrival we were herded directly to the main hangar and found a few hundred people and models already there. Couldn't figure out how everyone got in so early. The place was booming. Ran into George Aldrich almost immediately and then found John McDonald, who was to help me run Stunt.

In case anyone is wondering, after my blast-off last year about Stunt I was asked to volunteer for Stunt Director. So I did. This also helped give me an insight into the workings of a Nationals which the contestant rarely notices, or appreciates. Also didn't have anything to fly so had some time to run about and notice things. So much for local color—meanwhile, back at the hub-bub:

John told me he had made connections with the judges and they'd had a short session. We laid out our strategy for Monday and Jack and I scattered around getting housing, meals, and other paper work squared away. We were particularly interested in the operation of the meet under the policy of a closing date for entries. All the events were set up and the number of entries known, so that man-power could be properly allocated. Headquarters was a mad-house, with questions and people flying about.

Ran into Eva Biddle and asked about Karen, whom we met in Willow Grove. Seems she was baby-sitting back in Pa. Eva was working like a beaver so we passed on through. Finally a white streak stopped and we recognized Pete Sotich who had been living on the base for a week getting things in order. This contest manager's job is a dandy, and Pete certainly did it justice. It was decided I'd come back later to get my information.

Back at the hangar the trailers were still disgorging models in mild confusion. These flee-fright men bring so many wings and tail, it's a wonder they get all the right parts. And someone started breaking in an engine. The hobby shop set-up was the most complete these old eyes have seen—kind of wished we had some money. And George went out to practice as did a number of other Stunt men.

While everyone is getting ready suppose we look over the new procedure for running Stunt. The change was forced by the large number of contestants and the failure of last year's 2 platoon system. This year, eliminations were held on three separate days and on Friday the top men came together for the hardware flights. Then the only thing left was the Walker Trophy flyoffs and we were done. Would it work? In order not to prolong the suspense, it does! Did some flying in the evening.

Jack and I finally got something to eat and early in the evening I passed out.

Monday morn, dim and early John, Jack and I finally found our 16 Navy men who were to be judges, etc. We jumped right on them and proceeded with the proceedings. Alternating with John we flew and called out the maneuvers, using score pads and having everyone write down his points. Our aim was to pick 3 sets of judges who viewed the pattern alike and who were up on the errors and tricks. By 3:30 we had them and the rest were assigned their tasks.

The appearance judges got a complete workout, since their score would most likely make the difference. It's a good thing John had conventional models, because all I have are two Fierce Arrows. I got fancy and rolled off both tires on a square loop. Have one? By 5:30 it appeared that we had a good crew, so we ate supper and went over to watch the practicing.

We stopped to watch a kid wring out a Super Ringmaster. Turned out to be Lance Carey from Anderson, Indiana and he was up to his eights. We talked to him and his Dad, Bob, for a bit and then on to the hangar. Noblers all over the place! This one airplane has made an awful lot of stunt flyers. Some one hollored. There's Dick Elliot from the

(Continued on page 140)

Open class stunt winner Robert Randall of Indianapolis gets his Junkers Gobble-Swantz off (top) with help of designer Charles (Me. 109) Mackey. Span 57"; 600 sq."; 53 oz.; Fox .35.

CONTROL LINE NATIONALS

Air Force with a 19 spread all over the bench. This is the guy who, back in '55 put a Dooling 61 in a cut-down Half Fast and tried to fly it. Whoooosh! He's also writing a book—"How to Whip So's No One Can Tell."

About that time Dick Hubek reminded us that there was a long line of stunt ships to be processed so John and I got into that. There's ole Ed Linthicum with his rubber job. A St. Louis friend. Some guy comes wandering up with a rack of combat ships. These boys are prepared. A plane a flight. One of the nice things about the Nats is meeting your friends and swapping stories. Since there were big doings Tuesday we cut out early and sacked in.

Tuesday—Open Stunt, Jr. Combat and A speed. We roared off to the Stunt circles, 3 of them, and set things up for business. I made a flight to warm up the judges and the competition commenced. With 70 entered we figured to have a *big* day. We had some scampering around during the morning getting the mill rolling, and then it settled down to a purr. There's a real thrill in watching a team of men operate smoothly and quietly.

As the flights piled up and the scores came in John and I checked them for consistency, looking for signs of breakup or softening. None in sight. There was one break up during the morning, but they settled back and ironed out. George decided to fly early and put in a rough flight. With his second flight he again proved that practice and preparedness pay off. His engine conked out. Herein lies a tale which we feel should be told.

B. C. Harris-Boyd Shelton ("S&H Green Stamps" team) topped ½A speed with Cox 107.23 job. Below: David Cotton, Lawrenceville, Ill., was best in jet with his Green Arrow's 173.84.

Aldrich had been too busy to build a new ship and he decided to change engine brands. In getting used to it by flying all day Monday, the head gasket blew and with it the Championship. His flights during the demonstrations showed that he is as good as ever, so it is chalked up to the old crumbling cookie.

There was a small number of bumbles and rack-ins, but since the day was perfect, a high percentage completed the pattern in fine style. In fact, a pattern of quality was established which was to hold true for the entire contest. Nearly everyone was turning in high score patterns. With the airplanes developed to their peak and 2 years with this pattern, everyone was an expert. Just watching casually it was well nigh impossible to tell who was winning. Remember that the judges knew from nothing about each man's reputation so they were calling them like they saw them.

Airplanewise it was Noblers and Detroiter variations. There were two ships which stood out, one a twin boom P-38 style complete with Swastikas and a twin fin Nobler by Bob Gialdini, who incidentally uses a Forster for power. This is a bit unusual in a world of Fox, Johnson, K&B and Veco engines. John McDonald also uses one, and they work quite well as long as run peaked. Takes a good tank.

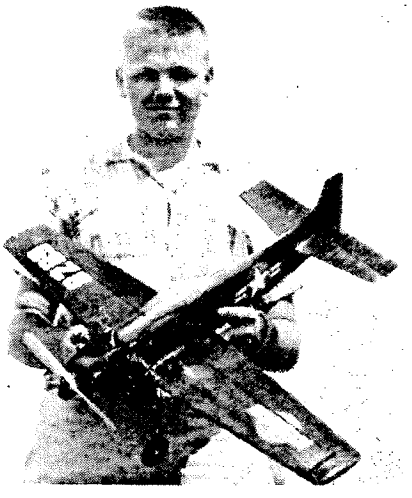
Bob's plane had been gutted and weighed in at 34 oz. Really flew slick. Bob Randall flew the other job which is a Charles ("Me-109") Mackey creation. Mackey, himself, was flying a brand new and beautiful job similar to his 109, but different. Flew nicely, but he pulled his usual trick of getting shook up and forgetting maneuver sequence. He did finally work a complete flight (with pattern points) and qualified. This guy turns out stunt jobs like you'd build combat ships. Light, quick.

We shot up to the speed circles and found that things were rolling along smoothly. Some of the timers were getting precisely the same clockings and variations were slight. Things appeared to be quite slow which was due to having too many circles prepared and open for flying. Joe Braun, Warren Howard, Jim Harrelson and Jim Clem had done their job well. No lines or tie-ups and one could fly almost at leisure. Speeds were below record although they were in the 140's.

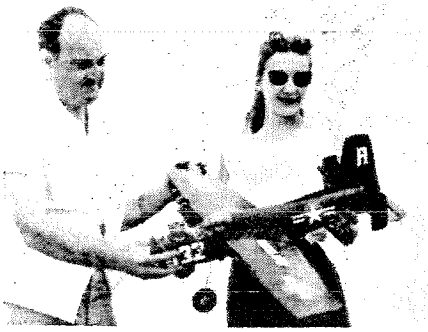
Over at the combat circles the operation was rolling and the crepe paper and balsa continued to stream down. These kids fly good combat and the maneuvering is generally too quick for the eye to follow. Planes were of the usual run, but it seems like the wing is passing from favor with pilots preferring maneuverability and smoothness, to toughness. This is a natural trend since one can win by killing and piling up in the same maneuver. So who needs a tough ship?

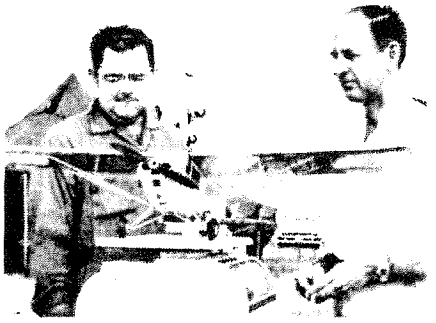
There were a lot of Flite Streaks, Lancers, T-Squares and Omegas and the usual hybrids. The matches were posted on a big bulletin board and I was surprised to see a seeding column in one corner. Turned out they were using Tennis match cards. Worked nicely. Some girl was quite worried about this

Leland Morton-Lester Grogan team took Open A speed, 143.48 mph (above); K&B .19. Best proto speed was 119.24 by Cleveland's Al Stegens (below); he used McCoy .29; original design.



First in Navy Carrier, Robert Heminway racked up 490.99-pts, McCoy 60 Skyraider; he took Sr. proto, too. Steve and Beverly Babin of Lakewood Flitemasters, top Open carrier job.





Frank Stanford (lt.), Scale director, with Tom Dean and top-place Aeronca crop duster. Below: Cleveland's Jere Draper and Class C Sr. speed winner at 156.46; McCoy .60 mill.

fellow Bye who seemed to be all over the place.

I noticed particularly the absence of long-drawn rhubarb's. Turned out that the directors were hard-hearted and allowing no nonsense. Good for them! They simply offered to disqualify the boy if his parents didn't leave the protesting up to him. This usually ended it. So another tradition of combat passes into the great drainpipe in the sky.

Combat was flown from 4 grass circles, which made the engine mfg. unhappy, but which allowed several spectacular plantings. At the end of the day the qualifiers shoved off for the hanger to build more ships.

In stunt we appeared to make a fairly popular set of choices, although we collected a few pounds of rhubarb, which isn't bad with sugar. The nice thing about being the official is that you generally win the arguments. You have to!

Sourest note sounded when Richard Taylor of the USAF team had to deck his ship on a take-off to prevent hitting a young boy who wandered into the circle. Dick did exactly the right thing, but washed out his Nobler and engine. Since the book allows only one ship, he had had it, but he was man enough to take it. I'm sorry there is no medal for this; it took quick thinking to deliberately wreck his plane rather than try saving it at the expense of hurting the youngster. My hat's off to him.

That evening we wandered about the hangar, after processing, looking at the marvelous scale jobs and sundry. Scale this year was out-of-sight. Three years —3000 hours—perfect detail—scale operation—work from specs—whew! Actually got to bed at midnight for once.

We were somewhat dazzled by an apparition in blue covered with signal flags. Shorts no less. Eva Biddle informed us that she had also made a red set for Ralph (husband). He was sure loud. Pretty though.

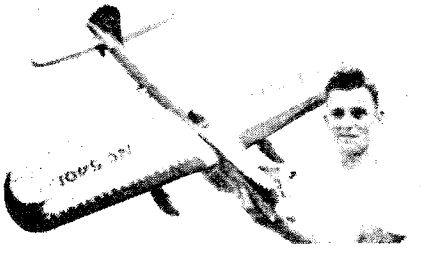
Wednesday was another fine day with ideal wind and temperatures. We had our ropes up so had no repeats of Tuesday's pile up. The Juniors were flying stunt so we dropped out one set of judges and ran 2 circles. By now, the operation was well oiled and we relaxed a bit from the arduous first day numbo. There were 44 entered and only 24 showed up by day's end. Opening flight was made by a youngster from Cleveland and this kid flys. Been at it but a short time. He qualified, only to have the boy next down from him enter a formal protest that the flyer had not built his ship. This is an age-old point and a tough one to enforce. The family was big enough to admit the fact and we had to disqualify him. Actually this has two sides to it. Only in case of a protest and investigation with its accompanying hard feelings can this rule he invoked. *But* neither can it be rejected. This is one of the jobs which an official doesn't like. Would you like to face a boy and tell him he cannot fly in the finals? But our job is to enforce the rules to the letter, so we do it. The happy ending comes when you learn that the lad will build his next plane himself, so we haven't lost a flyer.

Lance Carey flew a complete pattern and beat his Dad by several points!

Someone pedals by announcing that the Open B record fell. Turns out Harris and Shelton wound up to 155 and there she went. I must admit to not

Junior scale winner Tom Veasey, Evansville, Ill., with Fox .59 Berkeley Cessna 180. Below: Top C speed was 168.16 by Tom Lauderdale; McCoy .60 "Dizzy Boy."

Controversial external Mono-Line flap promoted heated discussions; Denis Wietrowski, Oshkosh, Wisc., with ½A version. Below: Detroit's Art Pawloski & "Atom", best stunt job.



getting excited by speed anymore. The entry list seems to echo this feeling. The hardware falls into experienced and talented hands pretty regularly, although, this year there are some new names on the list. Also as an airplane man there's no joy in looking for new shapes. Now and then there's a sidewinder, but if you'd line them all up, the most outstanding job would be the Shocking Pink paint job.

The teams are operating with a man in the circle using an electronic tachometer, and another keeping records of fuel humidity, temperature, barometric pressure and number of clouds. It's a science, friends. The least little bit lean and you've burned an engine.

Magna Models were all over the place and these "Garbage Can Specials," as they are affectionately known, do all right. They are sure tuff and fast. There goes an oldfashioned 2 wire rig. Where's he been? Jim Paysen had a beautiful sidewinder with a sort of Fox 29R cast into it. Slick. His Proto job *was* one of the outstanding ships of the contest. Had the slickest lime green finish you ever hope to see. It flew off the lines at 124 which would have snapped the record but . . .

Word was passed that no one's wrist would show through the pylon and at least 2 record flights were lost because of this. There are those around who can add 8 mph with whipped Mono-Line.

Senior Combat looks much the same as Jr. except the pilots are bigger. Pawloski gets creamed early. Combat is not an event for consistent winners. Very seldom does one repeat. It will be interesting to see what changes are

(Continued on page 142)

Control Nats

Continued

coming for the 1959-60 rules.

It's this evening that we have to re-add all the scores. This takes a while and we get a chance to watch Frank Purdy and his group work on Tabulation. There are probably those of you who think the winners simply appear on the bulletin board. They don't. These guys have to go through hundreds of flight cards per night, pick the scores, decipher scrawled names and addresses, if any, type out stencil masters and on top of it all work out points for national championships.

We commented to Chief Victor about the need for a medal, but he summed it up nicely by requesting a pat-on-the-back. So here and now is a large pat on the collective back of the Navy personnel who gave so much top-notch work that we might enjoy our mutual hobby. The rub is that these men pull their regular duty when they aren't on the field or in headquarters. So it's no picnic for them. And the day following the end of our activity they have an all hands clean up and remove our junk. Perhaps you'll be less messy next time? Another outstanding job is done by Chief Schott. He digs up equipment and men for every purpose.

At any rate we suddenly discovered that we were left alone with the headquarters room still unlocked and no key. There was some fancy phoning before we got Russ Nichols to come over and bail us out. Finally got some supper at 10:00 and went to bed by 1:00. Before we passed out we were still chuckling about Ken Johnson's discussion of what he could do to the proto speed boys if he read the book straight. As it was, many had to put on reasonable size canopies. They got off pretty easy because 98⅝% of them would have been disqualified with a strict interpretation. Will the rules be tightened or loosened? Tune in next year!

We got a look at the Smith-Stegens job, which as of July 24 holds all three proto records. This ship is really shaved down, and the feature of tying the gear to the engine head is sheer genius.

On Thursday we had some fun with the breezes. Around 10:00 a thermal was sitting on the edge of the runway dropping flee-fright jobs on the stunt and combat circles. Everyone had combat. One kid chopped an A job in half and kind of shook up his pattern. On his second flight the winds blew. C'est la guerre—Bob Hemingway spent most of his flight dodging them. Then the thermal moved over toward the hangar and the winds picked up.

Art Pawloski is one of the most consistent fliers I've seen. He got two scores within 1 point of each other. Our judges were exceptionally good and the boys on Circle 6, I'd put up against any judges I've seen. Again the procedures were silky smooth so we wandered over to watch the Old Men fly combat.

This Wooten fellow is a real operator. Using Johnson-powered "Quickers" with bladder tanks he rarely flies more than a minute. He doesn't need much more! Watched him clean an opponent who was inverted at the time. At a closure rate of 160 mph plus, figure the time necessary to hit a 3 foot piece of string. And he knew just what he wanted to do! Somebody hit him with a plank for the count, however, again proving that combat is Lady Luck's event. His buddy Carl Berryman, a 6'8" Texan can really wring out a ship, but he generally got wrapped up cause the poor normal people couldn't reach over him. He and Riley put on a real show at Saturday's demonstration, until they tried to get into the same piece of air. Pow!

Dennis Schauer showed up with a slick Stuka for stunt. A Hi Johnson design, it is full sized, light and no flap. But it slips through the pattern like a thing of beauty. Even in the wind it hangs out with an exceptionally rich run. Frank McMillan used up 2 attempts with a balky engine, only to come back and qualify. As usual it was the Fox engine hauling most of the jobs.

Some of these kids were really hanging on the pylons flying proto jobs. One just about got pulled out of the circle before he could get latched into his pylon. As before the protos were fast but still look like speed jobs with wheels. Hemingway hit 118 for a new Senior record only to be disqualified for wrist projection. All this seemed to stem from a discussion of technique used by the Lindsay-Massey team. Their ships are trimmed so well that they can be flown G-Line—raising and lowering the handle, and they are reputed to use other unorthodox techniques. So, everyone was closely watched. Their ½ A record was subject to protest, but we don't know how the contest board ruled on it. Actually it was the tab control which was under discussion, but this seems to fit the rules okay. Suppose there will be something on this later.

Thursday eve we rambled around the hangar yakking and being yakked at. George Moir was having his troubles with a hunting T Racer so we got into a discussion on that. He later shaved the airfoil into a more symmetrical shape and it worked. Had some fun kidding his pilot, Chuck Peters, about his advanced age for a Racer pilot, but he showed us up by staying on his feet all the time. These racers are really compact little machines and hold a surprising amount of equipment. After too many cups of coffee and several trips by Janet Eden's covey of brilliantly painted airplanes we thought we were seeing things. Turned out to be Stoop Garcher, Midwest Models, with a 55 gal. drum of Nitro-X over his shoulder. Whatta man.

During the night a front moved through and how it rained! Morning was clear, bright AND windy. Just great for the finals. Wind was 10 knots with gusts to 18. We got set up a bit after 9:00 and at 10:00 everyone was still sitting around waiting for the wind to die. I finally ran through a flight to show them it was all right.

We used to test wind by setting up a quart fuel can (full) endwise to the breeze, and if it blew over, it was too windy to fly. Never did! Bob Randall made the first flight and things rolled. Incidentally, there was nary a rack-in in stunt. It seemed that all the stunt men were around criticizing the operation and by 3:30 we were collecting rhubarb thick and fast. We were scheduled to shut down at 5:00 but by 3:30 it was apparent this wouldn't work, so we stayed open until 5:30. As it turned out at 5:30 there were 5 flights to go so we didn't get gone until 6:15. Two men missed their second flights, but as we told them, they wasted a whole hour in the morning being real sharp. So they cut themselves. Man what an argument. Anyhow Randall, Pawloski and Eddie May, Jr., became the contestants for the Walker Trophy.

The McCoy 60's were churning up the line and Team Racers were whistling around the other end. The Mac's seem to be exhausted as all records held (I think). Got up to Jr. Carrier long enough to watch a few flights. And that's what these were. Only 14 entered and if the ratio of 60% showing held true they got over with in a hurry.

Seems like most of the hot ships were worn out in Combat 'cause the final flights were mostly planks. My dislike for planks is based on a desire for a reasonably stable airplane. (I'm sure Swarzchild won't speak to me anymore particularly since his T-Square design won for Arrowsmith.) Obviously a whole lot of people don't agree with my opinion of planks.

By Friday evening we were beginning to feel the effects of the long week, so went out to fly our Roberts Throttle control trainer for relaxation. Had to wrassle Jack for it though. This idea of having full-range speed control fascinates me and get a lot of fun shooting landings. Also flew Lewis McFarland's pet Ruffy and here is a nice flying ship. Good in the wind and clean turning. With stunt over (almost) we were beginning to relax some, and after turning down the protests for the day, we slept in.

Saturday we rushed (?) out to the Team Race circles to watch the heats. There was a big crowd next to the runway and the ROW models were spewing out of it. Slipped over closer and just then a hole opened in the solid mass and a C job came blasting through. It was a toss-up as to who were nuttier—the flyers for flying—or the spectators for standing so close. We carefully walked away keeping our eyes heavenward. Some of these last minute ROW ships are wild, although others seem to derive help from the extra drag in the right place to prevent looping.

This Hemingway team is really fabulous. Bob lays the ship right in Dad and Sister's hands and quicker than it takes to write this it's on its way. Six seconds, 9 seconds. Moir's ship is really singing. He's got a special rework 29X, but he seems to have got lots of go and little start. Lost out in the final due to slow pit stops. Eddie May, Jr. has a purple people eater which tears. He has very little trouble passing these big guys, but who knows why.

Several people inform me there's a good-looking brunette looking for me. Never shows up—but learn later from Dale Kirn that it was Shirley Austin. Some days!

Janet Eden's racer is painted with flame pattern and it does just that. Coke for a fire extinguisher and up to finish the race. Dave Eden is flying the S.E.V. job and with 5 in the circle, all of a sudden he's the only one up. So fast no one even saw wha-hoppen. These guys have a cute wrinkle. Battery on belt, contacts on glove, wires up sleeve and contacts on nose of ship. Simply grab nose and crank. Anything for fast pit stops. Timber! A C job performs a neat ¾ loop and a washout rack in on the runway. Earthquake!

Went by ½ A speed and the instant impression was a bunch of nuts were loose. See what you think. Two guys

are huddled together while another waits tensely at the pylon, fish pole in hand. All of a sudden one of the huddle starts running like mad and throw his arms up. The guy in the center starts tearing around the pylon like he had hornets in his shoes and the mosquitos sound louder. When he stops going around his buddy goes over and pretends to pick up something.

Now I ask you. Is this a worthwhile way for grown men to act? As we got in closer they seemed to have tiny airplanes. Warren Kirth still flies 2 line and even brought a Swiss lathe and machine shop along. He built his ship in the hangar and it goes-goes-goes. Wisniewski is reported to have given up ½ A after several unsuccessful bouts with an over-hotted engine. Never did figure out how you hop-up a T-hopper.

Senior carrier looked good, but again got in on the tail end as there were only 17 entered. Hemingway won it with a 491. Something of note here is the consistent performances he's turned in. Last Nats and in Florida he turned in the 490's. He drops the rear half of his wing for flaps and does she ever slow down. If we were to pick a control line champ Bob would be it, since he turns in good performances in all events. This is due in part to a thoroughly integrated and competent family operation. Everyone helps. Wonder how Mom likes dusting trophies by now. There did appear to be more Roberts Flight Control systems this year. Perhaps it will catch now. He has a new bell-crank which is whistle-slick and a cinch to install.

The Navy demonstration this year was minus the Blue Angels for the first time. They fly beautifully, but this scribe enjoyed them most in Bearcats where you could see them. Professor T. O. Downwind put on a demonstration of how not to fly a J-3 Cub including a crosswind take-off, low altitude wing-overs and crossed control approaches to a very hard runway. All this was done with much aplomb and precision by Commander Schram.

They blew up a Goodyear inflatable airplane and wore out 6 Texans in the process. Great thing, but what about wood-peckers and sling shot artists. Phssst.

Saturday nite we shot the breeze with Rolland McDonald, Bob Gialdini, Moir, Peters, Duke Fox, Hi Johnson, George, Darrell Clevidence and his Dad and all sorts of people about everything from fibre-glas tank trucks to Lepages Glue. The three engine men were all there worrying about their babies and they each seemed to get their fair share of wins for next year's advertising mill. We, of course, refer to Fox, Brodbeck and Johnson. We were up 'til 5:30 a.m. swapping jokes with Hi. Watched a guy tear the Dyna-jet out of his Ryan "Fireball" because it was overweight. This must have been a monster to fly. He did it too. We suddenly remembered that the National Stunt Championships were in the morn so we got an hour's sleep.

We held the stunt deal down by the Team race circles and it was quite an affair. We used 4 judges and they worked just as well as ever. Art made a check flight and found a leaky tank, so off to the hangar for repairs. Randall had to drive back up from Indianapolis because he hadn't planned to win. Eddie came over from where he had spent the early hours ironing out a balky engine.

Eddie had the choice of position as the junior member and elected to lead off. He turned in a 408. We added the scores 3 times to be sure. Then Art flew. Consistent as always he turned up a 534. Randall did about 409½. Now the tension was noticeable. The wind wasn't particularly ideal and it was gloomy. I seemed to be the most nervous, however.

Eddie flew again and didn't come up to Art. One down. We asked Art if he wanted to wait for Bob's second flight, but he said he'd fly in turn. Another good one. Then it was up to Bob. The wind seemed to pick up and he realized that he hadn't done it. We were all kind of relaxing when here he came rolling at full speed on the ground. His trike gear is just right and he made a perfect 10 lap landing.

So, as in the past, the Senior is National Stunt Champ and a good one he is. If he didn't win so often you'd never know he was around. No fuss or feathers, just a quietly efficient job of flying a fine airplane. Our job was done so we turned in our gear.

The feature team race was marred somewhat although it was a fast one and otherwise well done. May got a prop whipped off when he took off through Moirs lines after a pit stop. He pulled out completely. Moir had the aforementioned slow pit stops. Hemingway came in a minute or so ahead of Tomayko who was a split second ahead of Schauer. As the ships finished they were impounded and their little tanks carefully measured with Warren Howards' trusty syringe. All okay.

Jim Harrelson had done a good job of running Carrier and it was all over when we got there. The blow-torch boys once again all look alike and the records held. Watched a couple of scale jobs clobber but that's another story. Too bad some of these builders can't get together with a flyer. So much work gone in such a short time.

We were forced to leave before the hardware was handed out but that will be in the *AT Model Annual* so we'll all find out the details at the same time. The hangar was about cleaned out when we left so we shook what hands were left, sympathized with the Florida Rineharts and blasted off for St. Louis. It rained on the way up, so it rained on the way back. But in between we went through the most smoothly run Nats yet. The weather man gave us beautiful weather and the Navy gave us space to fly, people to officiate and places to work and meet people. The AMA gave us a real set of officials and the advisory committee (Earl Witt, Keith Storey and Maurice Teter) gave us a good set of procedures and decisions.

As we look back at the faded image of masses of airplanes and people and score sheets and such, the good things come to focus and the rhubarb tastes better. The cries of "I was robbed" and "Wait 'til next year" diminish and the stories about "There I was at 20 feet—headed straight down and the up line broke" come into sharp recall. It *was* fun. !!!.....

Correction Noted. We intercepted a note from Johnny Brodbeck, vice president of K&B Allyn Co., to Bill Netzeband ("Wild Bill," that is). Johnny said he just couldn't resist dropping a line and making a slight correction to Bill's "excellent article" on the 1958 Controlline Nats which appeared in our November issue.

Johnny's comment concerned the report (on page 17) that "combat was flown from 4 grass circles, which made the engine mfgs unhappy."

In Brodbeck's humble opinion it should have read, "Combat was flown from 4 grass circles, which might have made some engine mfgs unhappy, but certainly not Johnny Brodbeck who was buried away in a tool room, located in the center of the main work hanger, repairing engines for free, and wishing that combat *was* being flown over an area covered a foot deep with foam rubber.

"I might add," continues J.B., "that during the 6 days of our free fix-it operation, we repaired 273 engines (which included some Fox, McCoy and OK power plants). In totaling our expenses we found that it cost us over $1,200 to operate our set-up at the Nats.

"Therefore, Bill, I'm sure you can understand why I personally wished that *all* the powered events could have been flown over that tall grass the fellows always talk about when they jokingly come to me and say 'Johnny, I was just hand gliding my airplane in the tall grass when the crankshaft bent and the case busted wide open!'"

Johnny, by now you must have caught on that your only reward will be in heaven. But on behalf of the thousands of harassed contestants you and the K&B Allyn gang have aided over the years . . . a thousand thanks!

"No frill, no gimmicks . . . just something functional."

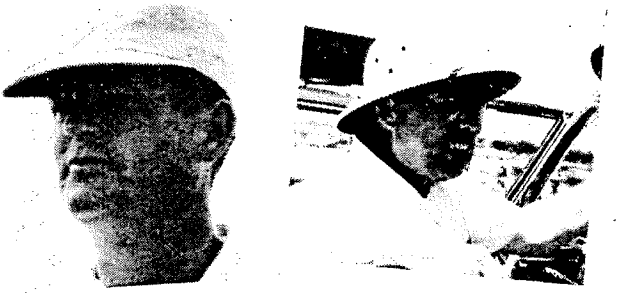
Here are 12 of the many reasons why the 1958 Nats were the best run ever. A lot of others helped out, too; many so busy our photographers never could catch them!

LAST BUT NOT LEAST

Top AMA official was Contest Manager Peter Sotich, Chicago (left); Maurice Teter headed Executive Comm.

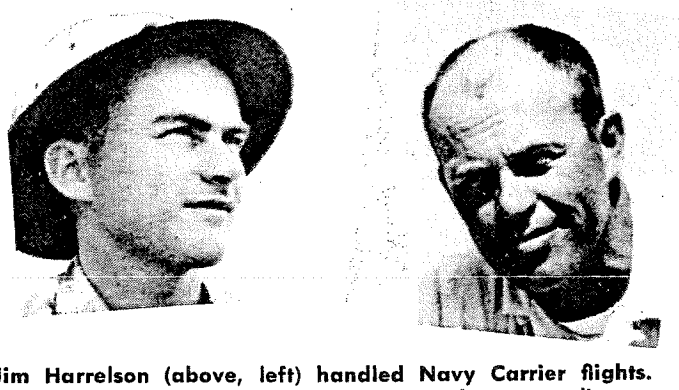
Hugh Darnell (left) kept air busy at Combat. Paul Bartel had private swimming pool—rise-off-water pond.

Ed Linthicum ran off "A" free flight, Clipper Cargo, Jet PAA-Load (left). Jack Greene directed all non-gas F/F.

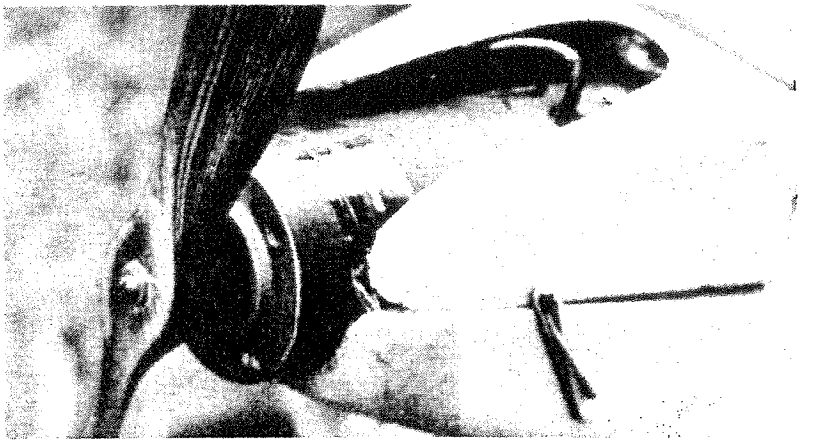


Bob Cowles lead F/F gas (left); Kenneth Johnson, all U/Cing. Event directors served under activity heads.

Joe Braun (left) worked all speed events. Don Goodman kept Nordic gliders and FAI free flights humming.

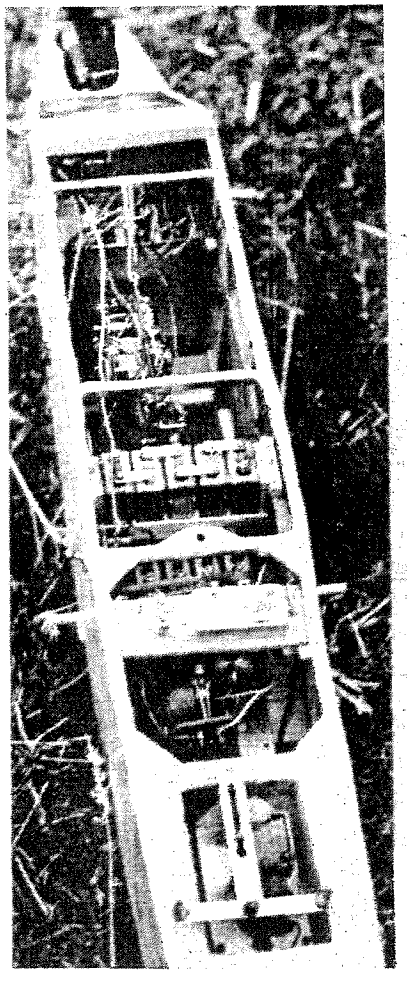


Jim Harrelson (above, left) handled Navy Carrier flights. "Wild Bill" Netzeband was everywhere along stunt line.

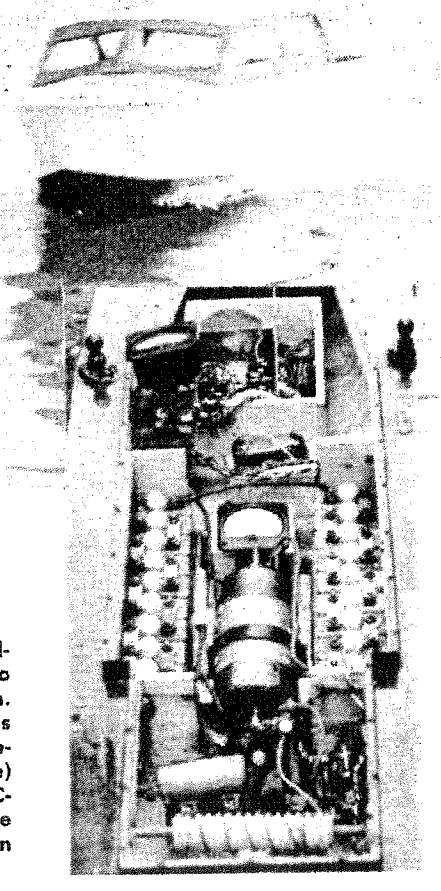


Electric Power's Popularity Rising

Experiments in America and abroad with radio control boats and plane models indicate that direct current-powered motors may soon play a bigger part in hobby-model activities. While the two main problems still remain—weight and cost—new type batteries and more efficient motors are slowly filtering into the hobbyist's domain.



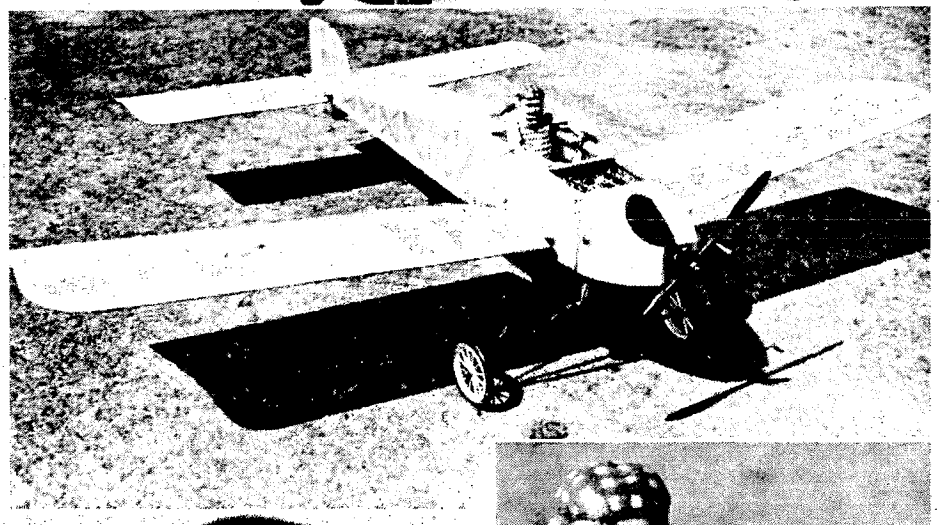
Above, left: 7-year-old British R/C uses surplus Emerson 24 volt motor developing 1/10th hp at 6 amps. Takes 25 silver zinc batteries; price, $3.50 each! Operates for 15 minutes per charge.

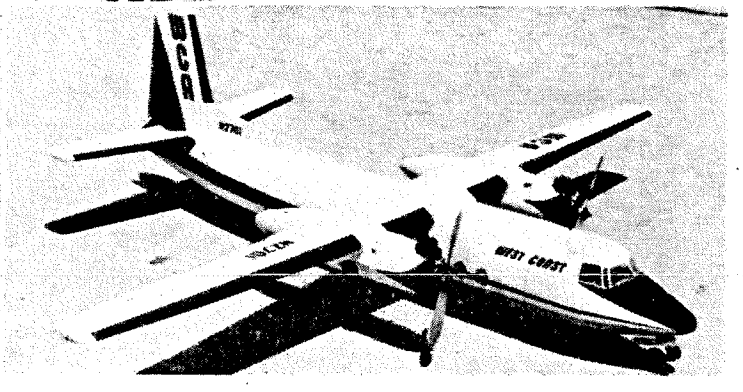


Speeding Californian craft, Lloyd Allen's 34 in. cruiser, does 15 mph. Two motors couple tandem to 2-blade, 2 in. dia., 4 in. pitch prop run off two NT-6's in series. Lt. Col. H. J. Taplin who operates the electric plane (top of page) also uses surplus Emerson in his DC-power speedboat (right). ED reed-type receiver. This is fastest electric boat in England.

BILL DEAN REPORTS ON THE "NATS"

Billseye View of the Air-Model Championships





■ It's always the same at the Nats—simply impossible for any one person to see the whole thing! All you can do is to keep going and try to take in a bit of everything, listening with a sad smile to those glowing accounts of the wonderful things that were going on just before (or after) you were at a particular event. Looking over the Nats photos afterwards usually makes you wonder if everyone went to the same contest?

Contestants probably see less of the championships than anybody—what with long hours spent testing, chasing, repairing and galloping from event to event (38 this year). With reference to this event-commuting, never, never get in the way of the guys who are trying to "make champ"—you'll get run right over!

However, one does the best one can—and this year we really kept on the move around Los Alamitos NAS with a slinky new Jaguar XK-150 "S" (that's the one with the 3 HD8 S.U. carburetors, 250 B.H.P., which does 135 mph plus) loaned to us as an "A.M. Courtesy Car" by the local Jag agency (Charles H. Hornburg Jr. Inc., 9176 Sunset Blvd., L.A. 46).

No doubt about it, the Nats is the balsa-whittlers version of "The Greatest Show on Earth"—a reputation considerably enhanced by the late, great Jim Walker, who was pretty much a one-man three-ring Circus, with his unforgettable U-Control demonstrations at many a past Nats. If you're one of those neolithic-age builders who still hoard yellowing copies of "Air Trails" (the ones in which Bill Barnes eternally jousted with the flying bad guys—and model plans by such great designers as Benny Shereshaw, Gordon Light and Elbert Weathers were featured), you'll certainly appreciate the magic conjured up by the word "Nats." Nostalgic Wakefielders will remember Jim Cahill (AMA 120!) and

From top: Parnell Schoenky, Kirkwood, Mo., Thermaleers, again won Helicopter with 88½ pts. Walt Mooney's fine Bleriot—inset, that's not Dean, it's Mooney's scarf-wearing pilot. Bill Wisniewski took "A" speed with Pink Lady II powered by home-made .152 motor. Elbert Ratan won in C/L scale with fast-flying 69" Fairchild F-27.

Presentation time: Keith Storey at the mike. Seated, from left, Russell Nichols, AMA director, then Prexy Good's family—daughter Ginnie, Momma Joyce, Poppa Walt, son Terry.

his famous "Clodhopper" 1938 winner. Well, he was at this year's Nats—flying a hi-thrust line, V-stab, Fiberglas fishing-rod fuselage, FAI ship. Jim told us that it was his first model in five years and he was sure happy to be active in model building again.

Over at H/L glider, a young Chicago Aeronaut by the name of Carl Goldberg (that's not grey in his hair—just balsa dust!) was heaving his model up with the best of 'em. Hard to believe that Carl has been to every one of the Nats and flown in them too—but he definitely has! Following closely in Carl's footsteps nowadays is son Robert, who has been known to disconcert dad on occasion by bringing home a rival kit firm's product from the local model shop!

Stepping over to the Work Hanger we found Johnny K.A.B.A. Brodbeck had set up his engine repair shop as usual and was already up to his ears in first-aid for sick engines of every shape and make. Johnny takes on this self-imposed chore every year, frequently repairing competitors' engines which he knows will immediately be thrown back into the fray to fly against his own K&B Allyn products. It's all for free too—just the Brodbeck way of helping to keep 'em flying at the Nats!

So many well know modelers get along to the Nats, it's just impossible to mention them all. Here are just a few of those we spoke with during the 7-day balsa festival . . .

Old-timer Pop White, whose 31-year-old son Paul flew in his beautiful little home-built "Smith Miniplane" to Los Alamitos. Paul's 65 hp Continental powered 17 foot span biplane took just 9 months to build; weighs 500 lbs. and cruises at 120 mph.

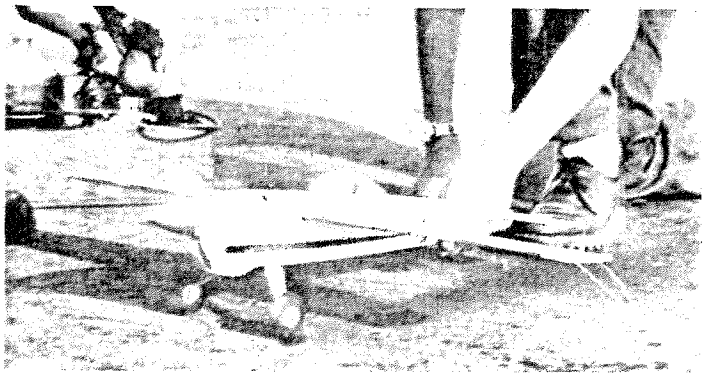
Topeka's C. O. Wright was there—and took 2nd and 3rd in PAA Clipper Cargo .049 and .020 events. No matter how frenzied the activity around him, C. O. always manages to convey the impression that he is enjoying a peaceful Sunday afternoon of model flying. Completely equipped with an awning over the back of his car, a portable workbench and a midget stool (which he carries out to the take-off area), the Nats most venerable contestant continues to get just as much fun out of contest flying as any of the youngsters.

Model industry people are always very much in evidence at the Nats. Engine manufacturers Leroy Cox, Duke Fox and Hi Johnson were haunting the gas events—happily noting the distinctive sounds of their own particular products throbbing away on all sides! Dan Lutz, K&B Allyn's shop manager, flew a beautifully finished Art Chester Jeep 3 in Open Free Flight. A tricky design this one, but Dan trimmed it well enough to place only 2 points behind winner Walt Mooney, who flew a nostalgic Bleriot IV monoplane. Norman Deitchman, Top Flite kit designer, entered his amazingly detailed S.E. 5a again, but luck was against him this year and he didn't place.

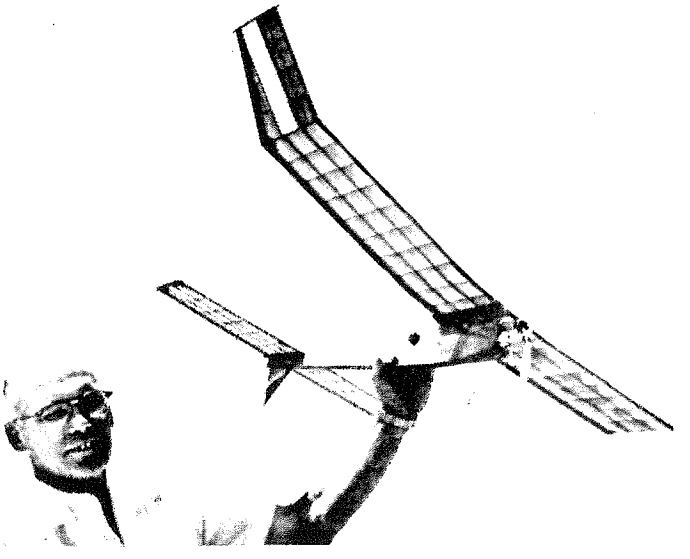
Escapement maker Howard Bonner had one of the most original models in the R/C Pylon event (he tied for 6th place with Willie Williams)—a Torp 19 powered delta pusher (45-½" span), based on the Avro Vulcan bomber. Orbit 6-channel equipment was in this 768 sq. in. area, 5 lb. ship. Noteworthy, was the use of vacuum-formed Butyrate sheet for fuselage (integral canopy) and fin (integral engine cowling) parts—with Nopco Lock-Foam being poured in as a filler, after adding formers to seal off the radio and engine compartments. Fred Dunn co-operated with Howard on this

(Continued on page 148)

Open class (over 21 years of age) Stunt championship was taken by Bob Palmer flying modified Thunderbird. Engine inverted, wing has extra tip area and differential flaps.



Tops in Team Race category was Eugene Leedy's McCoy 29 powered entry being released (above) by helper. Design is 33" span "Hustler." Vic Cunnyngham, Sr., Baldwin Park, Calif., took Open Half-A free flight with 56" span, Hornet powered Space Rod. Hez Thunderbirds member. Winning time totaled 20 minutes, 11 seconds.



design and fellow "Larks" Bob Dunham and Ray Downs both flew front-engine powered versions, using the same Bonner rib patterns.

Fred Dunn has shelved his low-wing "Astro-Hog" layout in favor of a much more compact and attractive semi-scale, based on the Bucker Jungmeister and the Pitts pecial, which he naturally calls the "Astro-Bipe." Wonderful on aerobatics and it looks remarkably real when flying.

R/C Pylon is coming on fast. Now in its third year, most of this years Nats entrants were able to keep their models down low and make real close pylon turns. Particularly good was Walt Good's flying, although his model was only fast enough to place 5th, at 35.16 mph. On one right-on-the-deck pylon turn, he hit a sudden gust, the left wing tip sliced into the grass and the fuselage broke off aft of the wing. But Walt's usual cheery composure remained unruffled and it was a fine example to AMA members to see their President's philosophical attitude when the dust rises and the balsa splinters fly!

Pylon winner Bill Deans (41.24 mph) flew a simple box fuselage, low aspect ration design by Gerry Nelson—while Gerry flew his own almost identical entry to 2nd place at 40.81 mph.

Outstanding R/C Rudder design at the Nats was the Barks Club members rugged "Charger." No less than eight club entries qualified in the eliminations with this tricycle L. G. cabin design—and Californians Charlie Hayes and Milt Boone easily took first and second places in the Open event. Frank Ehling ("A. M.'s" Model Design Editor) displayed his ability to pick a winner, as he had already snapped up the magazine rights for this model early in the Nats, after seeing a few practice flights. Matter of fact, "A.M." lined up dozens of the best Nats models for future construction features or detailed 3-views.

Don Foote, who designed the "Westerner"—one of the most successful free flights of all time—was attending his *first* Nats. Not competing himself, but helping friend Bud Romak, whose impressive stable of Free Flights of all shapes and sizes, included the latest Torp 19 powered development of the Westerner. Santa Barbara's Stan Hill, turned up with an unusual FAI ship—forward fin, with an Oliver Tiger mounted half-way up, 'W'-braced flying surfaces and an underfin. Brand new—and once he had ironed out a few trimming bugs, it showed fine climb and stability characteristics.

Bob Hunter's elliptical-winged "Satellite" (prettiest pylon for many a year) was easily the most popular F/F gas design. One "B" Satellite had the engine in a pod and carried the stab between two slender tail booms. Quite a few old-time F/F designs were flown this year, including Zippers, Sailplanes and even an old Buccaneer Special! Winner of Open ½A F/F was Vic Cunnygham's functional (under-fin) "Space-Rod"—with many more entries of the same design placing high in the other age categories—plus ROW.

Top place in Open Stunt went to Bob Palmer and his latest version of the famous "Thunderbird" (which news item will confuse Ford dealers!). Bob told us that it will eventually replace the present Veco T/Bird kit. All up weight is still the same—the main changes being blunter wing tips to give an extra 20 sq. ins. of area, longer moment arm, more stab area, "differential flaps" (inner one has more travel, for line tension) and a better scale look by inverting the powerplant.

Back in '48, Bob hurt his right hand in an accident and when he later resumed flying, found difficulty in handling the hefty line-pull of the big 65 powered ships that he, Madman Yates and others were using. The solution was obviously smaller 29 and 35 powered designs and when others saw that Bob's new models performed just as well, they followed in his prop-wash. And that's how the present popularity of 35 stunt planes got started! With the engines getting more powerful each year, the models have gradually become large again (as typified by the latest T/Bird), but without presenting any flying problems to Bob, judging from his polished flying Nats win.

Senior Stunt winner Bill Werwage also became the Grand Stunt Champ this year, with his sleek Fox 35 powered, wheel-spatted "Ares." Bill's design featured a 574 sq. in, wing (with flaps), wing mounted L. G., extremely high aspect ratio stab—and has remained virtually unchanged during three years of contest flying. Best looking stunt entry was without a doubt Dennis Alford's semi-scale Spitfire (5th in Senior), designed by Hi Johnson and powered with a Johnson .32. Most semi-scale stunts lose a lot of their original identity, after being stretched out to obtain desired design proportions, but not so with the Spit—which still closely resembles what was generally considered to be WW/2's most beautiful fighter.

The flying scale events saw the usual crop of out-of-this-world models. R/C scale was won with 274 points by 16-year-old Bob Schultz's massive Fox 59 powered Mustang F-51, fitted with Orbit R/C. Reynold Van Dyke's Luscombe Silvaire was 2nd and Dick Riggs (who had top scale points) came 3rd with his Hollinger PT-19—after being plagued with radio and engine troubles. A giant Fokker DVII entry from Mexico took 4th and another PT-19 was 5th. Also entered were McCullogh's Short Seamew, deBolt's Cosmic Wind, a J-3 Cub, a T-Craft and another big Mustang.

In Open C/L Scale, Bill Ogden won with the same immaculate FW 190A-5 he had at the '58 Nats (when he placed 4th). His model had a detailed cockpit, sliding canopy, machined landing gear parts and many other mouth-watering features. Ed Childress took 2nd with his 82" span B-29 and John Tatone's low-wing made 3rd place. Although these entries all featured outstanding craftmanship, our personal choice for the entry with the best "real plane" look was Rolf Norstog's beautifully detailed matt-finish Spad XIII, which placed 4th, Another eye-catching entry was Cedric Galloway's orange and blue Grumman Gulfhawk 4, which fairly bristled with machined metal parts and would have gladdened the heart of the late Al Williams, who used to fly the real one. Phil Garrard's folding-wing F7F3 Tigercat was by far the best twin-engine scale entered (placed 5th) and it made us think (not for the first time) that it would be a logical step to split C/L Scale at future Nats into single and multi-engine events.

This year, the Grand and Junior Champ awards went to father and son contestants—the first time such a thing has happened since the Nats first started back in '28. The Champs were Bob Hunter, 36, of Sun Valley, California, and his 11-year-old son Bill. Bob stacked up a tidy total of 662 points (best placings: 3rd, 4th and 5th) and Bill scored 511 points (he had two wins, 4th and 5th). Senior Champ Sherwin Maslowe, 20, of Detroit, attended the Nats as Michigan's "Air Youth State Champion" and took four first places, 2nd and 4th.

Although Championship points are awarded for placings in all events entered, its always interesting to note which contestants actually won the most individual events. In Junior (up to 16) we find Brent Hawkins (Illinois) out front with 4 firsts—then Champ Bill Hunter tied with 2 wins with Larry Miller, Dan O'Malley (both Ohio) and Dave Cople (Calif.). In Senior (16-21), Champ Sherwin Maslowe still leads with 4 wins—followed by Fred Carter, Larry Grogan (both Texas), Ray LaHood (Neb.), Bill Brooks (Wash.) and Vic Cunnyngham (Calif.), all with 2 wins each to their credit. In Open (21 and up), Charles Sotich, Warren Kurth (both Illinois) and Loran Salisbury (Calif.) all had 2 wins each—compared with Grand Champ Bob Hunter whose top place was a 3rd. But Bob had to do well in an awful lot of events to get those 662 points and his award (like all Champ awards) was well deserved. Al Ross set up a new Junior "A" F/F record—as well as beating both the Open and Senior winning times with 27:58.8. Incidentally, in 6 other Junior events, the winners did better than their Senior counterparts—and in 6 Senior events, the winners topped the scores of the Open Winners.

The Navy flew some of the AMA and Press people out to the West Coast in a Douglas R4D-8. Sitting next to us was Johnny Clemens, former Nats Stunt Champ, balsa-world beatnick—and now the self-proclaimed "Friendliest Neighborhood Dealer" in the model business.

Maybe it's because of the new vitamin pills we've been taking, but there seemed to be an abundance of pretty girls at this years Nats. Anyway, to someone who digs both model planes and chicks, a whiff of sandlewood perfume coupled with subtle overtones of dope and glo-fuel, can be maddening. It's just such a distraction that makes you finish up with 3 exposed rolls of Tri-X, all of the same cute contestant—with everything in focus except the model plane she's holding. You wonder—is it possible that this frail creature in the delightfully tight jeans intends to fly against those hulking six-footers out there in the combat circle? You bet she does—and most likely, she'll chop their streamers right down to the knots, without as much as batting a false eyelash.

But let's be fair. Not all girls are like this. There are the sensitive ones who go all to pieces when it's their turn to fly or act as a helper—as more than one tear-stained control handle or booster battery can bear witness. Like Virginia Randall, who was perfectly composed while flying her screaming twin-Dooling 29 powered Tigercat, but immediately broke down and wept on husband Ray's shoulder after making a good "deck" landing. How did she make out, you ask? Just first place in Open Carrier, with 437.51 points, that's all!

Dealer-of-the-Year Richard Palmer of Parsippany, N. J., stands between American Telasco's Grenville Braman, Jr. (left) and Lee Shulman, long-time great in air-model contest circles, now sales representative for model manufacturers. Rich's control tower in background is center of model plane activities.

Jersey Dealer Wins "Pioneer" Honor

■ A store located on a busy highway, in the "middle of nowhere"—could it prove a profitable venture? Six years ago, Rich Palmer asked this question, answered it with the courage of his convictions and in 1959 found that his answer netted him profits and the distinction of being named the Hobby Industry Association's "Retailer of the Year."

The Association singled Rich Palmer out of its retail membership for "his broad program of practically pioneering the concept of linking activity areas for flying planes, running boats and race cars with a highway retail location. This has exposed hobbies in action to countless thousands and furthers the concept of really demonstrating the merchandise to make the sale."

The background to the winning of this Award was the fact that Rich's Hobby Towne, Inc., Parsippany, New Jersey, incorporated all the valuable ingredients necessary in the completion of any sale to any consumer. The retailer must understand what he is selling and why. Rich Palmer, whether he asked himself that question or not, came up with the fact that hobbies are fun . . . in some cases hinge on a sporting level . . . and he used this to create not only a profitable business for himself but a haven, a retreat for hobbyists of his community.

The "why" to his sales he found in real demonstration, in the fact that customers were able to actually see a model airplane in flight, watch a model boat navigate, or time the speed of a model race car. All this background produced America's first Tri-O-Rama Field.

Tri-O-Rama Field, adjacent to and owned and developed by Hobby Towne, covers seven acres of ground. It incorporates five model airplane flying fields, two midget auto race tracks, and a boat pond. A scale model control tower stands in the center of the activity area and it is here that all operations and programs are handled. Lining the sides of the fields are parking lots which can handle 1,000 cars. Bleacher seats for 1,500 spectators face each activity area.

In conjunction with field operations, Rich's Hobbytowne, Inc., sponsors three clubs, "The Flyateers," a model airplane club; the Model Race Car Club; and the Model Boat Club. A newsletter, clinics and classes for hobbyists, advertising and billboards help "Rich" tell his story to a four-state area.

Model boat pond dredged out by Rich's Hobby Towne is at rear of Tri-O-Rama field. Between pond and highway-side store (arrow) are two model car tracks. Modeler above is being towed by miniature steam powered scale tugboat.

Twenty-five Years With Modeldom's Most Famous Brother Act . . .

The Indefatigable Polks

■ Trying to describe the activities of the Polk brothers of New York City in a single magazine story is something like condensing the World Almanac into a 25-word statement. One contemporary calls them the Olsen and Johnson of hobby modeling. But their 25-year-old Polk's Model Craft Hobbies outfit is a lot better organized than any Hellzapoppin' revue.

In cataloging the growth of PMCH and the careers of its two luminaries, Irwin and Nathan Polk, the chronicler is soon convinced that here is a real brother act. Irv can crank up a promotional program or sales campaign, Nat can step in anywhere along the line and carry it to a successful conclusion. Or Nat can initiate a new venture, then turn it over to Irv for completion.

Between them the Brothers Polk have made many notable contributions to modeling, which include numerous "firsts". Some of these are—

Conducting a model plane column in a daily newspaper (Newark, N. J., Evening News, 1926).

Organizing the first large department store aero league (Bamberger Aero Club, 4,000 members, 1926).

Setting up sizable hobby shop in major department store (Bambergers, Newark, 1926).

Directing the 1932, 1936 through 1939 National Championship air-model meets, the International Lord Wakefield competition (1941), plus all the early Eastern States model meets.

Interesting the National Exchange Club in supporting model aviation, also the Plymouth Motor Company (which was brought in as a part sponsor for the National meet).

Conducting the Junior Birdmen of America Institute; playing a vital part in the organization of the Academy of Model Aeronautics, the International Gas Model Airplane Association, the Metropolitan Model League.

Editing an early model magazine (Model Aircraft Builder, 1935), editing an aviation newssheet (Contact).

Running first all-gas model meet (Caldwell, N. J., 1935), also the first

Nathan (left) and Irwin Polk and their NYC headquarters. Photo by Meljay.

contest with limited engine run for gas entries.

Laid the groundwork for the model-hobby trade association; set up the first model industry trade show; served as first manufacturer's traveling sales representative for the trade; introduced Jetex and table-top electric car racing to America.

Lent enthusiastic support and innumerable hours to every worthwhile pro-hobby program that has come along.

Irwin, elder of the two world famous brothers by 18 months, recalls that the Bamberger club members built Baby ROG models in the mornings, held meetings in the afternoons. Since many members had never seen a model plane before they required lots of help with the little rubber-powered ROG's—and Irv was their teacher. He remembers building many models in the pine and basswood era—in fact models were his one and only hobby. Young Polk entered competitions and won a few prizes but says the delicacy of indoor microfilm endurance models got him down; he recalls spending 15 hours unsuccessfully trying to produce a hollow balsa motorstick for an indoor model. That did it! Thereafter he turned to promotion and leadership in model work to keep close to his hobby. Claims he was a prime example of "Those who can, do, and those who can't, teach!"

Among the many larger meets that Irv directed was the famous 1932 "Depression Nationals" at Atlantic City; at this Maxwell Bassett walked off with practically every trophy, flying his plane powered by Bill Brown's gas engine—and thereby forced a revolution in competition rules.

The following year Irwin formed an "R/C Team" of Bamberger members, to develop and fly a radio controlled model. They chose the Curtiss-Wright Junior since this put the expensive and vulnerable gas engine in a fairly safe spot atop the wing. The model was BIG—10' span—and it was rugged. The craft flew well enough but never under really successful radio control. The R/C equipment must have been crude, for Irv recalls that a husky spark coil was the main element in the transmitter. This put out a terrific signal locally and disrupted tests being conducted by Bell Telephone on a blind landing system for big planes. Two modelers in the endeavor, Welcome Bender and Henry Bunkel are now doing very well in the aviation business.

Top rank industry figures who appeared at the Bamberger Club meetings included an executive of the Kellett concern, which was then building autogyros. Polk set up a B.A.C. competition which brought out what must have been the first successful model autogyro, flown by Alton DuFlon.

Another first for Irv was a "pay load contest"; fliers piled all the weight they could in their models, which staggered off the ground in genuine free flight. One modeler ran out of normal weights, so attached his two doorbell-battery starting-boosters to the plane, which took off in fine shape and made a good flight, despite the fact that the big batteries slipped their moorings during the flight and dangled below the plane on the starting cable!

Looking for an even bigger field in which to promote model aviation Irv left Bambergers to go with the Hearst newspapers, where he was one of the "wheels" in the Junior Birdmen organization, conducted in 17 Hearst papers in the largest cities of the country, coast to coast. At this point younger brother Nathan enters the story. He took over at Bamberger and ran the club for several years. He also opened his own hobby shop with the name used today.

Nat traveled considerably from his Newark store as the first representative in the hobby field to promote such lines as those of Jim Walker's A. J. Aircraft, Ideal Models, Burd Model, plus various Polk products. Sales in those days were made principally to department and sporting goods stores, even to gas stations, since hobby shops existed in very few communities.

Alway looking for a way to promote model aviation as a means to educate youngsters for a career in the big plane industry, Irv saw a good opportunity when he was offered Editorship of the magazine Model Aircraft Builder. Unfortunately the publisher had other magazines which were not lucrative, and the model mag folded with the rest of them.

While he was an editor, Irv took *his* first plunge into the model plane retail business—he opened a store near Penn Station in New York. Since he had to work on the magazine during the day he persuaded his wife Chuddy to "mind the store" and she was active in the business for quite some time.

At this time Nat closed his Newark store and joined Irv in New York; he continued his travels to promote sales and interest in modeling, Irwin also took to the road.

Business was good and it was soon found necessary to move from the single-room "walk up" shop to another building nearby where the entire second and third floors were devoted to hobby goods. This was in 1938; soon the brothers got into wholesaling hobby goods in addition to expanding their activities as manufacturers representatives. The Polks moved to their present building on New York's 5th Avenue just before World War II.

The Polks must pass on to their co-workers a considerable interest in modeling and hobbies, for many of those in the firm have been there for 10 to 20 years. On the other hand, a stint at Polk's has launched quite a few modelers on successful careers in modeling and other fields; among their "alumni" are A.M.'s Al Lewis, also Aubrey Kochman and Leon Shulman.

After the partnership was formed the brothers set up the Metropolitan Model League in New York. Nat also organized the International Gas Model Airplane Association (IGMAA) devoted, as its name implies, solely to power flying. As Field Director he conducted the first all-gas-model contest. Soon IGMAA units throughout the country were following suit. IGMAA obtained insurance for its members at very low cost to cover their liability while flying models propelled by "engines that belched flame from their exhausts." The licensing and insurance programs later turned over to the budding AMA formed an important source of income for that young organization.

Nathan Polk with Stanley Hiller (rt.) when young Stan was manufacturing gas engine powered race cars. Hiller is now one of the major makers of helicopters and VTOL aircraft.

Irwin Polk processes parasol gassie at 1937 competition, checking amount of fuel plane can carry. Irv directed first contest with limited motor runs, Nat handled first all-gas meet.

Irwin ran the first gas model meet with limited engine runs; no timers were available so he commissioned Prof De Bobrovsky to develop a practical timer, which was then made available to all those who needed it.

Nat over the years has acted as "guide and chief nose wiper" to many groups of youngsters he has conducted to and from the Nationals in various U.S. cities. He has also been involved in many fund-raising programs designed to promote modeling.

The Polks have done some hobby product manufacturing on their own. Their first product was a line of hand-carved gas model props—"Polks Perfect Pitch Propellers for Particular People!" And while they didn't do the actual manufacturing, they merchandised the Atom gas engine, which many now feel was a design 15 years ahead of its time. The Atom with many advanced features was a sensational tiny lightweight job of .099 cu. in. displacement. It was one of the first engines with 360 degree exhaust, now so commonplace.

The first model cement sold in tubes was a Polk product which was marketed using Berryloid products. Balsa importing and cutting was a field they got into by necessity; in 1948 they sold a special gang saw they had developed to Berkeley Models. The brothers' Constructo line of "prefabricated" pistols and ship models made them the biggest users of lumber in Spain!

The Polks were very active in the formation of two organizations that many now take for granted—the AMA and HIAA. Feeling that model plane competition needed more recognition by full scale aviation Irv made repeated trips to Washington to interest the National Aeronautic Association in the movement. He was finally able to sell his idea to William R. Enyart of N.A.A. and the Academy of Model Aeronautics was set

(Continued on page 152)

Polk's 25th

up as a division of N.A.A.—main stipulation was that the new affiliate could expect no monetary support from the parent group! Lt. H. W. Alden who assisted in these efforts did a lot of work in the infant organization, until it was able to employ its own full time Director. Irv was responsible for inducing Boston modeler Al Lewis to become the first such Director.

Need was apparent in the mushrooming model industry for a national trade organization. In 1938 Irwin sent letters to all manufacturers urging them to attend the National Model Airplane Championships, become acquainted with each other, and see their products in use. He and Nat arranged the first "Trade Show" in 1938. Nat set up each manufacturer's display, handed out circulars, and repacked the display after the meet was over. All this for the princely sum of $25—which went into the contest fund. In 1939 the industry group meeting attracted real interest—aided no doubt by the contribution of a barrel of free beer by the makers of Ohlsson and Brown Jr. engines.

abroad the products of American manufacturers. Present most "exotic" import are butterfly collections from Formosa!

Continuing their "promotional" activities right up to the present, the Polks are still ever on the lookout for ways to help the young modelers. For example, Nat was instrumental in raising funds that enabled the HIA for the first time to bring a top modeler from every one of the 50 States to the Nationals in 1959, all expenses paid. And this after many other in the Association had agreed that it was a fine idea—but no one else was willing to take the initiative. He was so successful in this that he was persuaded to undertake a similar promotion among the model railroad members of HIA; the funds raised were used to produce a film on model RR hobbying which is being shown widely on TV.

Basically the brothers' aim is to aid the hobby dealer in making his shop the spare time activity center for its neighborhood or community. In recognition of this effort Polk's Model Craft Hobbies received the first H.I.A.A. award as "Hobby Jobber of the Year."

We only hope that the industry can keep up with them during the next 25 years.

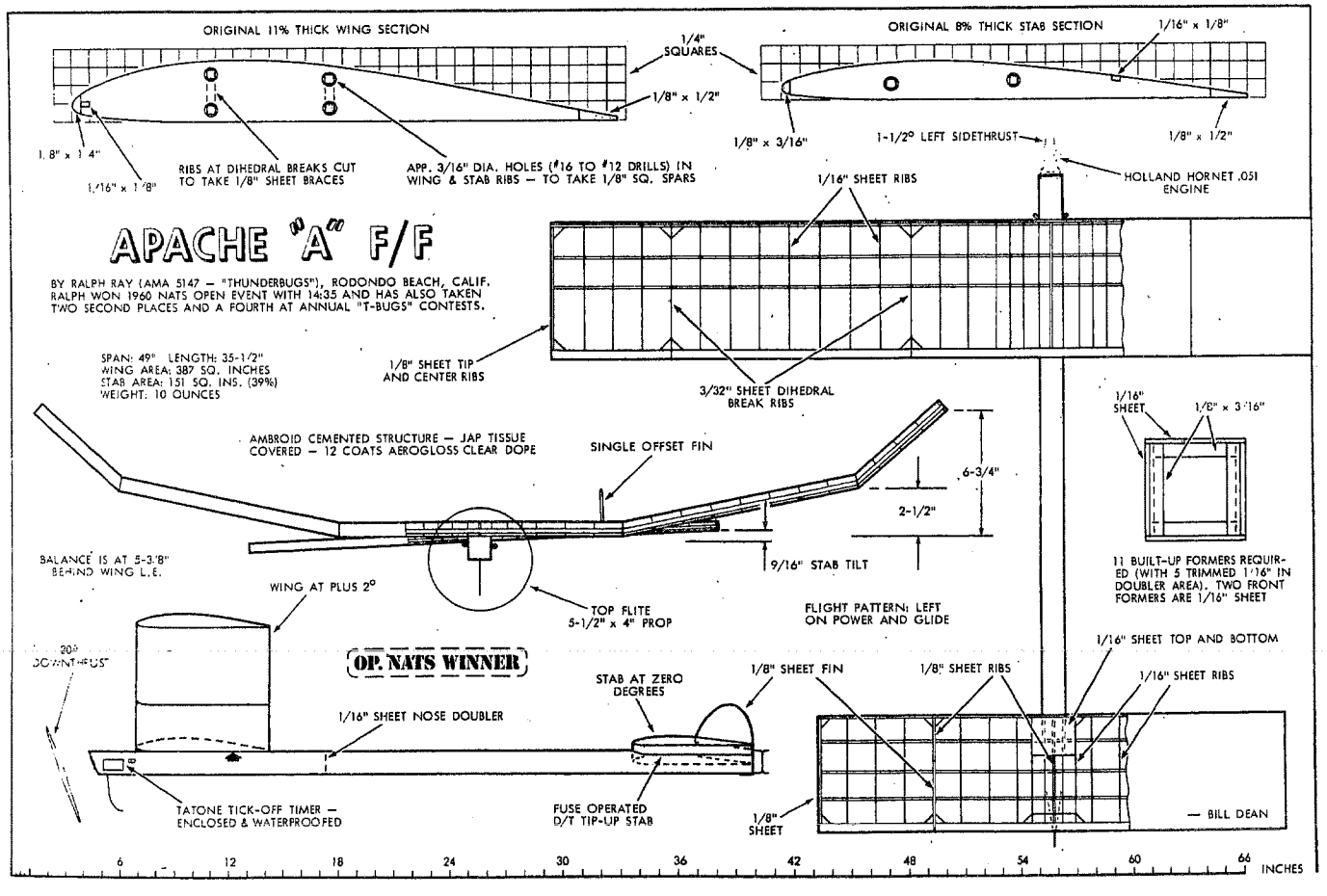
First formal elections in the organization (then called the Model Industry Association, now the Hobby Industry Association of America) were held in 1940 at the Chicago Nats.

When Irwin started the New York retail store he carried mostly model plane materials (plus a fair amount of goods for model boating—a field that has always interested him). When the move was made to a larger store model railoard equipment was added. Up until this time plane and railroad hobby goods were seldom sold in the same store; the Polks changed this and when they got into wholesale selling they persuaded many established model airplane shops to add RR to their stock.

When model car racing interest began to stir they pushed it strongly. One of the race lines they carried was the Hiller Comet; these cars were made by Stanley Hiller, who now owns the famed helicopter company.

Polks entered the import business quite early; they are always on the lookout for foreign goods to fill "gaps" in the lines made in this country. Both brothers travel widely overseas every year, bring back not only model but craft goods of all sorts, and on these journeys sell

NATS 3-VIEW

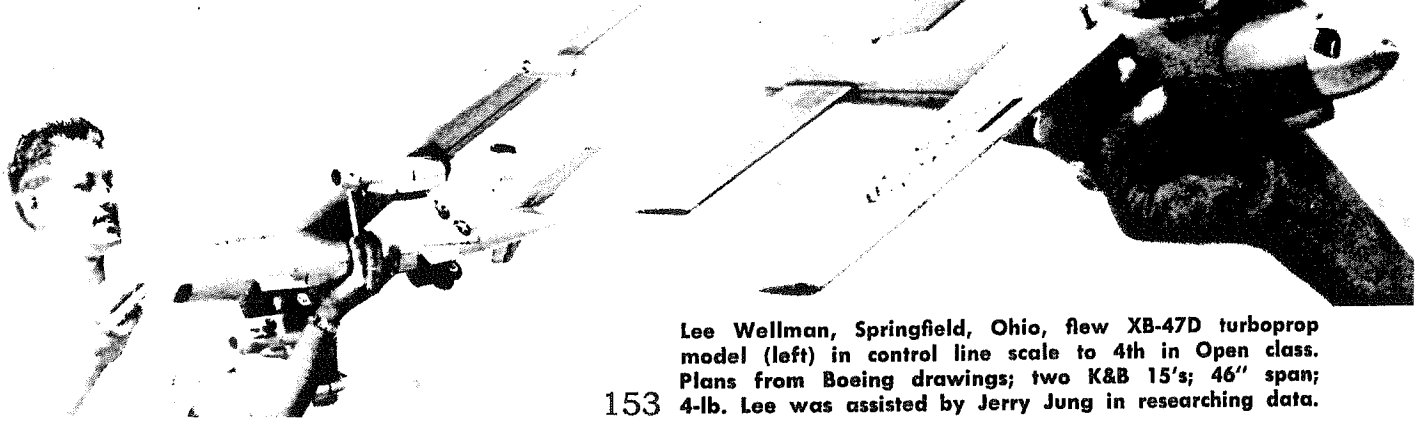


Dallas and U.S. Navy Run Outstanding National Championship Model Plane Competition

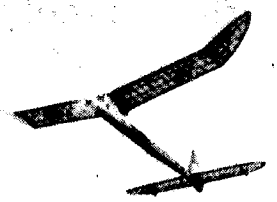
Exclusive photo coverage by John Schneider

The 29th annual air-model Nationals was the 13th hosted by the United States Navy at its Reserve airfields. Held at Dallas, Texas, Naval Air Station July 25-31 it was one of the smoothest operating "Nats" of all time. Open class entrant Robert Sifleet, 21, Toledo, Ohio, was crowned National Champion. Bob (above) gets top award from Navy's Vice Admiral R.B. Pirie. Senior champ John Diebolt, 20, Orlando, Fla. (left, below) is seen with HIAA-AYSC's Bill MacMillan and Jr. Champ Dan O'Malley, 14, Parma, Ohio.

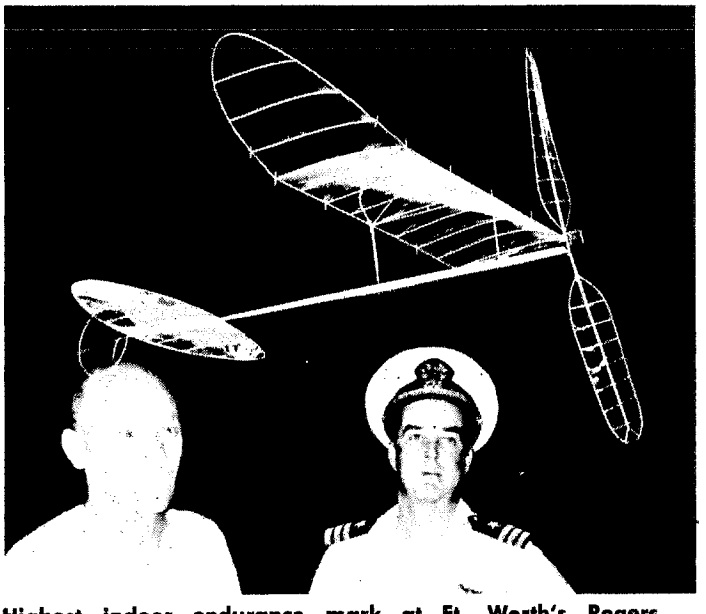
Jere Draper, Cleveland, Ohio, won 1st in Senior Class C speed with this fibreglas covered Mc Coy 60 powered original 158.95 mph'er.



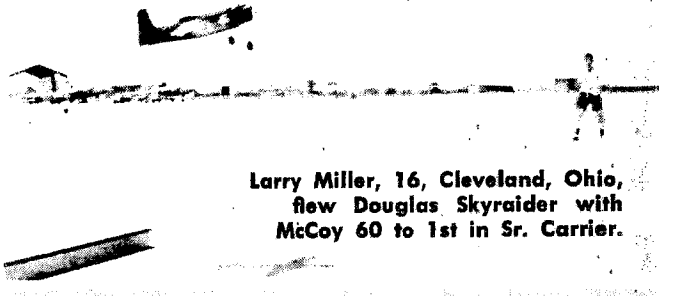
Lee Wellman, Springfield, Ohio, flew XB-47D turboprop model (left) in control line scale to 4th in Open class. Plans from Boeing drawings; two K&B 15's; 46" span; 4-lb. Lee was assisted by Jerry Jung in researching data.



Left: Otis Goss, Independence, Mo., launches 1st place FAI open winner; Oliver Tiger 15 diesel. Right: Warren Kurth, Bloomington, Ill., repeated 1959 victory in A-1 Nordic towline glider Open with record-holding "Jetstream"
(See pg. 30)



Highest indoor endurance mark at Ft. Worth's Rogers Coliseum was by Joe Bilgri, San Jose. Calif. (above); his Class D microfilm stick model did 25 min., 27.4 sec. Catherine de Montel (right) with original was only gal in Proto. ▶

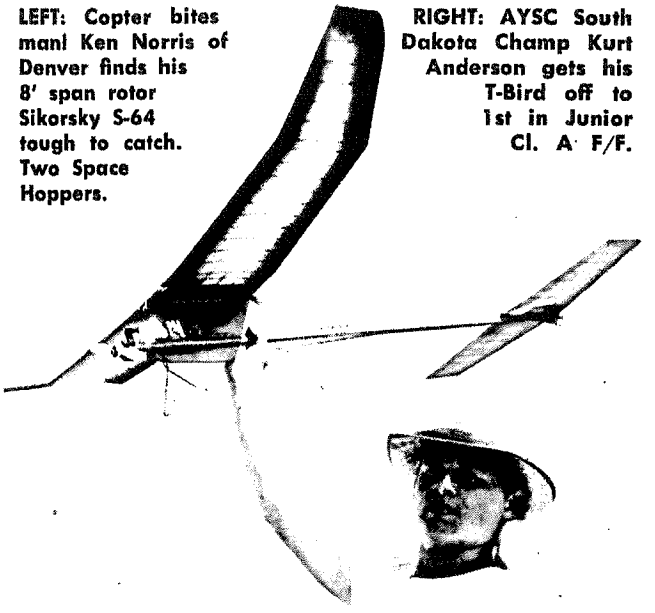


Larry Miller, 16, Cleveland, Ohio, flew Douglas Skyraider with McCoy 60 to 1st in Sr. Carrier.

Super-duper free flight Loening OL-8 amphib won 1st in Jr-Sr class for 16-yr-old Thomas Mayer, Pensacola.

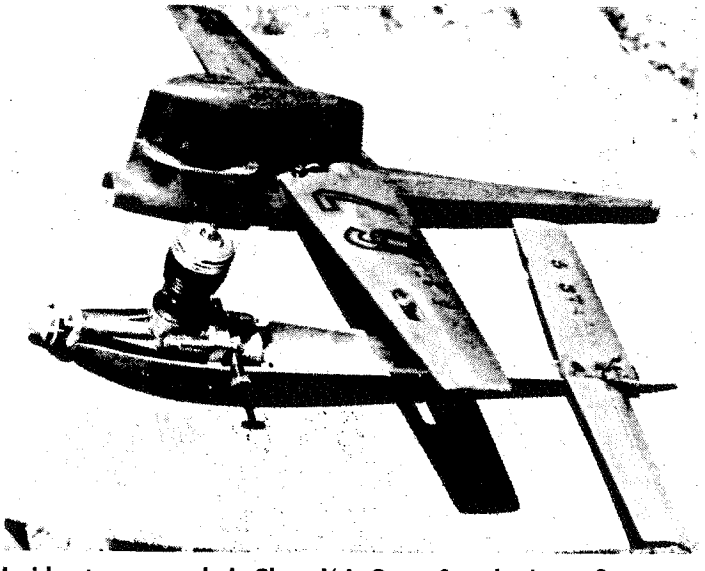
AT THE NATIONALS . . .

LEFT: Copter bites man! Ken Norris of Denver finds his 8' span rotor Sikorsky S-64 tough to catch. Two Space Hoppers.

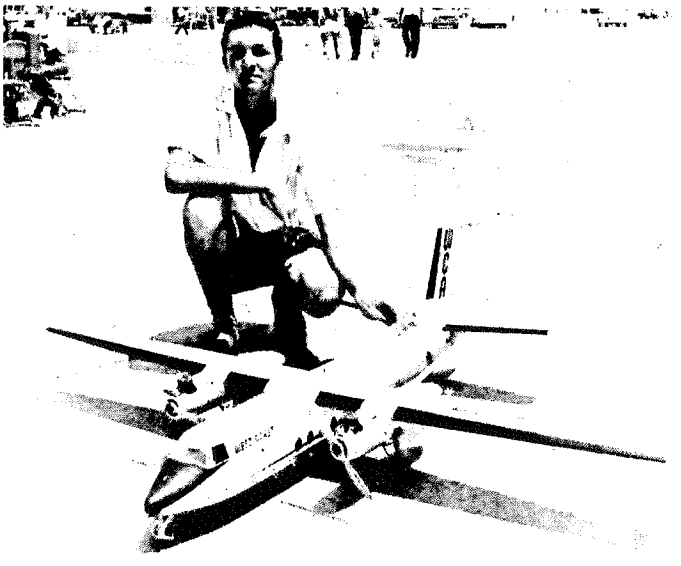


RIGHT: AYSC South Dakota Champ Kurt Anderson gets his T-Bird off to 1st in Junior Cl. A F/F.

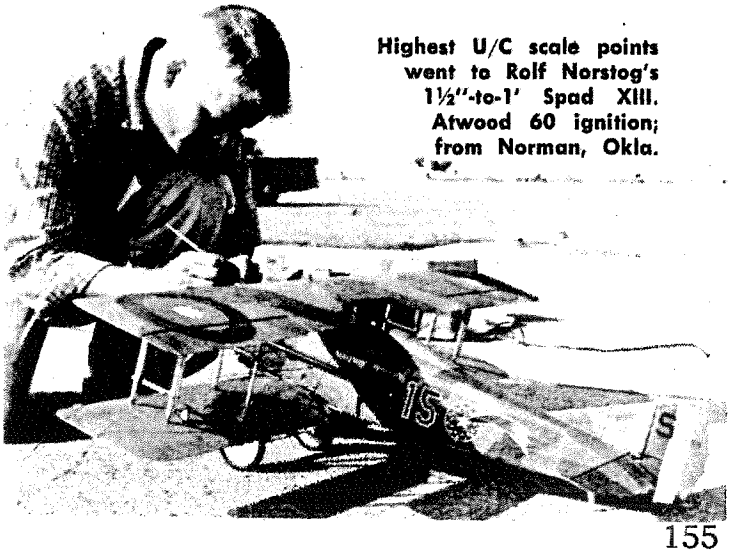
First place in senior class F.A.I. free flight was taken by Sheridan Asklund, San Fernando Valley, Calif., with original design (above). His "Hawkeye" has 600 square inch area, uses Max 15 power under pressure.



Inside story revealed—Class ½A Open Speed winner flown by B.C. Harris-Boyd Shelton team. They're from Baton Rouge, La. Power Cox .049 Thermal Hopper. 94.30 mph.



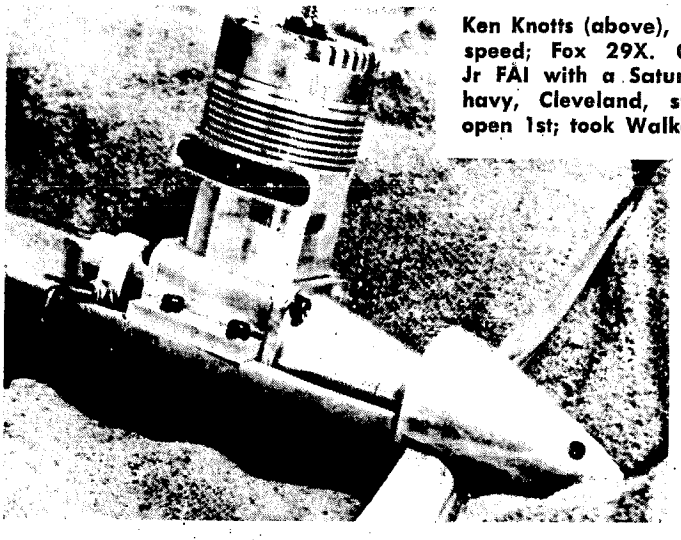
Burt Rutan, 17, Dinuba, Calif., 1st in U-control Sr. with Fairchild F-27 scaled from factory 3-views; K&B 35/RC's for power; 69" span; 8¼ lbs. He was 2nd in F/F scale, too!



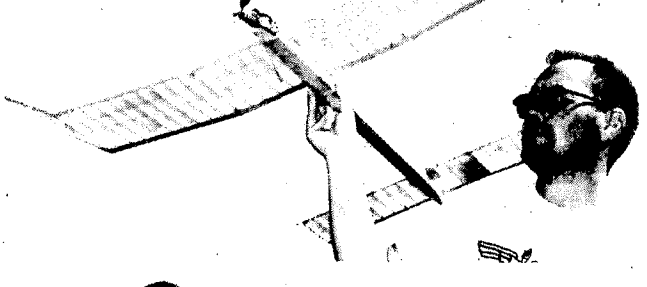
Highest U/C scale points went to Rolf Norstog's 1½"-to-1' Spad XIII. Atwood 60 ignition; from Norman, Okla.

Here's Burt Rutan again, this time with his 1st place Jr-Sr Clipper Cargo PAA-Load plane. His original design, .020 Cox powered job lifted 36½ ounces.

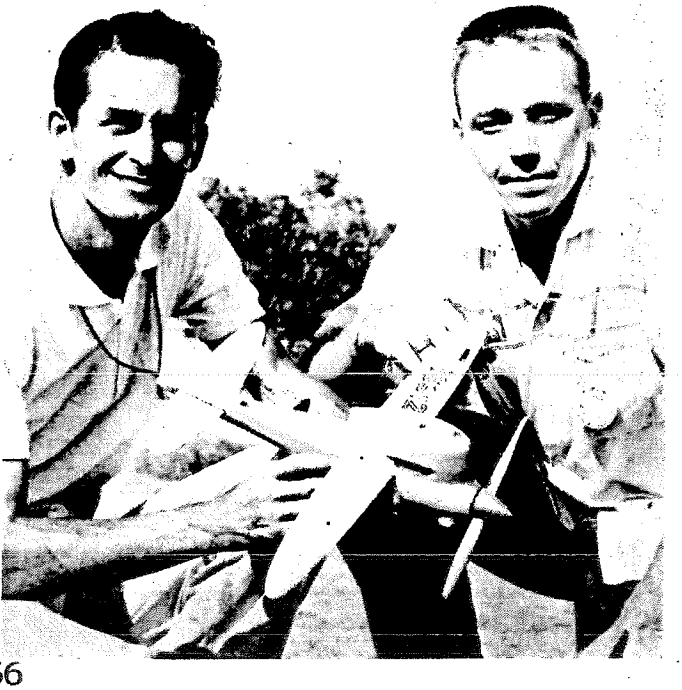
Ken Knotts (above), 1st in Senior Proto speed; Fox 29X. Carl Perkins, first Jr FAI with a Saturn (right). Jim Silhavy, Cleveland, stunted Nobler to open 1st; took Walker trophy; Fox 35.



Original .298 racing engine used by Harris & Shelton took Class B and Proto speed events. Ralph Ray, Redondo Beach, Calif. (below) with original "Tweek" was 1st in Cl. A F/F Open.



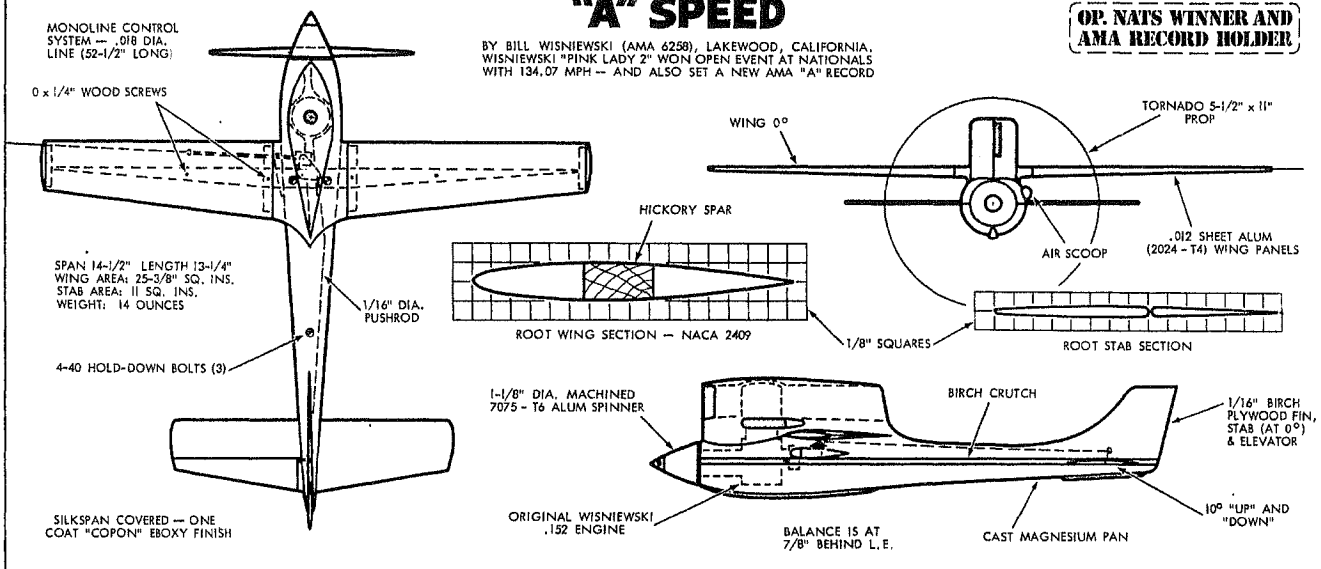
Bob Lauderdale, Huntsville, Ala., holds his Cl. C speed open winner "Dizzy Boy" (rt); 162.83 with McCoy 60. Mech Don Jehlik with him. John Diebolt (below), gets 1st place Sr. Jet PAA-Load off. Uses Jetex 150 motor.



"A" SPEED

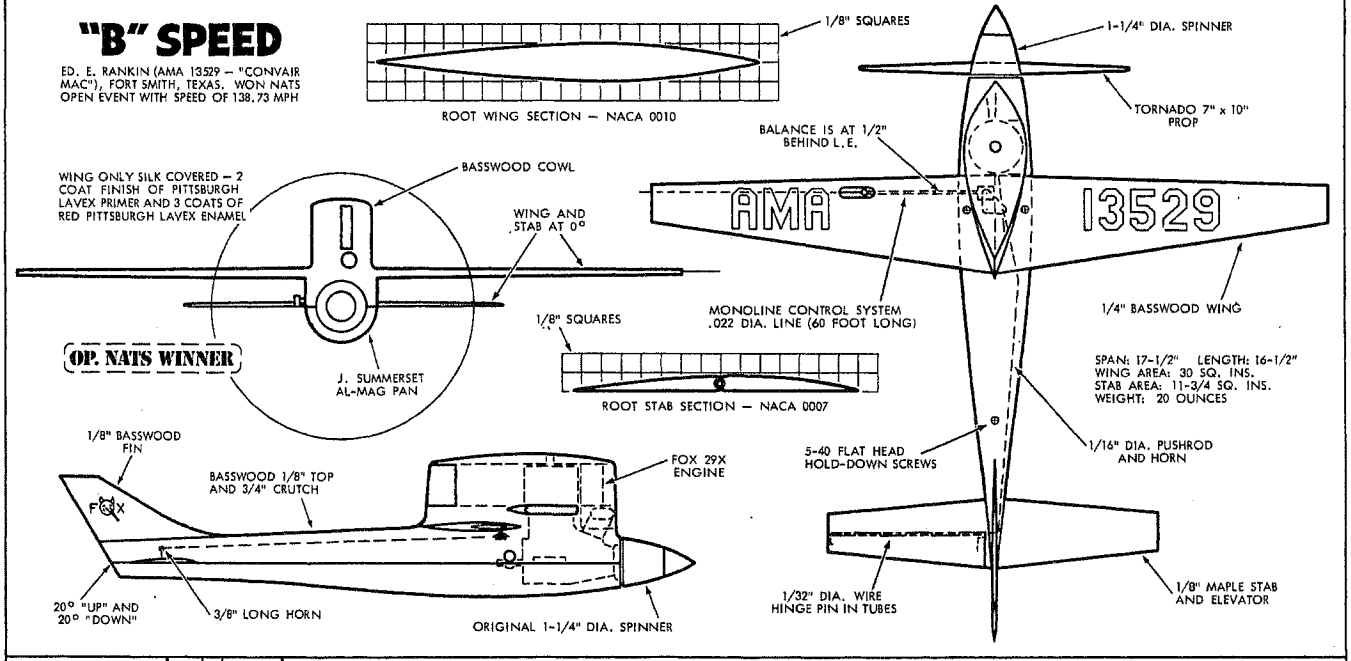
OP. NATS WINNER AND AMA RECORD HOLDER

BY BILL WISNIEWSKI (AMA 6258), LAKEWOOD, CALIFORNIA. WISNIEWSKI "PINK LADY 2" WON OPEN EVENT AT NATIONALS WITH 134.07 MPH -- AND ALSO SET A NEW AMA "A" RECORD



"B" SPEED

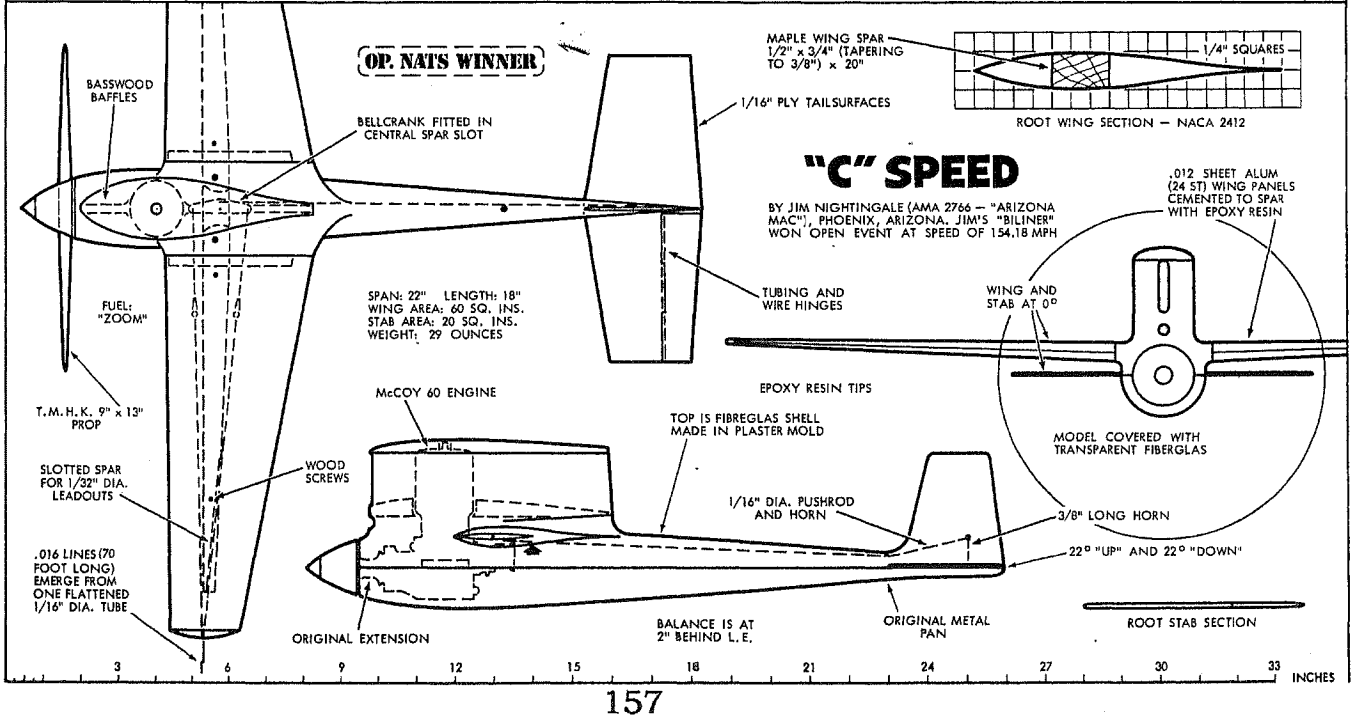
ED. E. RANKIN (AMA 13529 — "CONVAIR MAC"), FORT SMITH, TEXAS, WON NATS OPEN EVENT WITH SPEED OF 138.73 MPH



"C" SPEED

OP. NATS WINNER

BY JIM NIGHTINGALE (AMA 2766 — "ARIZONA MAC"), PHOENIX, ARIZONA. JIM'S "BILINER" WON OPEN EVENT AT SPEED OF 154.18 MPH



"REAL AMPERE!" says Walt Good reporting on the First World-Wide Radio Control InterNats

■ Just imagine a quiet little airport in Dübendorf near Zurich, Switzerland. Add the world's twenty top multi RC flyers from eight countries. Mix in five judges from five countries. Frame the field with eight thousand appreciative spectators. Permit each flyer one leisurely flight per day for two days. Regulate all this with the smooth contest organization by the Swiss Aero Club. And there you have the first R/C World Championship ever held under the FAI sanction.

The American representatives were flyers Ed Kazmirski of Chicago, Harold deBolt of Buffalo, and Bob Dunham of Los Angeles, plus Team Manager Walt Good of Washington, D.C. The USA flyers had been selected on the basis of the 1958 and 1959 Nationals R/C results and it's hard to imagine a better team. The flyers all arrived in Washington, D.C. on July 17th with their six-foot long model boxes containing a total of six beautiful RC models.

On July 18th the team enplaned for Europe by transportation arranged by the A.M.A. It would not be honest to say the departure was uneventful since an hour before takeoff there was considerable doubt about the six-foot model boxes going aboard the plane because of their "excessive" size. This was straightened out with the minor catch that the boxes went on another plane to Frankfort, Germany, while the team headed for Paris, France. But that's another story and all that need be reported here is that the team and boxes arrived in Zurich, Switzerland, two days before the start of the meet which was scheduled for July 23rd and 24th.

It should be mentioned that the Team Manager found himself so busy with various arrangements that the boys suggested perhaps two managers were necessary, one for the day shift and one for the nite!

They were met at the airport in Zurich by Arnold Degan, Model Director of the Swiss Aero Club, and by Alex Stockli. Alex was assigned as chief guide and stuck close to the team for the whole week and assisted in many ways—interpreting, car rental, laundry and gift buying (for the families back home . . . not for the judges!).

Getting the three six-foot model boxes through Swiss Customs turned out to be a bit difficult. This was finally solved by Degan who agreed the Swiss Aero Club would guarantee that the models would all leave the country after the meet!

Early the next morning the team rented a Microbus and followed Stockli to the practice field where a gallon of fuel was ulilized by the three planes in order to ready them for the aerobatic pattern competition. The FAI—RC rules are quite similar to the A.M.A. but contain several different maneuvers such as the tail-slide, inverted circles and vertical and horizontal eights. The practice flights showed the team had been well chosen because the stunts were clicking off in fine shape. "Pappy" deBolt was flying his low wing Stits Play Boy, Ed Kazmirski naturally had his own new Orion, and Bob Dunham was flying a new low winger with trike gear called the Volts Wagon. Each man also had a spare ship which is allowed by the FAI rules.

Friday night, July 22nd, officially opened the Championships with a meeting of the twenty flyers from eight nations along with the mechanics, Team Managers, contest officials and others. The order of flying was established by a drawing and then before starting on the refreshments, it was asked if there were any questions. Walt Good said there were several questions about maneuvers. Apparently the other countries felt the same because in a few minutes the judges and the Team Managers adjourned to another room and circled through each maneuver in the book while the pilots and others embarked into the refreshments, mainly cheese fondeux and some non-waterific liquids.

Shortly after eight the next morning we watched the famous Gobeaux plane from Belgium take off from the cement runway of the airfield in Dübendorf just a few miles from Zurich. Certainly

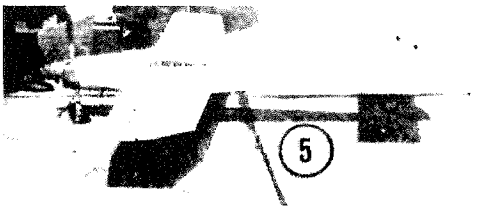
an appropriate spot for the Championship since the Dübendorf field is the oldest in Switzerland. The day was cold and windy and scurrying clouds promised rain which splattered several times during the day. Bickel of Switzerland was second into the air. But Bickel, who was last year's winner of the European RC, had the engine stop on his pneumatically controlled plane and the flight terminated early. Then Gast of Germany crashed his Smog Hog, and so de Bolt of the USA was next to fly.

The Stits with the help of Pappy's corn cob pipe was off to an excellent flight when it was interrupted by a real piece of tough luck. As the plane was diving out of a perfect tail-slide maneuver, deBolt gave the usual "up" elevator—but no response—and his beautiful Stits drove straight into the ground! At first interference was suspected but a minute examination of the wreckage revealed a broken wire on the "up" side of the servo. Since the FAI scoring adds the two flights together, deBolt now knew that even with a perfect flight the next day, he would be down the list. It wasn't long before Van den Bergh of England turned in a good flight with his Astro as well as Stegmaier of Germany with his well-known shoulder wing.

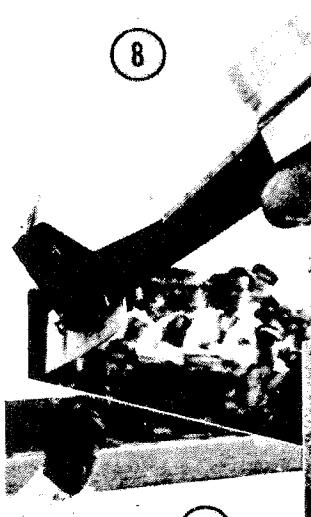
And now came our own Kazmirski of the USA who cooly steered his Orion to 6275 points, the highest of the day. In the afternoon Chris Olson of England turned in a good flight with his snappy Uproar. And then Sämann of Germany flew his ten channel proportional plane to an excellent score. Bob Dunham got off to a very good start only to be plagued by a rich slow engine. The thin symmetrical wing of the Volts Wagon just barely stayed in the air but Dunham skillfully pulled it through all of the maneuvers and garnered a suprisingly good score considering the conditions. At the end of the first day the scores were:

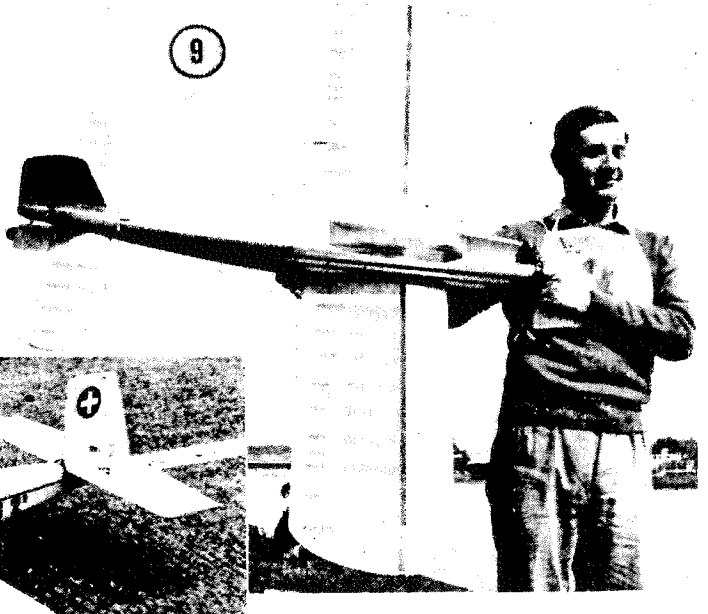
1. Kazmirski	6275	U.S.A.
2. Sämann	5611	Germany
3. Olson	5317	England
4. Stegmaier	5233	Germany
5. Van den Bergh	5082	England
6. Gobeaux	4977	Belgium
7. Dunham	4923	U.S.A.
8. deBolt	2702	U.S.A.
9. Klauser	2651	Switzerland

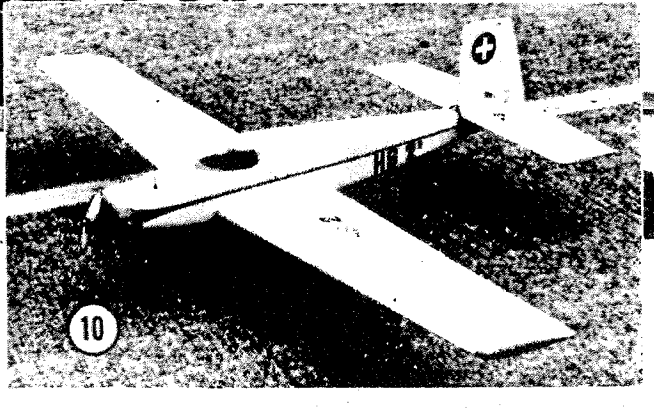
(Continued on page 160)

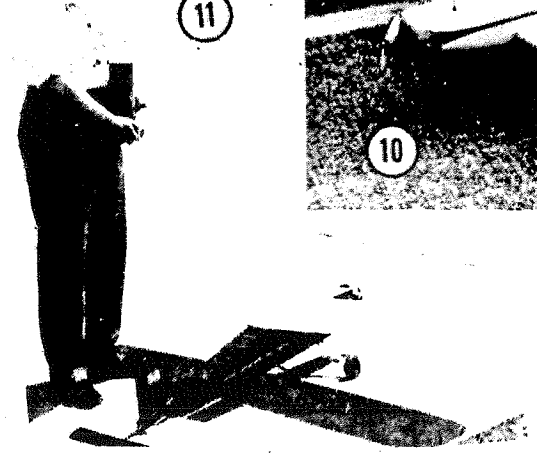


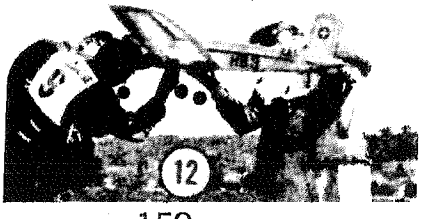
1) American team, from left, Dunham, Kazmirski, deBolt. 2) Hajic, who placed 14th, Czechoslavakia. 3) deBolt with Eliasson, 20th, Sweden. 4) Samaan, 2nd, Germany. 5) Gobeaux, 6th, Belgium. 6 and 7) Stegmaier, 3rd, Germany. 8) Olsen, 5th, Great Britain. 9) Van den Bergh, 4th, Great Britain. 10) Bickel, 11th, Switzerland. 11) Uwins, 8th, Great Britain. 12) Klauser, 9th, Switzerland. 13) Dr. Walter Good, AMA president and manager for America's 1960 R/C FAI team, also author of this report, pilots Stegmaier's proportional plane at Kassel, Germany, following Swiss internats. Plane owner Stegmaier wears white shirt and nervous smile.

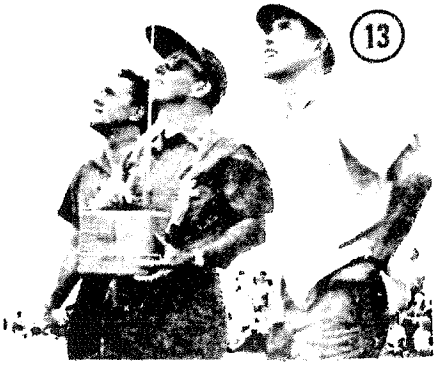












R/C InterNats

The list showed the contest would be a close one and that the team standings were among Germany, England and the U.S.A.

The second day turned out to be a fine summer day, sunny, warm and windless with just enough humidity to cause the boys to worry about their engines overheating.

"Kaz" was second to fly and again turned in the top flight of the day. Not without his problems, however. Near the middle of the flight the engine faltered momentarily and then picked up again. We were all worried when he came to the vertical eight but breathed easier after the Orion struggled up the back of the outside loop and continued to run for the rest of the flight. DeBolt put his Bipe into action and made the fourth best flight of the day landing with only 20 seconds to spare on the big timing clock on the field.

As if Dunham hadn't had his share of trouble the first day, it really descended on him for his second flight. He had an excellent takeoff, came around over the transmitter, and was well into his straight flight when there was sudden unexpected silence. His engine had stopped dead—his flight ended quickly and quietly along with his chances. A fast check to see if the flight could be considered an "attempt." No, it was 1½ minutes and hence was over the 30 seconds minimum allowance. Best guess for his trouble was a speck of dirt in the needle valve. A demonstration flight later in the day with one of Dunham's famous inverted low altitude passes over the runway left no doubt about the master's skill!

The final totaled scores of the two days were:

Final Total

1. Kazmirski	12,458	U.S.A.
2. Sämann	11,261	Germany
3. Stegmaier	11,173	Germany
4. Van den Bergh	11,014	England
5. Olson	10,644	England
6. Gobeaux	9,998	Belgium
7. deBolt	8,370	U.S.A.
8. Uwins	7,072	England
9. Klauser	6,602	Switzerland
10. Dunham	5,308	U.S.A.
11. Bickel	4,454	Switzerland
12. De Dobbeler	2,689	Belgium
13. Maritz	1,576	Switzerland
14. Hajic	1,431	Czechoslavakia
15. Zdenek	1,090	Czechoslavakia
16. Dilot	955	Sweden
17. Gast	632	Germany
18. Jiri	614	Czechoslavakia
19. Corghi	425	Italy
20. Eliasson	95	Sweden

Note Kazmirski's win is by a clean margin of almost 1200 points. The next four places are so closely grouped that they could be arranged in almost any order. An interesting sidelight for proportional fans is the fact that Sämann and Stegmaier were flying proportional controls.

The team standings were obtained by totaling the flight points of the team members: 1) England, 28,730; 2) U.S.A., 26,136; 3) Germany, 23,066.

What a wonderful experience! The team won't forget the cheers of the audience for a finely executed maneuver or the many questions in many languages or the wonderful banquet and the decorated Swiss Cow Bells as prizes. Kazmirski's first place bell must weigh in at thirty pounds! He also retains the famous King-of-Belgians cup until the next competition.

A description of some of the outstanding planes is in order because of the differences found in the European models. First our own ships: *Kazmirski*—ORION low wing plane, 6 lbs. with K & B .45 engine. used Orbit reed for R, M, E and A. Bonner servos. *DeBolt*—Stitts Playboy low wing at 5½ lbs. with Super Tigre .35. Bramco reed equipment with R, M, E and A. deBolt servos. His second plane was his famous Bipe with a Super Tigre .35 at 6½ lbs. Bramco reed equipment with R, M, E and A and flaps. deBolt servos. *Dunham*—Volts Wagon low wing modified from Bud Hartranft design. Weighed 6 lbs. on 640 sq. in. 9% symmetrical wing. K&B .45 engine. Had R, M, E and A at E trim. Also trike gear with steerable nose wheel and brakes on main wheels. Used Orbit 10 channel reed gear with new relayless, transistor-driven Bonner servos.

GERMANY: *Sämann*—Large shoulder wing plane similar to Stegmaier design. Powered with Ruppert diesel twin .60 ten channel Bellaphon equipment with proportional REA and trimmable engine. Uses Bellamatic electric servos. Had two Aileron servos, one in each panel. Flew slowly and very smoothly. *Stegmaier*— Large shoulder wing at 9 lbs. with Ruppert twin diesel .60 equipped with vacuum pump. Used self-designed R/C gear which was made proportional by pulsing reeds at several cycles per second. Single stick controlled simultaneous rudder and elevator. A pushbutton shifted stick to simultaneous ailerons and elevator. Other push-buttons gave full ailerons and also engine control. Servos were vacuum operated diaphragms about two inches in diameter. These were connected to the receiver and relay valve assembly by a host of ⅛ inch diameter rubber tubes. Only batteries were tiny cells for receiver. Very smooth flying.

BELGIUM: *Gobeaux*—Famous large low wing with tip dihedral. Very slow flying with Ruppert twin diesel .60. Used reed system in conventional way but appeared to have mechanical pulsing for down elevator, so it gave a proportional action. This fact was determined by listening to the famous McEntee Monitor from AM which was borrowed for the European jaunt and performed without a fault.

BRITISH: *Olson and Uwins*—Flew the Uproar design with very snappy reed systems. Servos were triple geared Mighty Midgets on 4½ V, a very powerful combination. *Van den Bergh*—Flew a low wing original which appeared quite similar to an Astro Hog in general proportions.

SWISS: The *Bickel* low wing plane was equipped with reeds and pneumatic servos. Most novel feature, to us, was the transmitter which had tone generators built from small tuning forks, for a high degree of stability. Tuning of the tone system consisted of adding solder to the reeds and then scraping it off until a match was accomplished.

The general impression was that the American planes were smaller, faster and higher powered than the Europeans. One question which was heard many times was "are all of the R/C planes in America as beautifully finished as these?" Another comment was "We've read about the terrific American R/C flying but were skeptical—now we've seen it and it's true!"

The last evening in Zurich was topped off with a dinner with the Streils of the largest model shop in Switzerland, the Degans of the Swiss Aero Club, the Stöcklis, our tireless guide, and the Klausers, Swiss RC designer.

The next day we flew to Stuttgart, Germany, and met Mr. Graupner, Proprietor of the Graupner Model Co. of Kirchheim-Teck, the largest model company on the continent. A tour of the factory revealed the Satellite R/C kit which is a German version of deBolt's Trainer. It is very popular in Europe. A highlight of the visit was meeting Graupner's technical engineer, Fred Militky, who is the designer of the electric powered plane called the Silentius. Then on to Munich where the all too short visit was split between the R/C factory of Hans Schumacher, maker of the Bellaphon equipment, and the Hofbrauhaus, the famous indoor beer garden.

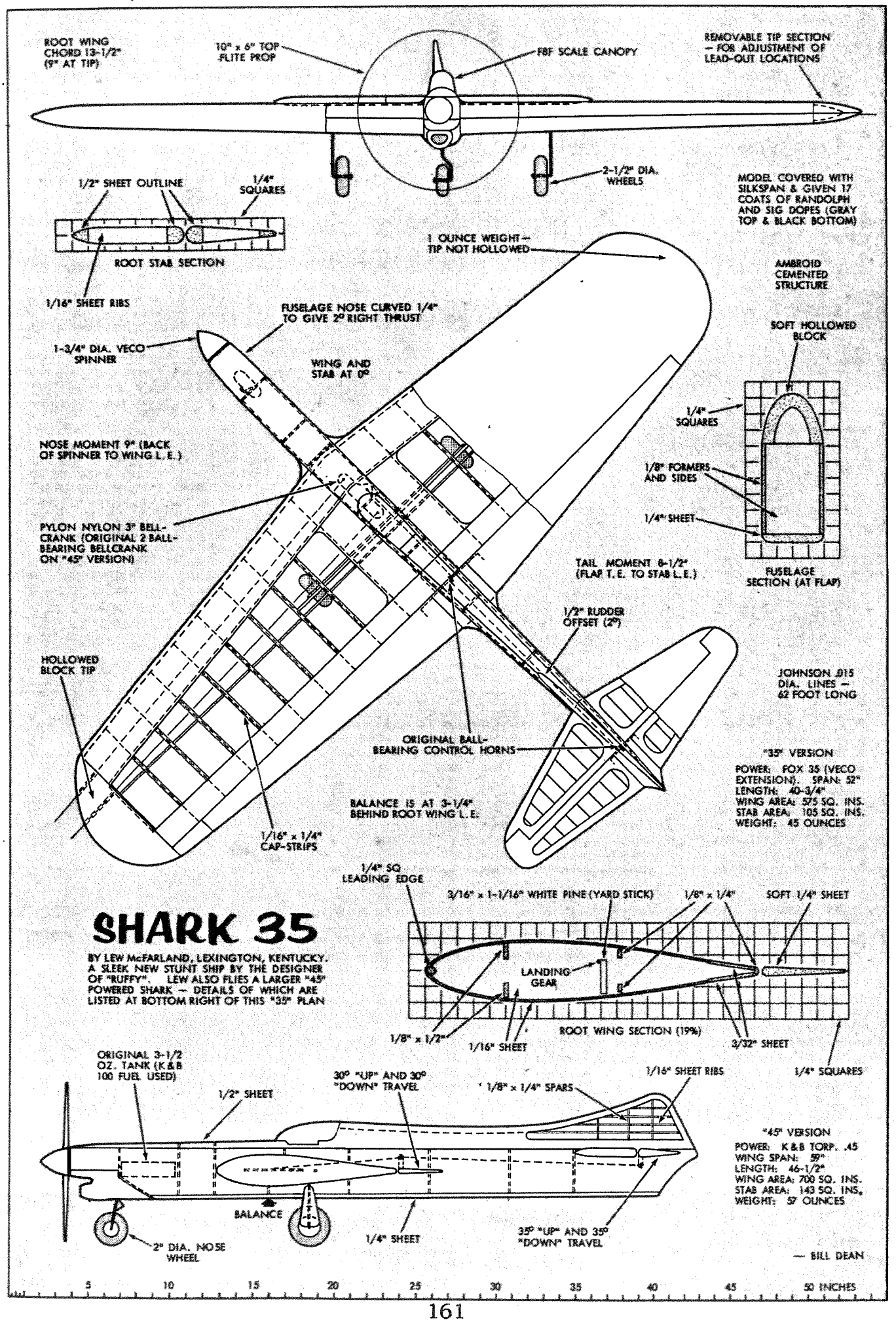
When we returned to the Frankfort airport there was Heinz Hartman of the German Aero Club waiting with a Microbus to transport us to the German R/C Nationals in Kassel, about four hours north of Frankfort. Here, guests of Mr. Jacobson of the German Aero Club, the Americans flew several demonstration flights each day. The spectators were thrilled by the dual flying of Kazmirski and Dunham. It is rumored that there was a wager between them as to who could make the lowest pass over the runway. The unofficial judges felt that Dunham won because he was below six feet and also was inverted!

The two-hour noon break gave us a chance to dash off to the nearby mountain by Dörnberg and watch a sample of R/C glider slope soaring with the well known German modeler Werner Thies. What a beautiful sight with the glider soaring back and forth seemingly a giant bird over the tiny red topped village in the valley.

In the few days remaining the U.S. team drove to the Black Forest to the beautiful valley of Baden-Baden, and there were steered through the area and the UHU Glue Works by genial Alfred Ledertheil, editor of the German model magazine, MODEL-TECHNIK. Then a quick visit with the friendly Theissen family and a meeting with Mr. Ruppert, designer of the Ruppert twin diesel.

During the Black Forest visit the team was introduced to a local beverage called Kirschwasser. It may look like water but the story is told of two German modelers who mixed Kirschwasser with salad oil and used it to run a model engine.

And finally all good things must come to an end so with our souvenirs, our cuckoo clocks and our memories, we headed back to the USA, remembering a Swiss slang expression we had learned for something which is the tops or as they would say it, "Real Ampere."



SHARK 35

BY LEW McFARLAND, LEXINGTON, KENTUCKY. A SLEEK NEW STUNT SHIP BY THE DESIGNER OF "RUFFY". LEW ALSO FLIES A LARGER "45" POWERED SHARK — DETAILS OF WHICH ARE LISTED AT BOTTOM RIGHT OF THIS "35" PLAN

Joe Stanzel (far left) and his brother Victor with early G-Line "Shark" and latest ground-effect machine which rides on cushion of air. Joe handles production of Stanzel line.

BEHIND THE SCENES IN THE MODEL INDUSTRY . . .

The Stanzels of Schulenburg

■ One of the few old time model builders who didn't start his model building with an indoor Baby ROG plane is Victor Stanzel, long time head man in the Texas model building concern which bears his name. Vic was inoculated with the model plane virus through construction of a rubber powered A-frame twin pusher; plans for this craft came from "The Boy Mechanic." Necessary materials were obtained by mail order from a famed old-time model plane supplier—Peru Model Airplane Co., in Peru, Indiana. Vic's interest in planes had been awakened by the Lindbergh New York-to-Paris flight.

Vic built model planes of many types, but one big interest was solid scale craft. He became so proficient at this that in 1930 he started selling them to Cadets at the government flight training fields around San Antonio. Planes such as the Curtiss Hawk and Falcon appealed to these budding pilots. Ads were placed in "Aero Digest" magazine, the line considerably expanded and named "True-Scale".

The Stanzels lived then, as they have ever since, at Schulenburg, which is about halfway between San Antonio and Houston. Working on the family farm, Vic's model plane production was a part-time endeavor for quite a few years. However, in 1935 the first Stanzel "plant" was built. This original structure is still in use. Though overshadowed by newer and much larger ones, it is currently the balsa-cutting shop.

Stanzel experiments on the first line-controlled flying craft that operated in a circle with the modeler in the center doing the controlling resulted in G-Line Flying. Their first plane marketed was the Tiger Shark, a sleek low winger of 36" span, 31" length, intended for the "1/5 hp" engines popular in that day—the Browns, Ohlsson 60, Bunch Tiger Aero, Herkimer. Ready to fly (and this included spark ignition batteries, coil) the plane weighed 1-3/4 lb.

The Tiger Shark was followed by the 24" span "Baby Shark", the most popular G-Line model. It was designed for the Ohlsson 23 and other small engines of the period. For the control system the flier held a stick or pole several feet long, to its tip was attached a single line running to the plane. This line was fastened to the plane structure forward of the center of lift so that by moving the pole's outer end up and down the model was made to climb and dive.

While no efforts were made to officially clock the planes, they were very clean and traveled fast; Vic Stanzel feels they might well have been the forerunners of present speed jobs. In any case, the claimed speeds of 90 to 120 mph seem entirely reasonable.

While the name of Stanzel is usually connected with various types of guided-line flying, several popular free-flight planes were produced in kit form. One was the Interceptor, a clean 52" span pylon affair with 350 sq. in. area. The 45" Texas Ranger high-wing cabin design, intended for either free flight or G-Line control took the smaller class A and B engines; a look at its price and the list of what you got in the kit can bring on a bad attack of nostalgia! Besides all the necessary wood and covering, there were rubber-tired air-wheels, and you even got ample cement and dope (these were called "wet kits" for that reason)—all this for only $4.95!

Another interesting pre-war combination design was the Shark P-60; it was sold in two sizes—a 36" version for G-Line flying with Class C engines, and a 24" free-flight rubber-powered copy. This design followed the Tiger Shark concept of low-wing, semi-scale appearance. By then the company was also in the general model supply business; it offered a line of engines, wheels, dope in many colors, lots of other model supplies.

When the war came along, Vic worked at Kelly field as an Instructor in Aircraft Drafting; the company kept going on a limited basis as long as raw materials could be obtained. Balsa for kits was mainly scrap left from the manufacture of life-rafts! During the war period when many male telegraph operators were replaced by girls, Vic recalls the consternation of the local girl operator as she received telegram after telegram directed to the Stanzel plant for dozens of this or that kind of "shark"!

At war's end the most popular of the models were put back into full production including two variations of "V Sharks" for smaller engines. The "V" planes were controlled by two wires and a "Roller control" unit mounted outboard of the fuselage. Two cords ran from this unit to the elevators. A T-handle was held by the flyer . . . to the ends of the latter were attached the two lines running to the plane. You pointed the entire stick in the direction vertically that you wanted the model to go and the connection to the elevators moved them up when you pointed the stick up and vice versa.

Several other methods were also used to link the wires to the elevator. In one early experimental model we examined the wire ran around a pulley fastened inside the fuselage, and was linked to the tail surfaces. Loops, and many other maneuvers were possible with this setup.

Branching out into another sort of model in 1947 the Stanzel firm unveiled several flown via what they called "Bee-Line." These miniatures had fuselages just large enough to hold a standard CO2 cartridge; they were "flown" on a fine steel wire strung tight between two supports. At first a 400' length of music wire was supplied with these kits, but customers got all tangled trying to unroll this wire, which was .012 dia., so the length was cut to 100'. Since the models traveled along the wire at speeds well over 100 mph it was standard practice to put some soft pillows at the far end to bring them safely to a stop. These models were in production until 1950.

In the late forties came the first use by Stanzel of plastic kit parts. The model, a glider flown on a single guide line, used a molded plastic fuselage with

Continued

balsa wings. Called the "Glideo Plane", it came with a length of cord and a control stick. This craft turned out to be a very nice free flight glider, so it was marketed in this form under the name of "Aeromic Streak." Though these planes have been on the market for over 10 years, they are both still top sellers. They are almost identical, except the F/F glider has a lighter nose weight and doesn't need a metal wing eyelet for cord attachment.

A major change in the Stanzel control system came in 1948 when the control stick was superseded by the two-wire "Thumb-It." The latter was a hand-held unit with a knurled wheel by means of which you could control the plane by thumb action. The "Control-It," in the plane end of the system, had a linkage to the elevators. Most of the models in the line were modified for the new system, although the old single G-Line Tiger Shark was still produced. Due to the TI/CI type of control action, it made little difference whether the wires were twisted or not—in fact they were often purposely wrapped several turns for speed flying.

Around 1950 came the change to what is known around the model world as the Stanzel control system—Mono-Line. As the name implies, control action is had by use of a single wire. This wire is *twisted* to obtain control action, therefore it is not necessary for the wire to be kept taut during flight. The first plane sold by Stanzel for use with this system was "Tuffy", a simple design with balsa pod-hardwood boom fuselage and balsa wings. It had a 24" span, was intended for 1/2 A and A engines. To transform the twisting action of the single line to push-pull movement to work the elevators, a gadget with a spiral wire cam was used in the plane. Various kits were brought out to go with this control system.

Around 1954 the original single turn wire cam was modified to two turns to give more precise control action, shortly thereafter came the brass "worm" type cam found in present-day Mono-Line units. Due to the single wire it seemed to the Stanzels that Mono-Line would be ideal for speed flying (even though the single wire would have to be larger in diameter than each of the lines used for 2-line U-control). Thus the brass-cam units were made up in various sizes as the "Speedmaster" units, with stunt versions coming later. It took a time for the speed boys to get onto the superiority of the Mono-Line system, but they finally did—just take a look at the 1960 National speed winners and their data listing in the new *American Modeler Annual.*

Some of the first fliers to get onto this system for speed were Jim Clem, Jimmie Dugger, the Franke brothers and Dale Kirn. At the time Dale was still in the Air Force; he had a gull-wing jet speed plane with conventional two-line control. Dale advised the Stanzels that if they could prove their Mono-Line unit would do the same job and do it faster he would be happy to use it. Tests were made which showed that the Mono-Line system gave about 9 mph more speed. Kirn was sold on it. Not long after, Sam Beasley, Jimmy Summersett, and Leo Holliday all took up Mono-Line and did very well with it in the speed circles. When Kirn got out of service, Stanzel hired him as a traveling demonstrator of the various Mono-Line units. Dale covered the country to the tune of 80,000 miles in two years!

In 1958 another form of "Mono-Line" flying was introduced by the Stanzel concern; they brought out a ready-to-fly electrically-driven plane called the Electromic Flash—note that is spelled with an "m" (Seems some buyers thought it was "electronic" and expected to get radio control for their $2.98!) In this job the line which controls the plane also transmits power to it; the operator holds a case similar to a flashlight in his hand. In it are two flashlight cells to power an electric motor mounted in the nose of the case. The motor drives the plane's prop via a flexible metal cable running through an outer plastic casing. This little plane was so successful that one called the Electromic Jet is now part of the line. Both have 14" wing spans.

With this unique and very successful type of power drive available, it was only natural to apply it to other types of models. The Electromic Dart is a little speed boat of very high performance, while the latest is an "Air Car" that rides on a cushion of air just like the big ones and will even skim over the surface of water!

While we have talked mainly about Vic Stanzel in this story, his brother Joe has been a most important part of the business since the first plant was set up in 1935. Vic, the designer and flier of the combination, still sneaks out for a flight or two when business problems are not too pressing. Joe has always been in charge of production... he often puts Vic to work in the shop when they are rushed! Joe has done lots of model building but not much flying. There are now about 15,000 sq. ft. of floor space in three buildings and a warehouse. An average of 35 people are always at work; in rush season as many as 140 are employed.

What will come next from the busy Schulenburg plant we couldn't guess, but judging from the slick planes Vic has designed in the past, and Joe has put through the shop, we think it will be something mighty interesting. So keep an eye on Victor Stanzel & Co.!

New Construction Material: Air-O-Sheet

■ The term "Air-O-Sheet" describes a smooth, solid, plastic sheet resin material compounded in two blends for model building: "FP" (for fuel proof) is for fuselages and those areas subjected to constant exposure to glow plug fuel or vapors; "FR" (fuel resistant) is for wings and any area not heavily sprayed with fuel. FR grade costs somewhat less.

Air-O-Sheets are 36" long. Widths range from 2 to 8"; you have a choice of 10 gage—.010" thick and 15 gage—.015". An 8 x 36" sheet of 15 gage FP will sell for about $1.48; the same in FR, $1.24.

The hard plastic sheet is remarkably tough. You can bend it, even make a sharp fold with your fingers, then continue to bend it back and forth—you will tire before the Air-O-Sheet does! The material remains this way down to 40 deg. F; it gets brittle around zero. Softening starts at 170 deg. F., but depending upon grade it retains most of its strength up to 200 deg.

Available at press time in white and yellow, we are informed other colors will be added. For any other shade on FP Cobb Hobby sez spray the surface with a butyrate dope. It is recommended that the 10 gage FR sheet not be coated.

You'll find this material about as "floppy" as a sheet of thin cardboard. You give it strength by folding it. To speed construction, Cobb Hobby offers such structural shapes as angles, channels, hat sections (for making wing ribs), and shaped leading edges. These are in 36" lengths, and most in the two thicknesses described.

How do you fasten pieces of Air-O-Sheet? By applying a special solvent along the edge of a joint . . . not directly to the mating surfaces as with balsawood. It doesn't take much; the liquid instantly flows through the joint by capillary action! This joint possesses moderate strength immediately—enough to stay "put" if no strain is placed on it. For "full strength" you permit a joint to set overnight so excess solvent will evaporate completely. The old balsa-benders' technique of holding pieces together with pins stuck through 'em is out. You must accustom yourself to working with small clamps, adhesive tape, even tiny spring clothes pins.

Air-O-Fil is an allied material which can be used for fillets or to build up any Air-O-Sheet area. A special solvent dispenser is designed so you won't get too much in along joints or between pieces.

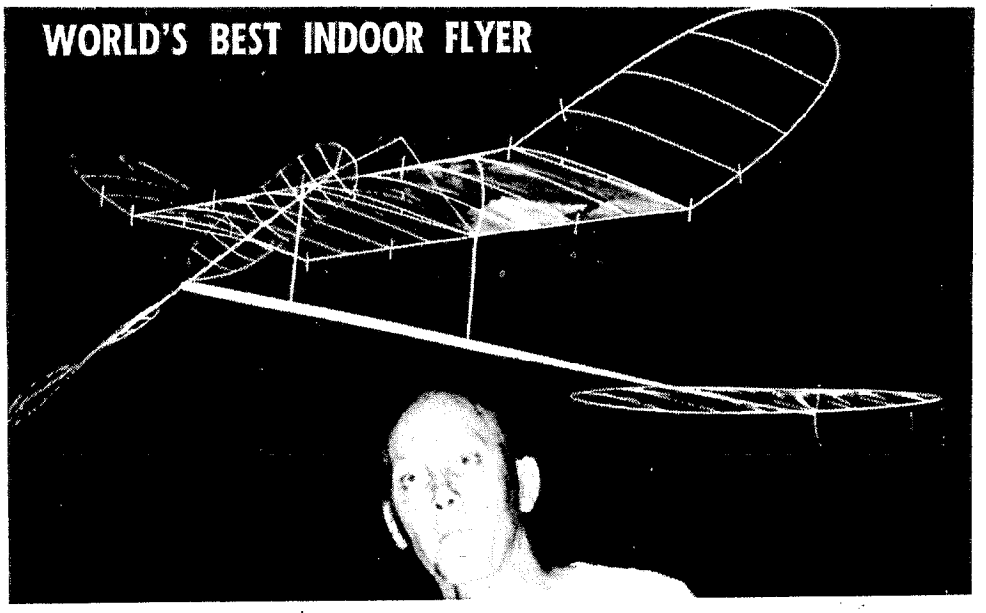
R/C fuselages exhibited of Air-O-Sheet are lighter than comparable balsa structures. Tail surfaces are about the same weight, wings are a little heavier. For the most part an "average" finished model would weigh much the same, A-O-S or balsa. Considering the silk and dope needed for the balsa radio model, costs are similar. For certain uses Air-O-Sheet proponents claim their construction is faster, the material tougher than balsa. They do not claim it is universally better than or will surplant balsa, instead they say it should be used selectively where its special properties show up as a decided asset.

Air-O-Sheet, marketed by Cobb Hobby Mfg. Co. (Powder Springs, Ga.), should be appearing soon in hobby shops. Cobb Hobby has prepared a booklet which gives the full story. They will be selling plane kits, also separate sheets and channels.

Cobb Hobby's Len Purdy figures this material will be of paramount interest to control line fans, though free flight and R/C types have also been tested. An Air-O-Sheet Orion using no wood, silk or dope, weighing 5 lb., 10 oz. with 10 channel relayless equipment, has been flown and static tested to 8-G. A model boat, an exceptionally sleek job, boasts a tremendous amount of room inside, due to almost total absence of framework and ribs—yet is quite rigid. We imagine the boatmen will really go for this material.

Exclusive Photos...

World's Largest Air-Model Contest



NATS PIX (above): Joe Bilgri, San Jose, Cal., scored highest duration at Lakehurst, N. J., NAS, with his Class D microfilm-covered "stick" plane. Rubber-power expert then flew to England and won world crown (see pg. 22 this issue).

■ Once again came that annual trek to the National Model Airplane Championships—held this year at Willow Grove Naval Air Station just North of Philadelphia and an easy Turnpike drive from New York City. Little wonder its broke previous attendance records for contestants and spectators. Visitors on the final, seventh day not only witnessed a breathtaking aerial show by the Navy's famed Blue Angels, they saw Skippy the Chimp "flying" R/C and exhibition flights by C/L and R/C experts. While it rained heavily on two days, this discomfort was balanced by the absence of duststorms which plagued 1957's contestants.

Assuming you caught the "Flash News" report of Nats winners in Oct. AM, we'll make this an informal roundup. Unlike Carl Goldberg, your reporter hasn't been to every one of the 30 Nats. But seeing the last eight, we can say with some assurance that if you have yet to experience one, you simply can't imagine what you've been missing!

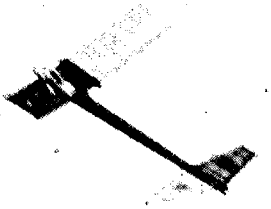
Part of the atmosphere is provided by the colorful, eye-catching club emblems featured on contestant shirts. Many can compare favorably with anything carried as personal insignia on the cowlings of WW/2 warplanes! Perhaps the most outstanding thing one remembers about the post-war Nats is the presence of hundreds of Navy personnel. These men act as contest officials, control the crowds and generally make it possible for the AMA and its leader members to conduct such a tremendous undertaking.

This year, Dutch's Diner, across the road from NAS, welcomed visitors with wall paintings of models, contestants, even the Blue Angels' planes. Management doubled its staff for Nats-week—remembering the extra business they enjoyed during the last shindig.

Without the staunch efforts of Johnny Brodbeck and A. L. Strickland, something like 250 gas jobs would have been grounded. That was the number of engines put back into commission by this understandably popular pair at the K&B Repair Booth. Some real museum pieces are handed to Johnny and Strick for repair work; they dread the day when a modeler will turn in a badly mauled Morton M-5! S/Sgt Fred Salmon of the USAF Team presented the K&B'ers with a cardboard profile of a Series '61 29—and offered to join the Navy if they could get it running!

Speaking of engines, Fred Carter ("A"

(Continued on page 166)

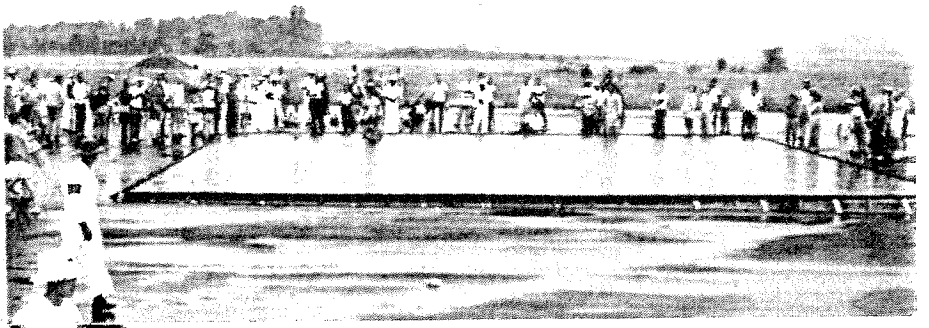


SENIOR CHAMP Flew On Winning Club Team

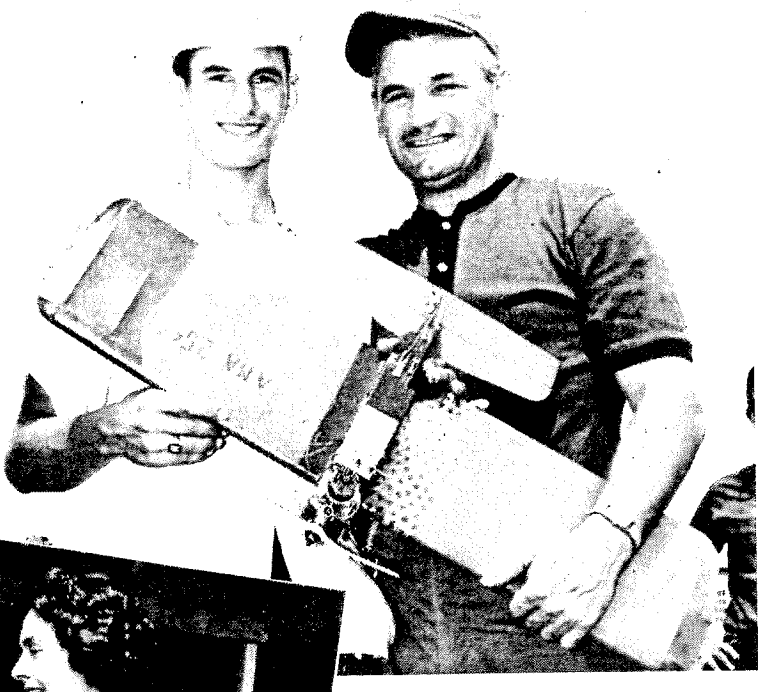
1961 NATS

NATS PIX: Senior age champion (16 to 21 years), Larry Miller, Cleveland, who flew on nation's best team from the Lakewood, Ohio, Flite Masters, gets Cox 02 powered PAA-Load off to first place. USA's top flyer, Grand Champ Woody Blanchard (below) and wife Doris ready Nordic A-1. Champ looks a bit worried—could it be no thermals, or no timers available?

GRAND CHAMP



NATS PIX (above): On ROW (rise-off-water) free flight day, how it did rain. Looks like as much water outside the tank as inside! Peggy Lauderdale (Huntsville, Ala.) holds hubby Bob's Open Class speed jobs—Class A, first; "B", 4th; "C", first (respectively, Supre Tigre 15 Dizzymite, Fox 29X Dizzy-B, McCoy 60 Dizzy Boy). Below—Junior Combat champ Frank Pisz Jr., Union, N. J., with helper Dad; "Quicker," Torp 35.



NATS PIX (below): Best indoor glider builder-flinger in the country, Ron Wittman, Inglewood, Calif., winds up for a first place in Open class.

NATS PIX (center left): First in Jr. Wakefield, Greg Perryman, 10. Above, Miss Model Aviation, Nancy Nemeth, 19, of Levittown, Pa., with copy of USN's first plane. Left, welcomed "aboard" Willow Grove's Naval Air Station by Nancy Fleming, Miss America 1961, and Cdr. Fred Johnston, Executive Officer, are (lucky fellows!) Jim Stover, left, Penna. AYSC state champ, and Don Weitz, Nevada AYSC champion.

(Continued from page 164)

and "B" Sr. Speed Winner) posted a reward notice offering $50 for information leading to the recovery of the Super Tiger 3 stolen from his model box—or $25 and no questions asked to the thief himself.

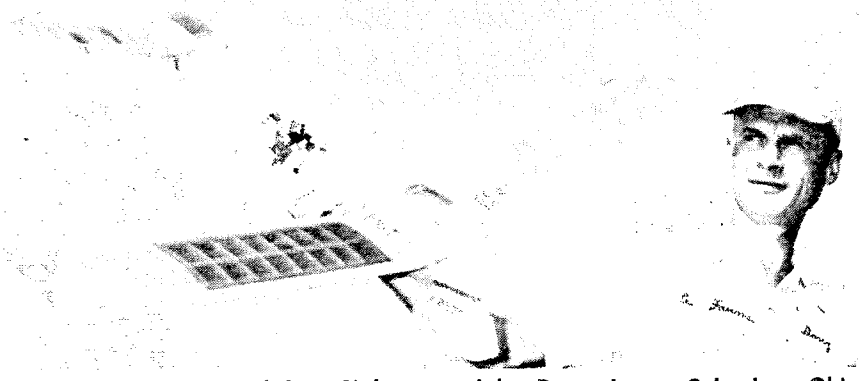
Checking over results (the first five places in 93 age classes), we find Five-Time Grand Champ Woody Blanchard had 1 first and 1 fifth place; Senior Champ Larry Miller had 2 first, 2 second and 3 fifth places; Junior Champ Dennis Bronco had 3 first and 2 second places. With the exception of two C/L events entered by Miller, all Champ placings were in F/F categories! In spite of very high humidity, all of the winning indoor event times (other than Jr. Mike Stick) were well above those in at the previous Nats (larger flying area at Lakehurst, of course).

Contestants who repeated '60 wins were: Joe Bilgri (Op. Mike Stick, 33:16), James Baggi (Sr. Mike Stick, 20:56.6; Cabin, 13:50.9), and Ron Wittman (H/L Glider, 74.5). Richard Miller was a second behind Wittman. Both have outstanding designs and we have yet to see anyone who can beat them when it comes to getting maximum altitude on launch. Jim Baggi also won Sr. H/L Glider and placed 2nd in Paper Stick—this made him top all-around man in Sr. events.

FREE FLIGHT NATS . . . By comparison with the strictly defined circles of the C/L fraternity, F/F events always seem to be a somewhat disorganized picnic. There's a tendency to relax at first, but after a few minutes you realize you'd better rotate like a radar-scope and be ready to dodge those falling objects. Judging by all the towlines which had us by the throat several times, there's a mighty big increase in glider interest —especially in A-1. Open A-1 winner Warren Kurth having no easy time of it, finally came out tops with his Jetstream (Nov. '60 AM) for the third successive year. The Perrymans of Georgia made a good showing in rubber events—with poppa George getting 2nd in Open Unlimited, sons Steve and Greg taking Junior 1st and 5th in same event. Greg also won Junior Wakefield. Momma Tina helped wind motors and launch the much-dihedralled Perryman towline gliders. Frank Parmenter captured Open Unlimited Rubber and set a National Record (22:49.5) with his well-proven Wakefield (he added more rubber for "Unlimited").

In Free Flight Gas this year, they seemed to be getting upstairs faster than ever—and splattering over a larger portion of the landscape when the trim was off! One of those which kept on going up and up was W. R. Bell's Cox TD .149 powered Javelin; it took first in Open FAI. This winner spanned 60½", had elliptical pointed tips, thin 8% flat undersurfaces wing and stab surfaces. Harry Murphy won "B" Gas with 27:23.2 —almost double the second place time. Harry's "Sunbuster" was a medium hi-thrust type (Fox .201), with the pod mounted halfway up the pylon. Flying surfaces were squared off at the tips, sections were flat-undersurfaced. Plenty of fine flying at the four PAA-Load events, with Woody Blanchard winning .020 Clipper Cargo, Henry Struck taking .020 PAA-Load.

Helicopter just doesn't attract entries, this event once again stayed at the bottom of the interest ladder. Yet the winning whirlybird (125 points) by Lee Taylor was a big step forward; it employed an effective original gyro-cyclic pitch control on the rotors (patent pending). Power was one of those lovely old Arden .09's with an 8x3½ prop; 4-blade rotor (33¾" dia.) turned at 500 rpm. On its first contest flight, this 11-ouncer grabbed so much altitude on a 3 minute motor run, it required 2 minutes to make its autorotation descent.



NATS PIX: Unique, original free flight canard by Doug Joyce, Columbus, Ohio. Dubbed "Lightning," uses Cox .049 Thimble-Drome for power in ½A class.

CONTROL LINE NATS . . . Not only did the winners in the three Stunt age classes put up some of the finest flying performances ever seen, their entries were just about as gorgeous as they come. Open and Grand Champ was Lew McFarland, making his second Nats appearance flying his BIG 700 sq. in. wing area "Shark" (Oct. '61 AM). Lew originally dubbed this K&B .45 beauty "Humbler", but earlier this year he rechristened it. "Shark" seems more in keeping with the design's aggressive look. Bill Werwage flew the same Fox .35 powered "Ares" (May '60 AM) he had in the previous 3 Nats to win once again in Senior Stunt (he was Grand Stunt Champ in '59). Top Junior Stunter Jim Vornholt's "Airon" (Fox .35) was somewhat similar to "Ares" with close wing and control surface areas (except lower A/R stab), fin shape, elongated sheel spats, very slender bubble-canopied fuselage—but longer tail moment. Jim took Jr. Stunt at the Dallas Nats with his unusual twin-boomed Carrousel (March '61 AM).

When the dust finally settled over the FAI Team Racing finals, Bill Ayer (builder and mechanic) and Bert Wittebort (pilot) had triumphed with their sleek high-A/R elliptical-wing original. Power was an Oliver Tiger 3 running on Hi-Fire diesel fuel. Second went to Darrel Dolgner's ETA .15 powered original (Joe Harris, pilot), so it turned out to be a great day for British engine manufacturers and visiting Londoner Henry J. Nicholls, who helped run the event.

The winners—after a well disciplined, accident-free race—were a Maryland group who called themselves "The Rebels" and even had a Confederate flag in their pit to prove it! Bob Huffer (builder and pilot) won with an original medium A/R ("W" wing rib spacing), power was an upright '59 Fox .29.

Proto Speed (Op.) went to Larry Grogan, with 124.95 mph, which was a little faster than his '59 winning time. Larry also won "B" Speed (Op.) with a creditable 152.35. ½A Speed (Op.) was taken by Warren Kurth's latest "Peanut" at 102.46 (see Oct. '61 AM). Jet Speed (Op.) captured by a team, Harry Nash and Bill Pardue, at 164.02 (National Record remains in hands of Jim Summerset, 169.23). Bob Lauderdale won both remaining Open Speed events: "A" at 132.69; "C" at 163.57. Except for Open "A" Speed (Nash and Pardue hold the mark with 145.10) all prevailing piston-engine Jr.-Sr.-Op. AMA speed records were shattered at Willow Grove.

NATS PIX: National stunt champ Lewis McFarland, winner of Walker Aerobatic Trophy, with his Shark 45

Close-up on SPEED

By Mike and Charlie Fitzpatrick

■ After four long years and many an international crisis the Nationals were back at Willow Grove. At this same Naval Air Station outside Philadelphia in 1947 some of the most sizzling speeds had been recorded. Certain of these marks would still stand had not line regulations and engine displacements been altered.

Although there were many new faces and speed planes at the 1961 Nats, it was easy to spot a consistent winner from the spectators huddled around him —watching, listening and obviously seeking ideas to apply to their own efforts.

First speed event flown was "A." As is always the case at the Nats, much of what will take place on "A" day is known the night before. Experts and amateurs alike make revealing test flights to work the bugs out of their engine-plane combinations. A lot of test flying is done on the day of the event, too.

Jim Nightingale, on America's last FAI speed team, was still reworking his Torp 15R. Later on in the day, in the test area, he was clocking about 128 mph. Apparently he was not satisfied because he did not try for an official. During test flying his engine kept breaking rich even with his "chicken-hopper" tank.

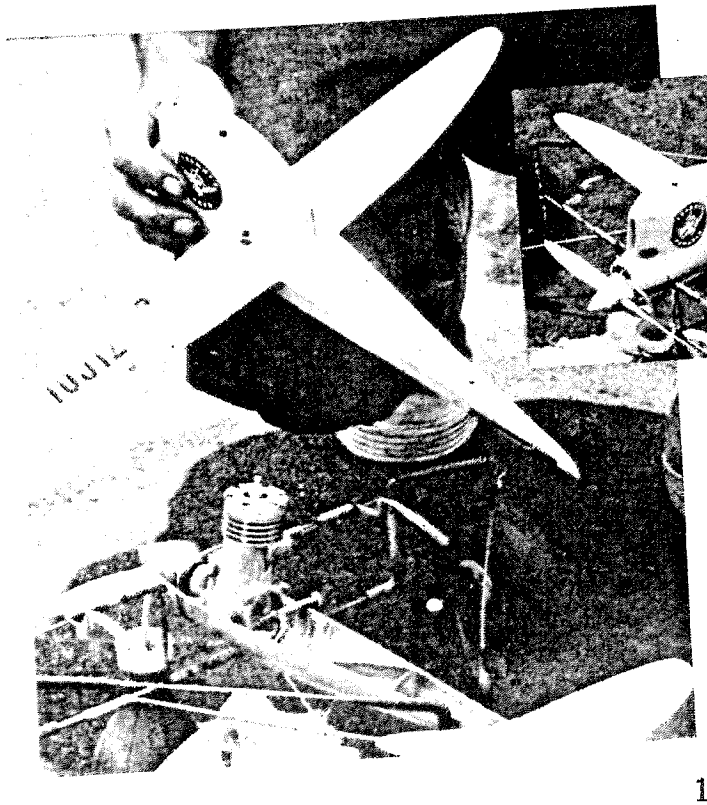
Weather during this competition was comparatively cool although the humidity remained high, at times over 80%. We don't think it ever got much below 60%.

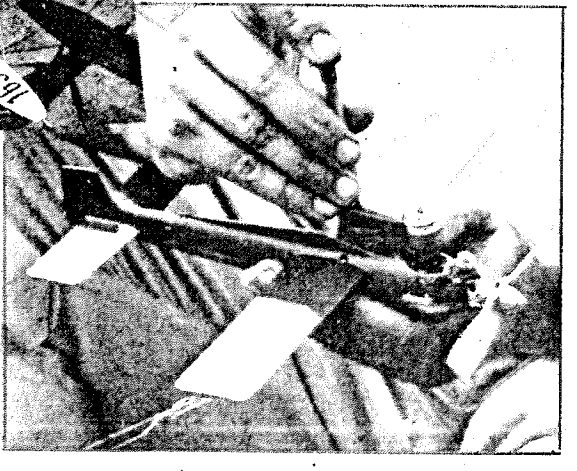
Early "A" morning we came upon Bob Lauderdale test-running his Super Tigre Jubilee 15 engine . . . apparently quite happy about the way it sounded. Almost at the end of this event and after a couple of futile attempts he put in the flight that won first place though it was not his best. His official speed was 132.69-mph, but on the last lap of the 4 timed the engine broke rich almost to a point of 4-cycling. Most contestants, including ourselves, did not wait until he had completed three on-the-pylon laps to start timing and so got Bob's plane from 136 to 140-mph. Not bad considering that these .15 engines are flown on an .018 line and not the .014 used in FAI speed.

Second place speed was by John P. Kukon, the 22 year old East Coast wonder who racks up 30 or more trophies a

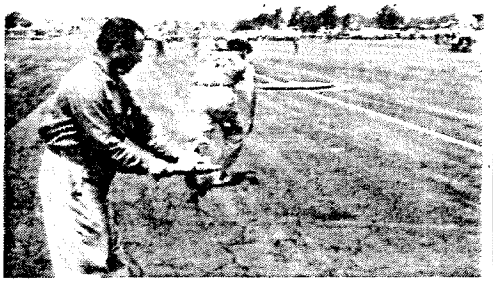
(Continued on page 168)

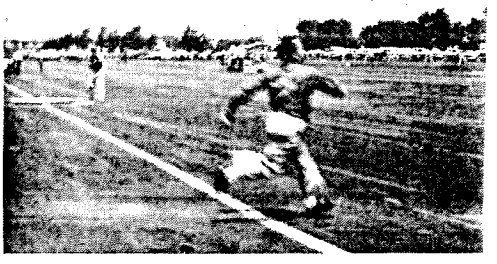
Cliff Telford's 156.05 record plane (above), design by Tommy Davis; Cliff did 145.57 at Nationals.





Bob Lauderdale's Mono-Line Class B entry (left and inset) uses re-worked Fox 29X engine. Warren Kurth's first place Class A speedster (above) registered 102 mph.





season when he's really "hot." The timers averaged out his performance to 128.70-mph (6.99 sec.). Soon afterwards Leland Morton copped third with 126.89. Fourth was 126.18 by Frank Garzon; Carl Dodge of the Lakewood Flite Masters took fifth with 124.78.

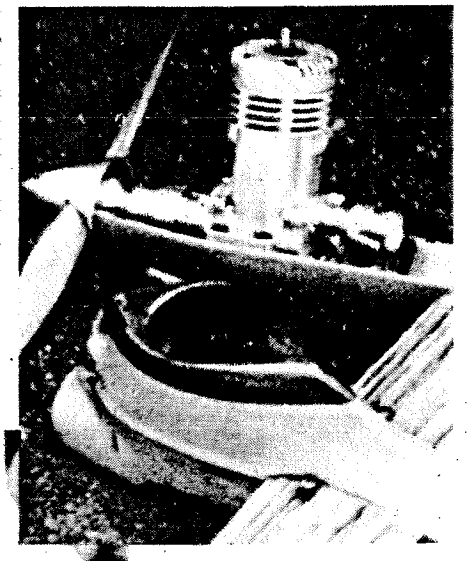
Second, third and fourth places were taken with the Torp 15R designed and test-proven by the noted speed-whiz, Bill Wisniewski. According to John Brodbeck of K&B, Bill had turned 152-mph with production mills, also on .018 line, but could not make it to this '61 Nats. (This is not hard to believe since your corerspondents turned 124-mph on the first flight of our Torp 15R and 132 since.)

Among those also doing 132 plus is Cliff Telford, holder of the Open "B" record with 156.05. Brodbeck was at his usual repairing task throughout the meet.

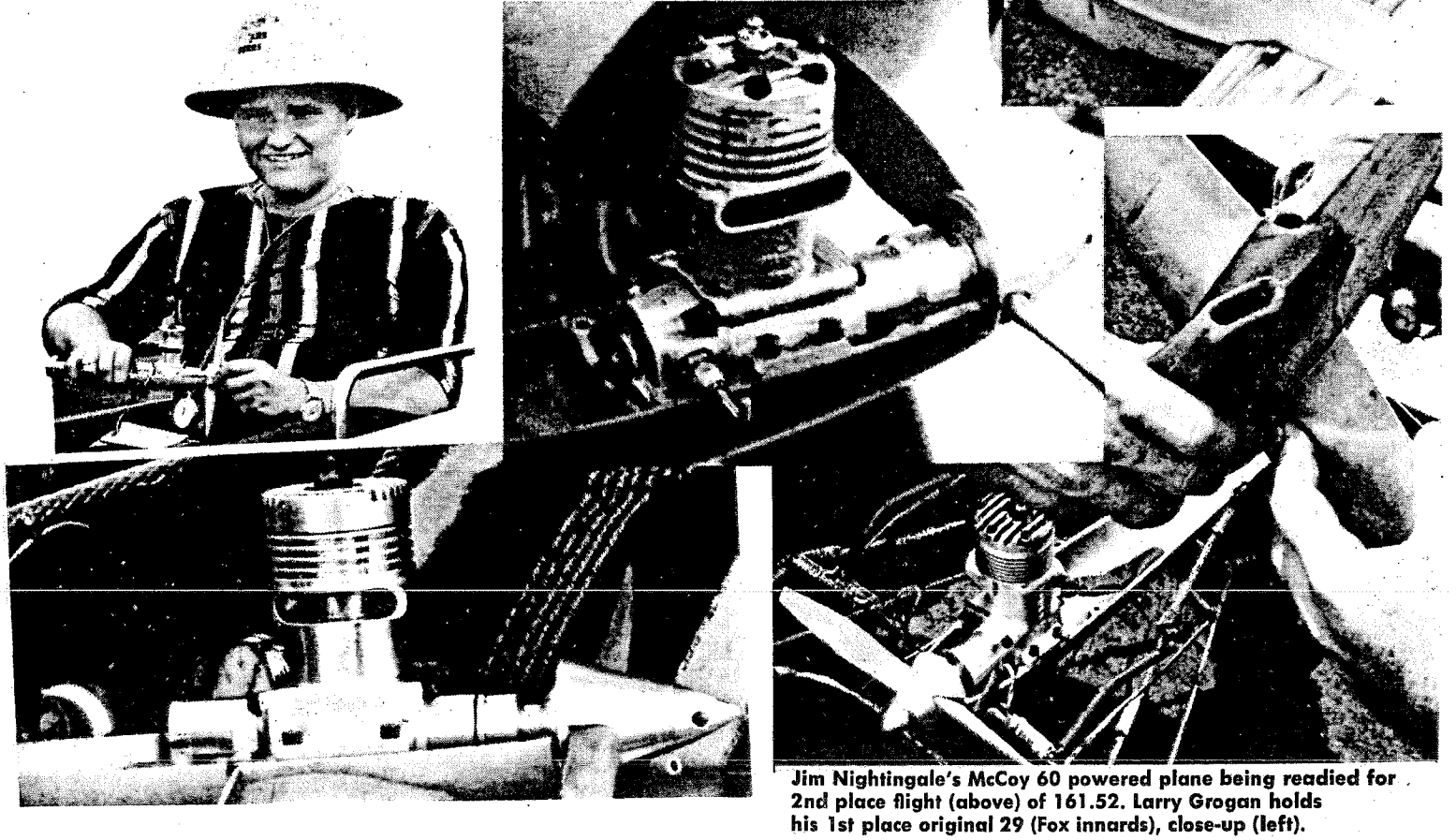
Dubby Jett, one of Larry Grogan's gang, was burning the air with 133.87 for first in junior using a Torp 15R. Little Eddie Roberts of Huntsville came up with his Super Tiger and put in a

(Continued on page 169)

Action sequences show conventional dolly launch (top, left); poppa Kukon getting off son John's plane via hand-launch (above). "The eyes of the Navy are on you"—at least when you're out there at center circle with your hand on the speed pylon (far left). USN personnel watched for "whipping" via binocs.



Dubby Jett (above, left) and Bill Durr hold "Mile Masters" proto racers; one on left placed first. Walt Bellmer's mill (right) turned 151.45 mph. Below, Jack Siebenharr's modified Super Tiger 29 sports rear rotary; did 1[illegible]6 mph.



Jim Nightingale's McCoy 60 powered plane being readied for 2nd place flight (above) of 161.52. Larry Grogan holds his 1st place original 29 (Fox innards), close-up (left).

very steady 128.34 for second. Ricky Berrier from North Carolina won third with 113.16. Warren Rohrbach of Schuykill Haven, Pa., did 111.07 for fourth; Tony Kuester, former holder of Junior Proto record, latched onto fifth with 110.66.

Most impressive "A" flight was Fred Carter's first place, Senior class time of 139.26. Not only because of the speed, but because his engine was screaming like the devil, the flyer hustling around the pylon, just barely keeping up with the little beast. When the engine stopped everything seemed dead-silent by comparison. The remaining places were relatively slow, although high by 1960 standards. 122.07 by Jerry Small, like Fred, from Wichita Falls, Texas. William Durr did 120.92 (he held the 1960 Proto record). Glen Payne did 118.22 for fourth.

With the ending of "A" day came the realization that speed has picked up by leaps and bounds. Where before have we seen so many contestants? Manufacturers, obviously aware of this, have been turning out all kinds of equipment and speed accessories from tachometers to inertia starters. Doc Jackson who imports speed props says he cannot keep up with the rising demand.

On Wednesday the flying was less hectic; it seemed a little cooler. Don Jelik who was coordinating events on the preceding day (he deserves a lot of credit for it), was now both a contestant and a helper to such people as Bob Lauderdale, Cliff Telford and others. Off to a slow start, "B" flights of over 140-mph started turning up.

First really good performance was by Walter Bellmer of N.Y.C.. Walter's entry did 151.45, fastest he had ever gone. Assisting was Frank Gazon who used the same engine—unsuccessfully. It was an original mill with a needlebearing Fox 29X case, Fox 29X piston and sleeve with frontplate and backplate homemade by Dick Klien, a close friend and fellow speed flyer. Rear-rotary, twin ballbearing, the engine must be at full peak before being released, or it will cut out rich.

So the pace was picking up. News of the 151.45 flight spread. The Texas crowd, mostly from Dallas, got active. Larry Grogan, holder of the Proto Speed record, stopped sanding on a Rev-Up (7-11), put it on his original 29 engine, the tank was filled and William Durr and Dubby Jett took it out to the flight area. They were due up very soon. Bill Durr would pilot. The starter was soon turning, the spinner inserted, the engine quickly burst into life. The plane took off like a bullet, circling madly, going faster with each lap.

Bill made no attempt to "groove" the ship . . . he flew it just below the marker. Timing started 3 laps after he was on the pylon. How fast was it going? 152.35 to cop first place.

A screeching sound again filled the air, spectators out in the flying circle were backing away from it: Jelik at the needle valve of Telford's 156.05 job. Cliff was out at the Mono-Line handle. Don carefully tuned the Fox 29X. The plane thundered around at 148-mph, but the flight was disqualified "for whipping." Because of the stance from which some flyers fly, it appears they are whipping when actually they are not (famed senior flyer Jeri Draper had the same trouble throughout this Nats). Cliff got another attempt and turned 145.57 for fifth although the engine was lean all the way.

Close-up

Lauderdale raced his "Dizzy Bee" around at 146.76 only to find after the flight that the piston top was hitting the cylinder head. However, he got Eddie Roberts off to 138.73 for first in Junior. Donny Morton scored 134.37 for second in that category; Tony Kuester was third with 126.62. Fred Carter, first in senior "A," clocked 143.14 in "B" to make it a doubleheader. Bill Durr, also a senior, flew 139.80 to second. Robert Brogdon, Jr., of Marietta, Ga., spun around at 132.54 for third.

The day was getting on; in the Open top times looked like this: 152.35—151.45—146.76—145.57. John P. Kukon, waiting all day for the weather to warm up, got out his Dooling 29 ship and fueled up. In 1960 he had placed first at the Mirror Meet with 149 mph in "B" beating entrants who had been using Tetranitromethane—not banned at the time. Kukon never uses a takeoff dolly . . . his father (John V.) launches for him and his planes always get away cleanly. He put in 147 for third.

For those who may wonder if absence of Tetranitromethane was being checked . . . it was, and by Kukon's father, the speed event Director. And there were many contestants present who had used it the previous year and were keeping an eye and nose open to make sure they were not competing against it! Day's end saw many speed merchants pulling out Proto jobs in preparation for the morrow.

Most Protos were originals. Again the first flyer to hit high speed and start the fast ball rolling was Bellmer. With the same engine as in his "B," Walt hit 119.55 for another second. Larry Grogan's time-tested Mile Master did 124.95 in Open, snared first. Ed Rankin who made the "Fastest Miler" famous, did not fly one this time. "I gave up this design long ago," he said and produced a proto which looked an awful lot like a Grogan job. Ed turned in 117.99 and didn't realize he held third till the next day. 116.16 by Gene Tirey settled fourth; fifth was a tie between Jack Siebenharr and Cliff Telford. Only other really good Proto performance was Bill Durr's 122.57 in Senior. Fred Carter who had been doing 120-plus in the test areas saw his entry pull off the line and do a magnificent barrel roll down the runway. Uncle Alfie (Al Stegens), former "King of Proto" who pioneered high speeds with his McCoy 29 originals had nothing to fly this day. After three years of breaking records he finally piled up his ship "and the engine too." He was trying out the new F.A.I. one-line handle when the plane went out of control. Ah well, back to the drawing board, Al.

By the time "C" rolled around it seemed fairly obvious who would be first. Bob Lauderdale, doing a consistent 163 the night before, flew a shattering 163.57. Another attempt was faster but he got on the pylon a bit too soon . . . at top speed it was hitting 165. Jim Nightingale also broke loose with 165 but he got on the pylon too late. On the last lap his McCoy 60 broke rich and cut out. Still he clipped 161.52 and held second. A happier guy you never saw. Many wondered how he was able to go so fast with such a big plane. Jim's answer, "Pardner, it's what's up front that counts!"

In "Half-A" Warren Kurth (who else?) walked away with first place in Open with a very good 102.46. Warren operates two-line ships. Carl Dodge did 97.27 for second and was the wettest person in the entire meet. You see, all flying on "Half-A" day was in the rain. In Jet tops was a roaring 164.02 by the pair who hold the Open "A" 145-mph record—Harold Nash and Bill Pardue. Jet flier Harry Latshaw followed with 161.81; John P. Kukon surprised even himself with 158.25 for a sure third.

Beyond any doubt, speed flying has picked up remarkably. For example, there were almost 200 planes entered in the Proto speed event by as many contestants. There are six speed events; many local meets include speed events not listed previously. Much of this is due to such true speed engines as the K&B's, Super Tigers, Cox's, etc. Even with such a turnout the Nats went smoothly. Much of the credit for this goes to men like Kukon, Director, and all his assistants who went so far as to "impound" all planes that performed above a certain speed to check for proper displacement, etc.

Competition was rough, but that's what makes it all so interesting. As serious as some speed fans take their flying, they still have a lot of fun doing it. One team on "B" day appeared to have made the wrong decision at a critical moment. Out on the circle preparing to torch off a 29 they wound up their inertia starter to its peak. With its 86-to-1 ratio the starter sounded pretty good. The engine, now running, was sick in comparison. While one contestant set the needle valve the other ran out to the handle. We heard the pilot yell, "The heck with the plane, launch the starter!" The mechanic hesitated for a moment, then released the plane. After the sour flight was over he said, "I wish now I had launched that starter!"

Not all capable modelers performed their best at the Nats. Larry Grogan has since done 155.92, missing the "B" record by one hundredth of a second. Don Jelik clipped 162 mph in "C" for first place at a N.Y.C. meet.

Yes, speed at the Nats is both good and rough, but the Speed Merchants are usually up to it.

NATS PIX: Old-time balsawood bender Carl Goldberg who forsook NYC Aeronuts for Chicago Aeronuts and became noted kit designer and manufacturer accepts (far left) famed Flying Eight-Ball trophy from publisher Jay Cleveland, previous holder.

BIGGEST RADIO PLANE CHAMPIONSHIPS

At National R/C meet everybody got into the act including Zippy!

■ The 1961 R/C championships at Willow Grove, Penna., N.A.S. were preceded by a wild rumor—no cars were to be allowed on the field! R/Cers would have to carry all their equipment a half-mile or more to the flying site in the center of the area! Like most rumors this proved false . . . ample parking space was available quite near R/C headquarters.

This problem disposed of, what did the fliers find when they arrived there early Monday morning? First thing noted were three large tents, one for use of the R/C "headquarters staff," two more to shade R/C fliers and their planes from the hot sun. The main tent had a large area for impounded transmitters . . . raised off the ground was a wooden platform (a wise provision, since the field was awash later that same day, also the following Saturday).

There was a shielded cage for trouble shooting, two complete sets of monitoring equipment (for 27 and 50 mc), the usual processing and paper-work tables. In front of the tent were score boards, a slick "Ready Board" (made at the field in the Navy shops), a raised platform for "spare" judges and other officials. A short distance ahead of all this were six "ready boxes" marked out on the edge of the runway, farther out were three large concentric circles—the center of flying activities.

An added attraction at the rear of the Judges' platform was a small "gallows" with a hangman's noose draped—for those who wished to make complaints!

Three sets of judges were to be ready at all times; two teams for 27 mc flights, one for 50 mc. There were to be two planes in the air at all times, one on each band; since it was expected that there would be about twice as many fliers on 27 mc as on 50, a 27 man would be sent out to the idle set of judges, ready to get into the air the instant the "airborne" fellow landed and turned off his transmitter. This arrangement worked well and was quite flexible. Several times during the meet there was a "shortage" of 27 mc planes, but there were extra 50's in the ready boxes who were hustled out.

During the Qualifying flights each team consisted of two judges, with a scorer for each; at the end of the week when the Championship flying commenced, three judges were assigned to each team. Scores were the average of the two or three.

Initially some grumbled that all Event Director Frank Jacobs had on his mind was speed . . . speed . . . speed. Get the fliers out on the field, then off as rapidly as possible. If you were conducting an R/C meet with 225 entrants panting to go, wouldn't you urge speed, too? A quick analysis showed 108 signed up for Multi, 18 for Intermediate, 39 for Open Rudder, 13 for Jr-Sr Rudder, 28 for Pylon. Plus 17 Scale men who flew (or tried). The pre-registration was frightening—373!

We found 750 signatures on the Qualifying flight list, more than 700 attempts were made; 182 in the Finals gave a grand total for the week of 932 flights or tries. Qualifying flights went on at an average clip of 25 per hour for the four Qualifying days. Final (Championships) flights were 17 per hour. Some early flight-list signers who flew on each Qualifying day scored 7 flights, average was six. All who qualified had 3 chances in the Finals. Since this Nats was to select our 1962 International R/C Team the Multis were granted another round.

To speed flights the Qualifying flight routine was cut down considerably. Multi qualifiers were required to do an Unassisted Takeoff (or hand launch), Straight Flight to marker, Procedure

(Continued on page 171)

Great Lakes Trainer (above flown by Adrian Constantino of Pawtucket, R.I., featured K&B 45 power, Citizen-Ship 8-channel equipment. Dual deal is 6' span Waco F-3 (right) by Gene Landis & Harold Theken, both Barberton, O. Anderson 65, 12-lb, Microtone rcvr.

Turn, Straight flight back to transmitter, Figure Eight. The rectangle was dropped. A mandatory Touch & Go came after the Eight. This separated the men from the boys.

Those who got by T & G, had optional maneuvers (in any sequence): one Roll, Inside Loop, Outside Loop, Cuban Eight, Spin (at least two turns) and Spot Landing. Maximum score, 147 points; highest were 112 in Multi (Brett), 88 in Int. (McEntee), 60½ in Open Rudder (B. Williams), 36 in Jr-Sr. Rudder (Davis).

For fliers other than Multi, T&G was optional (after the Eight, if at all). Quite a few Rudder and Int. fliers did attempt it. Of course, lots of flights stopped abruptly at the Touch & Go which accounts for the large number of Qualifying flights per hour. Flight time was shortened to 7 minutes. No special period to get your engine started; you had seven minutes on the runway, and could use it all cranking (some did!). If your engine started reasonably fast, the 7 minutes provided ample time for the routine.

With the "no special engine starting time" standard Pylon planes received 4 minutes per flight, Scale jobs got 7 minutes. Stunt planes were allowed 10 minutes for their Final flights. To "encourage" you to get your plane back on the deck as soon as a flight ended, only one extra minute was allowed. If you didn't land within 60 second that particular flight was disqualified.

Because planes were coming in continually for spot landings and T & G, a flier could not enter the 100' diameter Spot Landing circle; he could stand at the edge of it. Downgrading was the penalty here.

Anticipating that, as at earlier Nats, there might be periods of interference which could prevent operation on one or another frequency, it was announced that flights would be continued by those who could fly through it. This brings up a problem found not only at the 1961 Nats—"bootleg" operation, usually on frequencies around 26 mc.

AMA rules state that all flying at sanctioned meets must be according to FCC rules. Every Nats modeler should appreciate that strict adherence to FCC rules is a must. Some did not—and were penalized for it. There were anguished cries, but plenty of cheers, too, from those who had worked for their Ham licenses for 50 mc operation, or had bought 27 mc super-hets.

A frequency check station will be a "must" at future R/C Nats! It turned out there was no outside interference, trouble encountered came from R/Cers at the field. One shot down by interference was Bob Dunham's slick Sorcerer.

A word of thanks to Event Director Jacobs and his Navy crew for running an efficient and enjoyable meet. Commander Talmadge "Tiger" Morrison, the Navy liaison man assigned to the R/C event did a magnificent job.

Under the Qualifying-Championship setup each day, a limited group was designated as "qualified," they did not fly again till the Championships started on Friday. The number selected was based on how many entered in each event. Multi, with the largest entry, qualified 5 each day (the top five scorers, regardless of how their scores compared to those on other days). We expect to see one or two ties during the week, but there was a king-sized one Wednesday—four tied for 5th place. Each was stamped qualified, for a Multi total of eight that day. There were no other ties in qualifying, a few showed up in the Finals. We saw 23 qualified in Multi, 8 for Intermediate, 11 in Open Rudder, 7 for Jr-Sr. Rudder, 8 in Pylon.

Biggest

Scale did not operate under this system; planes were judged first for appearance and scale fidelity, then brought out for flight tests. All Scale flying was run off on Friday morning, each plane got three flights. Many of them never made it. A very light breeze diagonally across the runway curtailed take-off space. So the heavy, underpowered scale planes in many cases ran off onto the grass. With more runway space, many could have gotten off to successful flights. Scale was not up to the high standard last year at Dallas; it was not a dismal showing like Chicago in 1958, there just about every attempt was a crash or a flyaway!

Weather for the 1961 meet was fairly good, though hot, humid weather bothered engines. Heavy showers Monday afternoon meant 3 hours lost flying time. Saturday morning was almost a total loss due to a downpour. Model flying was to have stopped at noon for a full size air show. This had to be cancelled so the Navy personnel went back to work at R/C from 3 to 6:30 PM.

There was very little wind during the week. The judges were shifted between 27 and 50 mc each day to even things up. Judging generally was rather tough . . . witness top scores around 210 in Multi (possible 300-plus score total). The judges had been well-briefed; we felt they did a fine job, but then what winner wouldn't?

Relayless equipment was very much in evidence; 10 Channel was the most popular.

Many Pylon planes carry the very minimum of equipment (four channel receivers, no engine control—invert to stop engine) to keep weight down. If these mph-minded modelers follow winner Keith Storey's lead with retractable LG, they are going to need at least one more channel! His gear worked fine; his "Gold Rush" was smooth and fast and very well flown. Shooting for absolute simplicity in LG's, Austin Leftwich had a single wheel on his Pylon plane, skids on the stab tips. These entries have such a low wing loading they get airborne in a few feet. Most Pylon racers followed conventional lines, a couple sported flat wings and tip dihedral which reminded us of low aspect ratio Nordics gliders.

The battle between low and mid (shoulder) wings has not been called off yet. There were numerous Orions or variants. Three of the top six in Multi (these were designated Internats Team members and three Alternates) used mid wingers, three had low wingers. The top two had mid-wing planes. As someone said, given a well-designed plane and a good flier, it probably doesn't make too much difference where the wing is located.

Trike gear came back with a vengeance. All Multi qualifiers but two had it. These three-wheeled gears would stick like glue to the runway, even when a flier came in at other than a perfect glide approach angle.

New designs to mull over: deBolt's Simplex (also called Viscount) meant to cut building time for a "full-house" multi job by 50%; the Moody flown by Robinson and Butler was based on the Mooney Mite, but stretched in every direction; Don Brown's Dee Bee IV (first TTPW plane to come close to top in the Nats in some time years) which uses CAR; several planes with fiberglass fuselages (Lowe, Greer, etc.); the beautiful Sorcerer (flown in the meet by Ed Keck, in demonstrations by Dunham) which looks fast just sitting on the ground.

We were surprised that more superhet receivers were not in use; can it be some go "bootleg" instead of taking this proven means of eliminating interference troubles? Proportional on a slight upswing, in Multi due to several Space Control outfits. Three of these flew, two Qualified in Multi, one placed second in Scale. Every qualifier in Int. used some form of proportional, several used elevator, motor and CAR. Scores in Int. low—the boys spend more time on their systems than they do flying same!

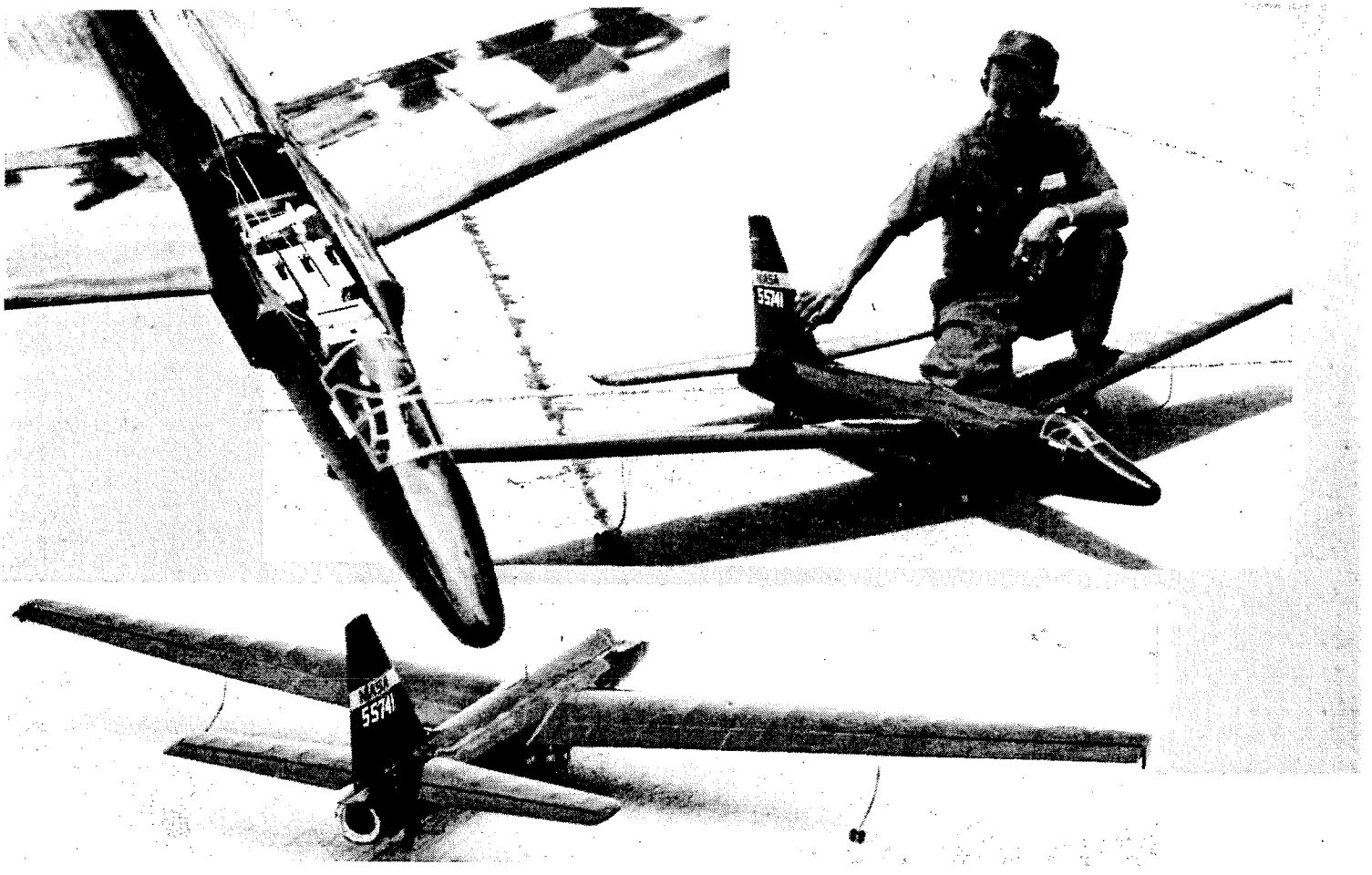
Unlike last year, top scorers in Open Rudder used escapements; in Jr-Sr Rudder, Bill Wischer again came through with his Zue, on pulse.

From the analysis of equipment (see 1962 *American Modeler Annual*) more nickel-cad batteries in use than ever before, in transmitters and in planes. This reflects larger use of transistor DC converters. Wing loadings are going up.

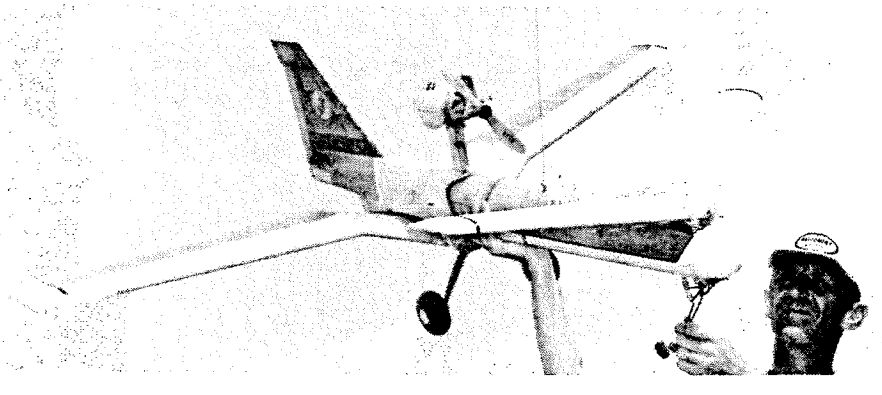
We are (reluctantly) about to agree with those who have been advocating a Nats R/C eliminations. This would be at variance with the current AMA policy of allowing everyone a chance to fly anyplace in the Nats—the beginner as well as the hotshot. But R/C is growing; maybe we should Qualify *before* we come to the Nats.

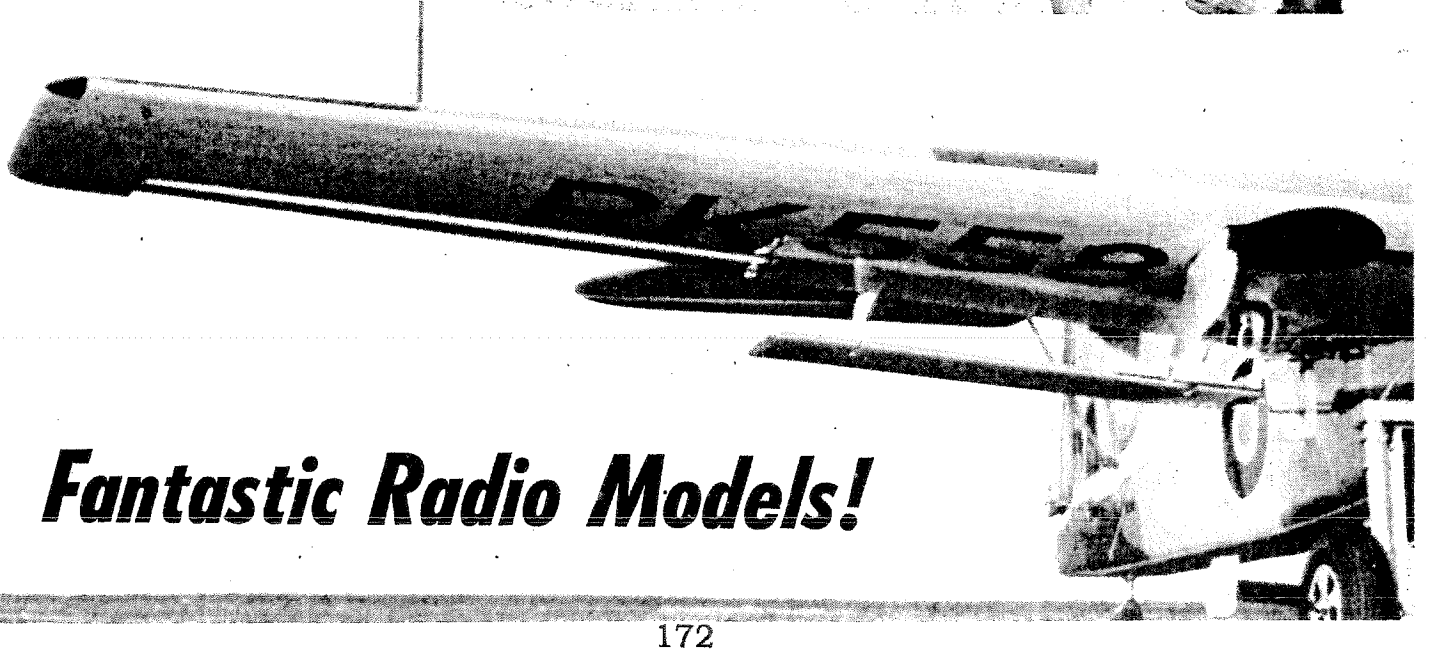
See you at Chicago in 1962?

"Some of those former control line fans are real die-hards !"



NATS PIX: Smooth flying canard was surprise performer at '61 Nationals. Original design by Don Krupp, Metichen, N. J. Spans 60", Fox 35, Orbit single equipment, Most pulser, modified Mighty Midget servo.



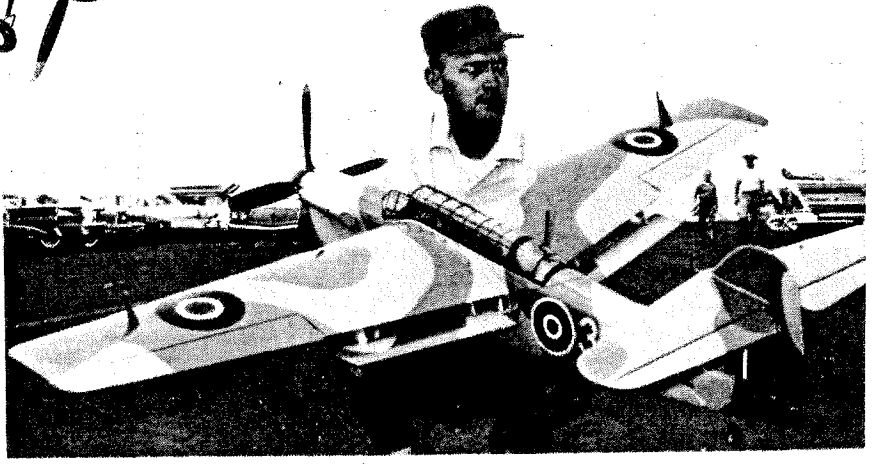


Fantastic Radio Models!

First successful jet R/C scale (left) is Dyna-Jet powered 103" span Lockheed U-2 by Ralph Saldivar, Fresno, Calif., Radio Modelers club. Took 300 hours building, weighs 10½ pounds. Eight channel radio runs rudder, ailerons, elevator and elevator trim, cuts jet off on "full down". Test piloted by Jerry Nelson, glides beautifully.

NATS PIX: Right—Walt Schoonard of Winter Park, Fla., exhibited Torp 45 powered F8U Crusader. Spans 4'; 5½ pounds. Bramco 10-chan. relayless, Bonner servos. Wing area 690 sq. in., 2412 airfoil, 22" chord at root.

NATS PIX: Left—Maxey Hester, Des Moines, Iowa, with P-63 Kingcobra. Torp 45; 7½-lbs; 70" span. Klinetronics 10-chan. superhet; Bonner Transmite. Claude McCullough, Ottumwa, Iowa, and his Fairey Barracuda "V" (below); rudder-elevator-motor-aileron control. Oh, yes, and it drops a torpedo, too! Spans 70"; 11-lbs. McCoy 60; Bramco 10-chan. relayless; 52-mc; Bonner servos. Has absolutely gorgeous finish, typical McCullough thoroughness.



America's new Wakefield champion, George Reich, 40, piles on turns (left) for last round "max" flight at world meet in Germany. FAI Free Flight Gas Power winner, Fritz Schneeberger, Switzerland, gets team boost (above).

Everything's All REICH at the World Championships

■ Scheduled for the end of one of the worst European summers weather-wise in living memory, the 1961 World Free-flight Championships brought with them perfect flying conditions: temperatures in the mid-80s, dry, clear with a few white clouds, winds light and variable. This last was appreciated by everyone, as the field at Unterzeil was just large enough for maximum flights in light air. While there are better flying fields available in other parts of Germany, only the Leutkirch area offered enough accommodation for the many teams, officials and tourists expected.

Situated in beautiful countryside about 30 miles north of the eastern end of Lake Constance, Leutkirch is also centrally located for most of the European countries. Patron of the meet was Willi Daume, President of the German Federation of Sport; the grass airfield was made available by its owner, His Highness Fürst Georg zu Waldburg-Zeil, a keen lightplane flier.

The overall organization, headed by Kurt Wolff Jacobsen, Model Secretary of the German Aero Club, ran smoothly, officials willingly working round the clock to make sure everyone was fed and housed. AMA representatives Pete Sotich and Carl Wheeley helped.

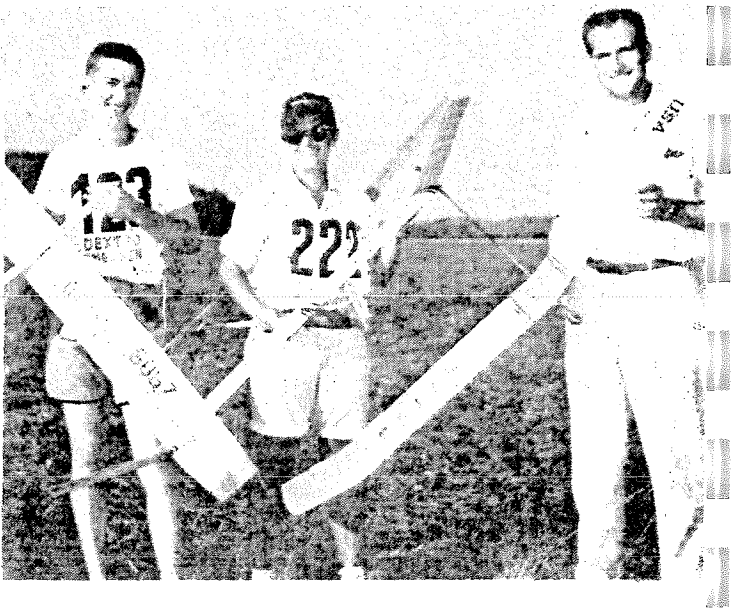
The Norwegians were the first to arrive officially, although there were rumors that the Russians were somewhere in the area several days before the contest started. The USA team managed to get in some testing on a local field; the contest site was closed to modelers until the day before the first event due to air traffic. On August 31, the official arrival day, Leutkirch and the surrounding villages filled up with a rush. Originally 29 nations had been expected to send representatives, if not full teams, but the Egyptian, Bulgarian and Peruvian fliers failed to appear. Japanese and New Zealand models were proxy flown; Luxemburg competed for the first time. Pete Visser, South Africa, whose models are usually proxy flown, arrived in person footing most of the costs himself.

Processing was reduced to a minimum of calculation, saving the teams a lot of time. Timekeepers were all experienced free flighters, some of them top experts.

Nordic A/2 Towline Glider. The contest opened officially on the morning of September 1 with a fanfare from a group of foresters as the flags of competing teams were raised. It was soon obvious that there would be a flyoff when 28 fliers scored maxes right away. Due to a misunderstanding on the order, our Jim Daley flew in a cold spell and scored a low time. When it was made clear that the rounds were not divided into periods in which one member of the team had to fly, a request for a repeat flight was made. This was allowed, pending later decision by the International Jury, comprising Hans Justus Meier (Germany), Henry Nicholls (Great Britain) and Reszo Beck (Hungary). Daley made an easy max, and the jury allowed it after much discussion in two languages.

Betty Bell found there was just not enough wind to hold her model on the line for long periods. Her patience and endurance were admirable, especially as she had to run the gauntlet of still and movie cameramen—enough to make any-

(Continued on page 175)



USA gas power free flight team (above, from left): Sheldon, McCormick, Poorman. Our A/2 towline glider group (from far right): Lortz, Bell, Daley. Betty was only female flyer.

one nervous. Dan Lortz flew steadily and quietly, entering the last round with 4 maxes in hand, only to hit a downdraft. Daley hit one downdraft and one "near max", but edged out Lortz in the end.

In the last round all attention turned to the 7 fliers with a perfect score so far. Lortz, O. Schnürer (Austria) and Hlubocky (Czechoslovakia) all missed a max to leave 4 in the flyoff. The flyoff was delayed due to difficulty in clearing the flying area of spectators. The air had turned cold by the time a green flare was fired to signal the beginning of the tow, the actual release from the line being left up to the flier. None of the models made a max in the A/2 flyoff, all landed in sight. All of the top men obviously knew their models thoroughly, and timed their releases during the contest to get the most favorable weather conditions.

A point noted by our A/2 fliers: thermal pull on the line is much lighter in Europe, and the thermals on the day of the contest did not lean as they do in some parts of the USA. Familiarity with field conditions was also important: the Finnish team, first in the last A/2 in Belgium, stated that they were used to flying over sandy ground rather than grass.

FAI Gas Power Free Flight. The US power team was plagued with setbacks from the beginning. Only two of the team, McCormick and Poorman, were able to do much test flying. Sheldon stayed on in Frankfurt in the hope that his missing shipping box would turn up. The team's fuel was also missing until the day before the contest; in the meantime the Norwegians helped out generously with their own brew, but it just wasn't as hot as the "blast" our boys were used to.

When Sheldon arrived on Friday with a nearly complete ship built after his arrival in Europe, everyone pitched in to help. Finished sometime after midnight, the plane was adjusted just before the contest and surprised everyone with a max in the second round. Only a lost last flight prevented Sheldon from placing much higher . . . a pity, because his last one was a beauty. The fact that he was able to fly at all shows what determination and teamwork can accomplish.

Of the 1960 "Cranfield Quintette", only 3 were present in person: Piminoff (Finland), 19th with 728; Guerra (Italy), 29th with 692; Hagel (Sweden), 37th with 639. Sheppard's model once more made the top places, being brilliantly proxy flown by Britain's Pete Buskell. Only 3 contestants had a perfect total at the end of the 2nd round: Schneeberger and the two Czechs, Hajek and J. Cerny. By the end of the third round only Schneeberger was left with a full score, which he continued to the end. The winning model was a simple, proven design that performed reliably all the way through.

It was interesting to note how well disciplined the Swiss team was. In the final round Schneeberger was slow in starting and the lift had already drifted past as he drew back his arm to launch. At a signal from manager Arnold Degen, Schneeberger killed his motor and waited another 15 minutes before launching for the last max.

Some entrants were using the new shorter motor run to adjust their models more critically, Hagel's model looked like it was beginning to wind in at about 9 seconds. More and more gadgets are appearing on the models. Both Rieke (Germany) and French (Britain) sported autorudder and automatic stab adjustment for climb.

Processing information released gave the following breakdown of motors in order of placing: Cox TD, MVVS 2.5 Speed and Moki S-2 Speed, all unpressurized; ETA 15, Kriszma K-8 diesels; no data for 6th place; Super Tigre, KB 15R, OS Racing Special, KB 15R, all pressurized; MVVS-D diesel, and in 12th place Monks' Super Tigre (no data on pressurization).

On pure BHP figures French's OS Racing Special would appear to have the edge, showing that ultimate power is less decisive in freeflight than knowing just when to fly. Entrants using K&B 15Rs were favorably impressed with their performance, but in most cases the motors were too new and, in the case of the European fliers, the ultra-nitro fuels were not available.

An interesting tip on the Super Tigre came from the Italian team: if a plug lasts for more than one flight, the engine is running too cold, and losing at least 1,000 rpm!

Wakefield Rubber Power. The last day of the championships was devoted to Wakefield. Again there were signs early in the day that a flyoff would be likely. A slightly stronger drift made itself felt, and the hook-and-ladder truck for retrieving treed models was kept busy.

Reich and Patterson began well, Perkins dropping on the first round and coming back with a max in the second. In the third round Patterson and Perkins both hit downdrafts, each following this with two maxes. In the meantime Reich was flying steadily through, using his fast climb to the best advantage. The US team was operating as a team should, the glider and power fliers spotting thermals and retrieving.

At the lunch break there were 7 men with perfect scores (3 maxes): the three flyo finalists, all three Yugoslav team members (Fresl, Kmoch & Merori) and Aalto (Finland) but the fourth round weeded out all but Reich, Kosinski and Alinari.

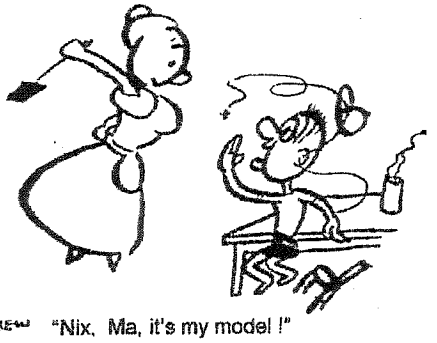
Preparations for the flyoff began with a great deal of tension, much more so than A/2 day. At the suggestion of the Italian team, it was agreed to move upfield to counteract the stronger drift, which had swung 180 degrees. The teams, officials and photographers walked and walked upwind until the spectators were only a thin line on the horizon. The breeze grew stronger and colder. Last-minute consultations were held by th team managers and the Field Directo Willi Grass of the German Aero Clul When the signal was given, all thre fliers began winding. Reich and Kosinsk got away cleanly, but Alinari dislodge his noseblock on release, the model almost piling in. As the models began drifting downwind into the haze, it became more and more difficult to distinguish which model was which. Observer farther down the field later told us that Reich's model hit at least 4 minutes However, he was out of sight at 3:3 (maximum for the flyoff under the progressive system was 3:30!).

As the flyoff group walked back to the control, the US team came out to give George a typical American welcome everyone had piled on board the German Ford station wagon hired by the team leaving the roof as a place of honor for the winner. Halfway back a lone figur ran out to congratulate George . . . it was Gustav Sämann, Wakefield winner in 1955, who was at the Championships to give a display of multi R/C flying.

George got tremendous applause, both on the field and at the prize-giving Through it all, he was still the quiet flier from Cleveland with the big smile.

A special award for being the only woman contestant was given to Betty Bell.

When this was being written everyone had departed homeward or gone on to a few days' holiday in the surrounding area, taking the good weather with them. Only one model is still lost. One sidelight for those who came to Leutkirch: the church bells *always* ring here at 5:30 a.m. This will surely go down in history as the village where the inhabitants were noisier than the model fliers!



"Nix, Ma, it's my model!"

Bilgri Wins World Crown! The United States scored another spectacular, tho not completely unexpected victory in International modeling by winning first place in both "individual" and "team" positions at the initial World Championship Competition for indoor endurance models held at Cardington, Bedfordshire, England, August 4-6.

Joe Bilgri, San Jose, California, was declared the World Indoor Champion after a magnificent flight of 37 minutes, 49 seconds. William Bigge of Washington, D. C., earned 3rd with 34 min., 56 sec. Carl Redlin, Detroit, third U.S.A. team member, flew his entry for 30 min., 58 sec.

Total time of the Americans was 103 minutes, 43 seconds; this captured the coveted first-place team trophy. Manager of the U.S. group was Richard Kowalski,

DUNHAM

■ Bob Dunham's modeling history is marked by a singular success in everything he has done. None of it was easy, but much of it came fast because of a lot of hard work. He first built and flew free flight gassies and rubber models, then came the war and the Navy. Ask him where he served and he says "All over the Pacific." After his tour of duty and while on a vacation "back East" Bob witnessed a U-Control contest. Upon returning home to Southern California there was nothing else but to build a stunt job, then contests—soon Dunham was winning. He became one of those rare builders who take in both U-Control and free flight. Then came the speed jobs. Stunt and free flight was set aside and he continued his winning ways in the pure speed events.

Bit by this speed bug, he became interested in Roadster racing which was extremely popular in California during the early fifties. So off he went again, doing the driving himself. He picked up a '32 Ford frame, a '29 Model A roadster body, a '48 Merc block and went to work. A '52 Merc crankshaft was stroked a quarter over, the block was bored a quarter over, the parts were polished—on and on and then he was winning Roadster races. Until that night when he tried to pass a guy on the high side, lost traction and smashed through the crash wall. Some days later, influenced probably by his wife "Johnnie," and while still recuperating from the cuts and scratches (he was lucky), he decided that this was enough, so he retired early from Roadster racing.

It wasn't long before he was back to racing—speed models again. With Bill Wormley he entered contests all along the West Coast including WAM events in the distant Bay Area on many weekends.

Then at a CAP contest at Mile Square near Los Angeles he won everything but the airport, was grand champion and as such received a complete radio control outfit: English transmitter and receiver, escapements, Trexler Beam kit, plus a Babcock receiver. In a very short time the Trickle Beam was completed, its R/C gear installed and the bird taken out to the Mile Square field. On it first flight, the model was hand launched. She flew straight down the runway and through the windshield of a parked car a half mile away. This same auto had its windshield hit the previous week by a R/C model and Bob's target was that replacement windshield. Radio *control* did someone say? Bob's ship was "totaled."

Nothing daunted, Bob built another Trickle Beam and had a real ball—the model actually wore out. By then the Live Wire Cruiser was popular so next he built one. To go with it he constructed a two-channel tuned-relay receiver like Howard Bonner, Colby Evett and John Curry were using. Wanting additional controls he put toether a 5-channel Racon receiver kit. Dunham had heard about simultaneous transmitters but never saw one . . . so decided to build one for himself. It was an immediate success. Everyone wanted to fly his model since it was so much easier to fly and spin, Bob didn't get much of a chance to fly it himself. When he would appear at the field, experts like Chuck Boyer would dash over and before Bob's car stopped rolling would holler "My turn" and grab the transmitter. Dunham recalls that he only had 3 or 4 flights in 3 months!

Along about this time B.D. built his first transmitter for someone else, Chuck Boyer; it was an eight channel simultaneous affair. Then came rigs for Bonner, Curry and Dean Kenny which operated with their CG receivers.

Bob's first contest radio airplane was a Smog Hog—built following Howard Bonner's win at a Dallas Nats. It was at the same time that he felt he wasn't getting enough flying time what with working as foreman in a shop making hardware for sliding doors. Dunham decided to go after a ham license . . . so he boned up and got his ticket just so he could fly on six meters. After the license came he built his own receiver and transmitter just as the local fliers wanted them. Since Bonner was one of them, Howard made up several "cans" for Bob, just so he could get a Dunham receiver.

With Howard Bonner as a teacher, Bob soon became an expert flyer—so good that at a Turlock contest preceding the Philadelphia Nats, Dunham beat Bonner. Bob, who gives much credit to instructor Bonner, still wonders if he would have ever made it without Howard's help. As proof that the student had learned well Bob went on to an unprecedented 3 Nationals wins in a row in Multi channel.

By now Bob had left the hardware plant and opened a model shop in his dad's (Carl) garden supply shop. There he started manufacturing Orbit outfits. For about 3 months, prior to passing the state dental exam, Chuck Boyer worked as Bob's first employee. Dunham feels he can't really count his wife as the first since he didn't pay her anything. For a time, Johnnie says, all she did was eat, sleep, and turn out receivers and transmitters.

Bentley holds, Dunham tweeks and Dick Riggs flips prop for start of FAI 117-mph speed flight in '61.

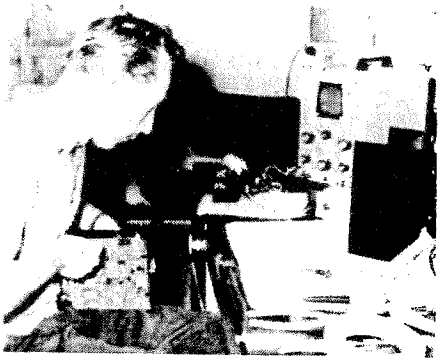
A booming business due to a high quality, dependable product brought Orbit to its present plant in Garden Grove. Here many more products are designed and manufactured than the modeling public would suspect . . . until this report.

Dunham's concern has designed and made many different Citizens Band custom outfits. One rig starts and stops a stock supply train in a manufacturing plant. The train follows a line made with special paint, at each stock station there is a transmitter. If the clerk needs parts he commands the train to stop, after obtaining a supply he transmits a signal to start the train on its merry way. Another custom job was for Northrop who wanted a 16-channel receiver and a quadruple simultaneous transmitter for their T-38 model drop test program. Another was a sub-contract for a 20-channel transmitter and receiver to remotely control a TV camera, so several special CB transceivers were built. The American Power Boat Association ordered small receivers to fit on drivers' crash helmets with earphones inside. Officials can now transmit instructions to the rooster-tail riders during a race.

Orbit's super-het receiver was held off the market for a long time because Bob just wanted to be sure. Prototypes were built and tested, then flown and flown. Changes were made and flown some more, then finally released in a limited

Dunham and Howard Bonner judging in Multi at '62 Nats (left). Bob pilots world record speed bird (below).

B.D. does final check on rigs (below).



number, Orbit wanted to be sure that any bugs were eliminated before the receivers got scattered. With success assured, Bob's firm turned to a transistorized transmitter. Again the same procedure until the first commercial dual simultaneous completely transistorized 10-channel transmitter was on the market. Soon these little black boxes started showing up just about everywhere. A special nickel-cadmium battery which can run this transmitter for more than 30 hours is ordered with more than 90% of the rigs.

Orbit's transistor single channel receiver is a tiny mite weighing 2/3-oz with its metal can. A companion single channel transistor transmitter is also very small.

Plans in the works call for a relayless transistorized 4-channel receiver and transmitter to be priced below the present 4-channel job. Then will come the super het single and 4. Orbit's proportional transmitter has been developed and a companion receiver is being checked out. At first the transmitter will feature levers so that the transition from bang-bang to proportional flying will be easier. A 12-channel super het receiver and an adaptor kit for the transmitter will be offered. So many modelers have been yelling for this that Bob has bowed to their demands.

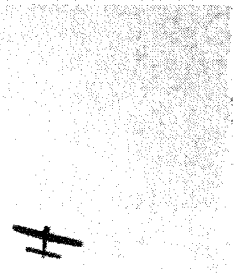
Well known modelers check out the gear and run the shop. Jack Bentley, who teamed up with Bob for those speed records, is production manager. Dick Riggs, one of the top Multi fliers in the west, mates the receivers and transmitters and test flies a lot of the new gear. Bob does a final check on every unit. He will not permit a single item to go out the door that he wouldn't fly himself in his own airplane. Poppa Carl has given up the garden shop and is Orbit's office manager.

Why has Bob quit competition flying? He says there is no real reason—he hopes to get back in the contest swing when his proportional is ready. He'll probably be out there flying in its test program. In the meantime, he pilots his own light plane to most of the R/C contests. But it's a very conventional job so he doesn't have to worry about guys like Boyer snatching the controls out of his hands!

Wild Bill Netzeband's

CONTROL LINE CAPERS

Papa's lively (?) column puts young Tom Netzeband to sleep (left). Junior Rat Racing fly-by as caught by Bill Dean's camera at last King Orange Internats.



■ Now that we have beaten our snowshovels into lawn mowers, how's your flying coming? Pictures sure liven up things. This column develops into a philosophy and engine review so let's get at it.

AMA Contest Rules for Experts Or Beginners? In my opinion rules must be organized toward the end that maximum development of equipment and personal skill is available before saturation occurs. Limitations cause early stagnation and such limits must then be raised (changed, that is). With this philosophy the beginner is placed squarely where he should expect to be . . . on the bottom. His choice is to work up through with practice or stay out.

You wouldn't go to the Olympics to enter without finding out how, or without working up to a high level of skill, would you? Also rules such as Combat, which have been made "equal" for everyone in various ways over the years become impractical to operate from the judging viewpoint AND as such could be replaced by flipping coins. A beginner must realize that only after he develops his skill should he expect to win anything. Reasonable thought should indicate that competition is basically the pitting of skill to determine who's "best", not a gamble to see who's luckiest (that day). Be careful with changes. Rules are the heart of competition.

More On Beginners. We get some real tear jerkers from kids as a result of colossal failure to achieve perfection immediately. This is silly when you consider that most of the old timers (experts) you are trying to emulate have up to 30 years experience and when *they* started we were all pretty green. Me, I built solid models for 3 years before tackling built-up types and it was a while after that before one flew, even a little. Since no one else could, I didn't worry.

Herein lies the tale. Your problem will dissolve when you make up *your* mind that you'll ruin a lot of jobs before you get enough experience to do the job right. Pick simple models, trainers, HL gliders, boxy outlines, profiles. Stay away from the scale, contest stunt and fancy jobs. Learn what you did wrong and don't do *that* again. Learn how to *build* first and then fly. Also buy some sandpaper.

IF possible, get with an experienced builder or a club. Otherwise, steel yourself to the fact that starting at the bottom is no disgrace. In fact, the only way to go from the top is *down*.

Wooten's "Bullet"

■ When Rat Racing first came along I immediately noticed two problems. The first was torque, especially on upwind take-offs after pit stops. Second was the inability of many models to get off on any kind of terrain. The rough terrain was also adding to the torque problem since a lot of the entries had to be horsed off the ground before they had good flying speed.

One thing I wanted when designing this plane was good ground handling. I wanted it to be able to get off and land on any side of the circle on any flying surface. To accomplish this the engine was mounted inverted to keep the center of gravity low.

The first plane was built in the spring of 1959. Performing even better than we had hoped, it won all but three contests in which it was entered. In these it took a second, a third and was disqualified when it ran 73 laps in a 70 lap heat.

With a reworked, standard Johnson .35 it has turned 103 from a standing start per proto rules. This was with braided .014 lines and a mild fuel. On hot fuel and single strand steel lines it has done over 120 on the top end. With one of the newer combat specials or the Fox .40 it should really go.

You will notice that it has more wing area than most Rat Racers. I have found that this doesn't hurt the speed enough to matter. However, it makes her much easier to get through the traffic during a race. Take-off and landing speeds are also much slower—"and safer."

Noted designer gives you a winning RAT RACER

The plane can be built in four versions. Mark I is the best if you have to fly over grass or other rough areas which makes landing and take-offs tricky. Mark II, while better than most planes on rough ground, was built for smoother surfaces. If you don't like the inverted engine either version can be turned over . . . however, you then sacrifice some of the ground handling qualities. Once you practice starting the inverted engine I think you will find that it is just as easy to torch off as an upright one.

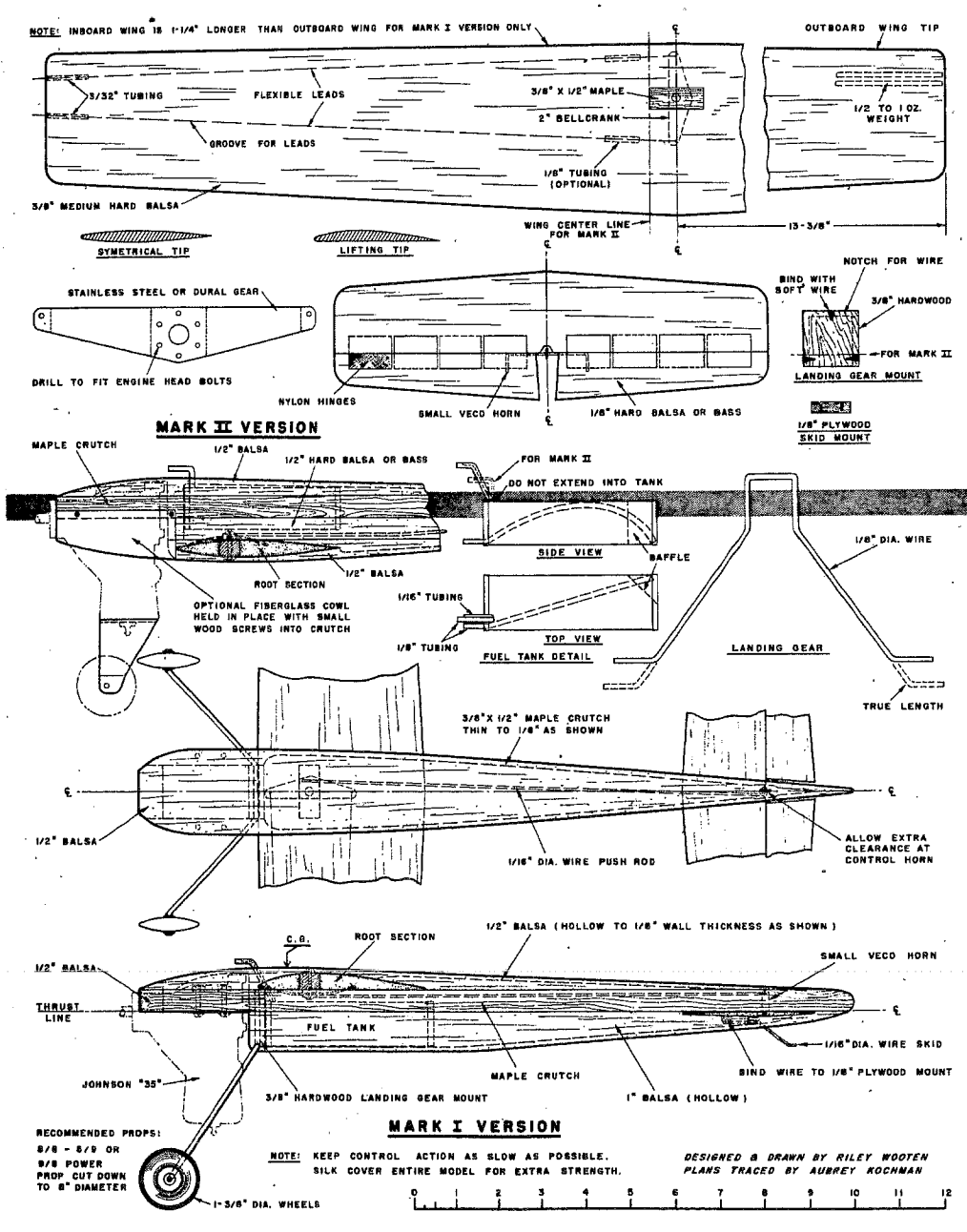
The plane has been flown with both lifting and symmetrical airfoils so use what you like best for this category. I prefer to start with a lifting section in the center and progress to a symmetrical section at the tips. If you will draw reference lines down the leading and trailing edges with a ball point pen you will find it much easier to get the airfoil accurate. Both lifting and symmetrical sections for the root and tip of the wing are shown. It is not absolutely necessary to thin the wing toward the tips as shown, but a much truer airfoil is achieved by so doing.

Completely sand model with 6/0 or 400 sandpaper and finish as you desire. Everyone has their own method so I won't go into that. I recommend that entire plane be covered with silk for extra strength.

When plane is finished add wheels and engine and you are in business. If you use the dural gear the head will have to be turned down to remove the fins.

Try different props to find the best combination for speed and fast starts. Remember that pit stops are just as important as speed. I have had good luck with both 8 x 8 and 8 x 9 props. A 9 x 8 Power Prop cut to 8" has also been giving good speed and faster starts due to more flywheel action.

Before trying your mouse chaser be sure its controls work smoothly and freely. Be ready on take-offs because acceleration is real fast. Oh yes, there is one other thing—watch those hi landings.

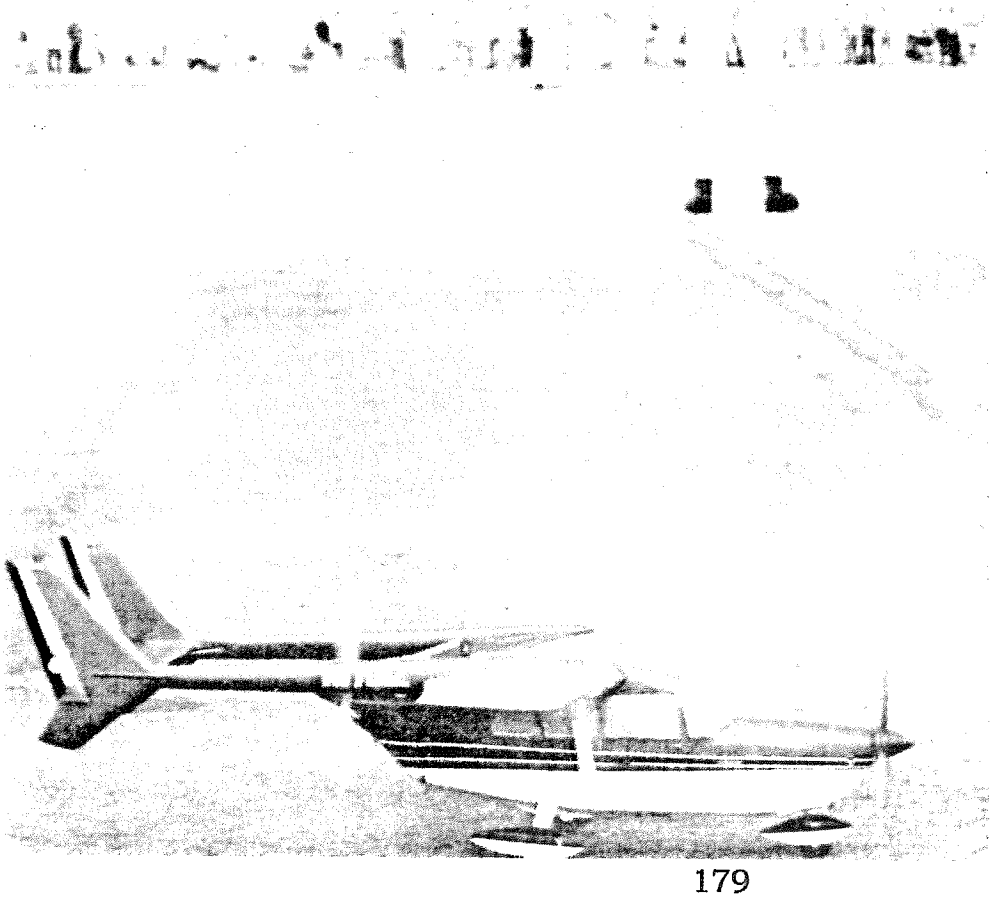


BLUE RIBBON AIR-MODELING

WEST COAST NATIONALS

Ye Olde California Apothecary Shoppe or what it takes to fly speed at the Nats. Entrants from Fremont, Cal.

Top honors in Senior C/Line Flying Scale were taken by Bob Welch, Tracy, Cal. Cessna Skymaster is 1" to foot from "Air Progress" plans; 38" span; two Fox 15RC's.



■ From the Monday morning's opening indoor events at Santa Ana's blimp hangars thru Sunday's final outdoor events at the Los Alamitos, Calif., Naval Association, the 32nd National Model Airplane Championships saw records shattered every day. The contest, held July 29 thru August 1 drew an advance registration of 114 Junior, 154 Senior, and 707 Open Class contestants from 34 states.

John Lenderman, 39, Santa Clara, California passed the early leaders early Sunday morning to become Grand National Champion as well as Open Class (over 21) Champion. Needing at least 9 minutes in C gas to win this honor, John passed this on his 2nd max, then to put frosting on the cake—he maxed out to make a 4th flight. These 100 points were 43 more than he needed.

Dennis Bronco, 17, Lakewood, who had been Junior champion when in that age bracket, topped all Seniors (16 to 21) to become the Senior National Champion.

Tom Smyly, 15, Los Angeles, topped a field of excellent junior flyers to be Junior National Champion. This was indeed a great year for the California flyers.

Being real curious about what events John competed in, we asked him and got the following information. He flew in A-1, A-2 Nordic where he placed second, Wakefield for 1st with 25:36—and a new National Record, Unlimited Rubber. For the gas events, B & C gas, and for control line, Proto Speed and Stunt. John had been National's stunt champion in 1952. This year's win was well thought out with some excellent flying.

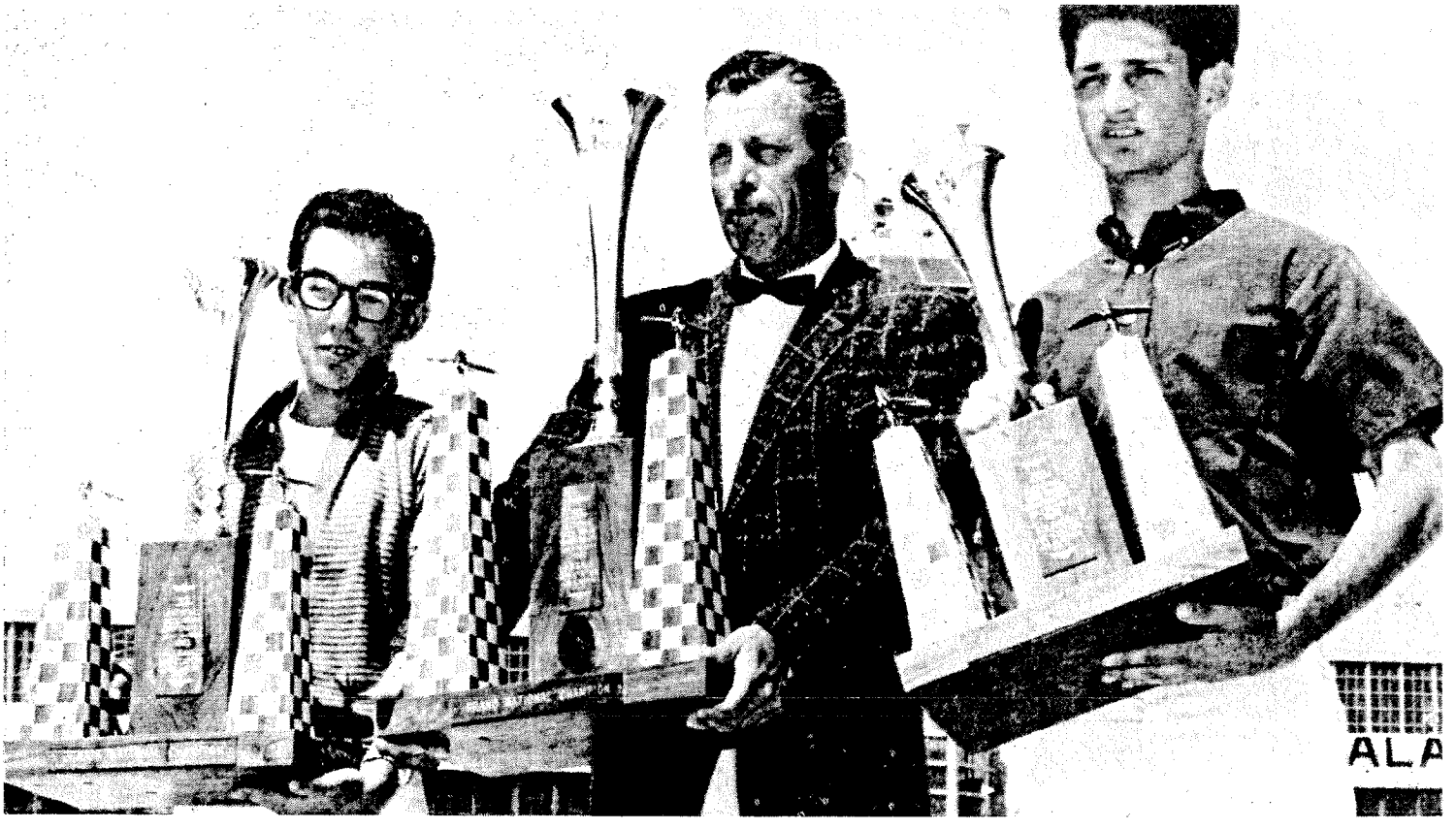
In John we have a true national champion, proficient in U-Control and Free Flight—both gas and rubber. Contrary to some thinking that a champion doesn't win events, here is one who not only won an event but set a new national record while capturing a first place trophy. John is a member of the "900" Club of the Northern California Free Flight Council.

John is an insurance salesman; he's been moved from town to town in California by his company. In each community he joined or formed model clubs and has been an active modeler for 31 years.

Los Alamitos Naval Air Station was opened to the modelers early Monday morning. The huge workshop hangar was soon thriving. There were so many work benches that they were never all used. Registration was fast and easy, all indoor entrants picked up their envelopes at the Santa Ana Marine Air Base which opened real early for lots of flying.

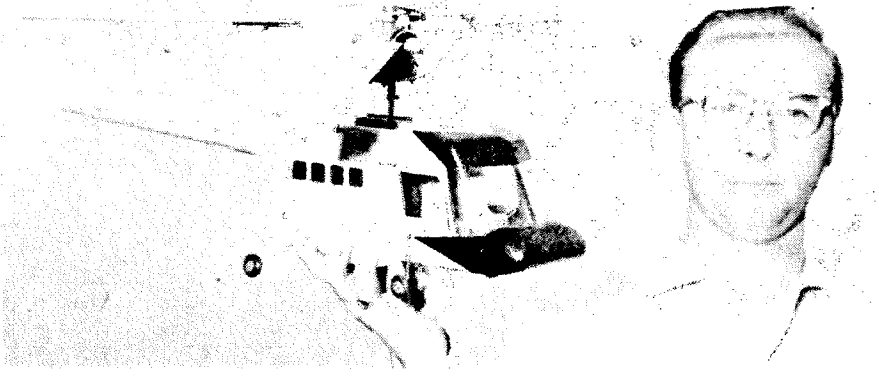
The huge balloon dock was crowded with contestants and helpers. Models of all sizes and description filling the air. It was difficult early in the morning to find space to throw a glider. As the time went on, the place thinned out, the open winners not making any flights til late in the evening.

In the rubber powered indoor endurance events, the eventual winners just stood around and watched til almost noon, when things thinned out some then started flying their tissue jobs.

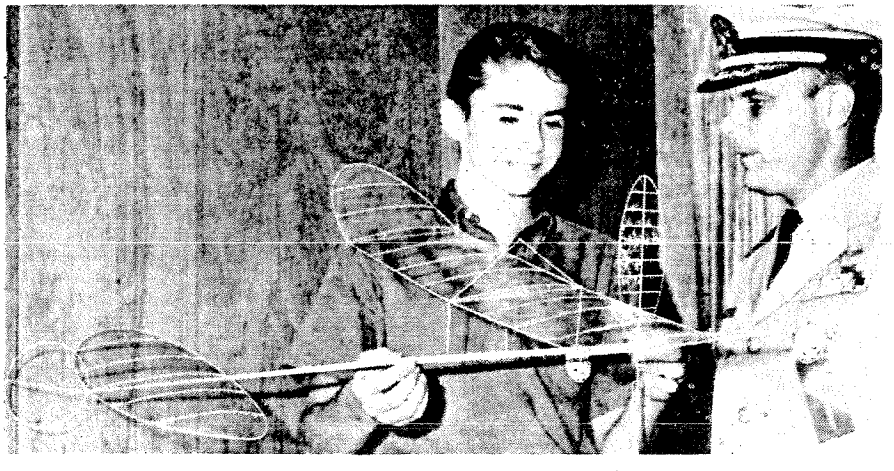


National Champs, and all Californians! From left: Tom Smyly, 15, Los Angeles, Junior (under 16 years) Champion; John Lenderman, 39, Santa Clara insurance man, Open (over 21) and Grand Champion; Dennis Bronco, 17, Lakewood, Senior Champion. Dennis was Junior Champ in 1961, is a letter man in basketball and baseball at St. John Bosco High School, Class of '64 V.P. Lenderman served in USAF, is married, has three sons, 14, 11 and 1½ years old.

Dallas' Dubby Jett: 1st in Sr. Speed ½A, A (ST 15), B (ST 29), and C, Second in Proto Speed (Fox 29X). Mighty fast Texan!

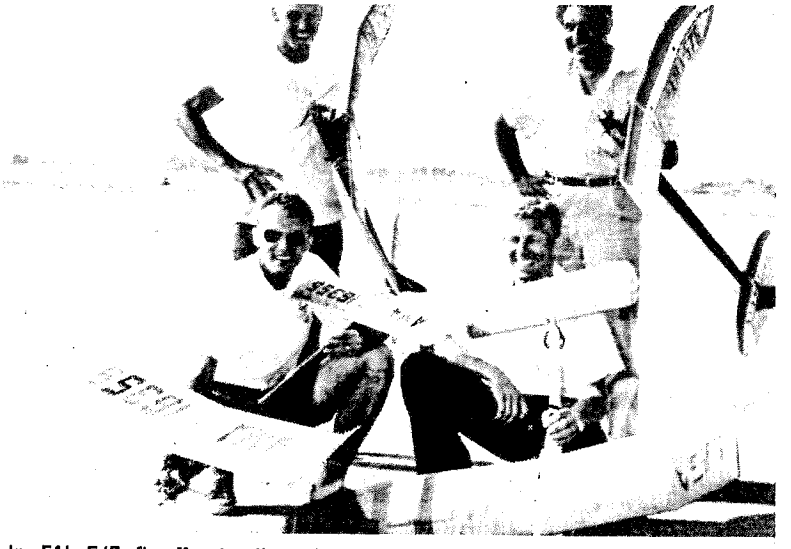


Dr. Lee Taylor, Lakewood, Colo.; original Husky Pup III helicopter with Cox 051 whirled off to first place in chopper event. Doc's a whizz with the whirly-birds.

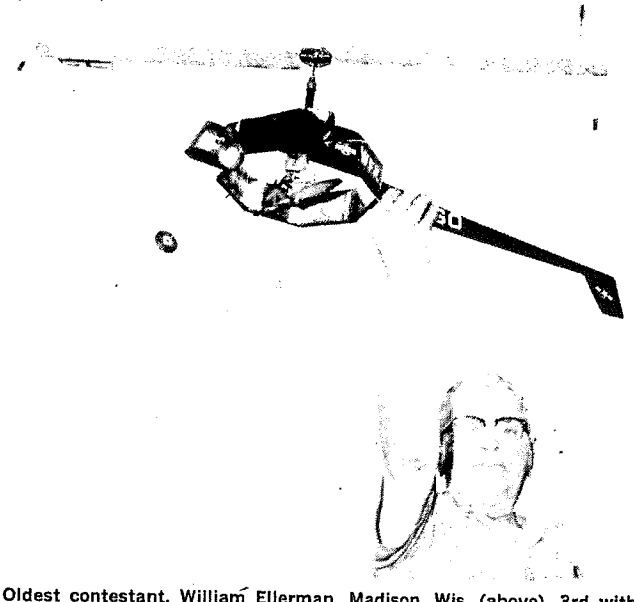


Bob Deshields, Van Nuys, Calif., shows his indoor microfilm-covered stick-type endurance job to USN's Cmdr Paul Boyer of Naval Air Training Command. Bob flew off with firsts in three Junior Indoor categories: Microfilm Stick, Cabin, Hand-Launched Glider.

Open Combat, from lt., Howard Henry, Slaton Tex., 2nd Johnson Combat Spl, Sneaker; Billy James, Ft. Smith, Ark., 3rd, mod'ed Big Iron, Fox 35X; Carl Berryman, Altus, Okla., 1st, Big Iron, Johnson BB36.

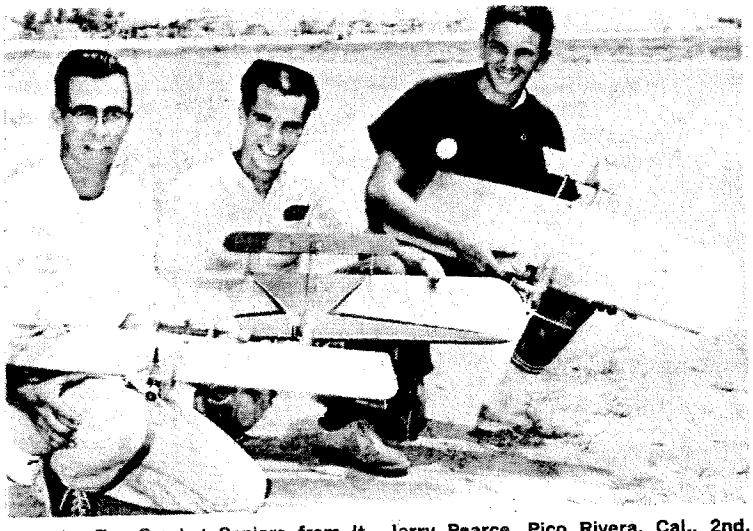


In FAI F/F fly-off, standing, Craig Cusick (4th), Saturn III (lt.); Al Vela (3rd), Lipstick. Front, lt., Roger Simpson (2nd), JAI-FAI; Robert Cherny (1st), Hi Society.

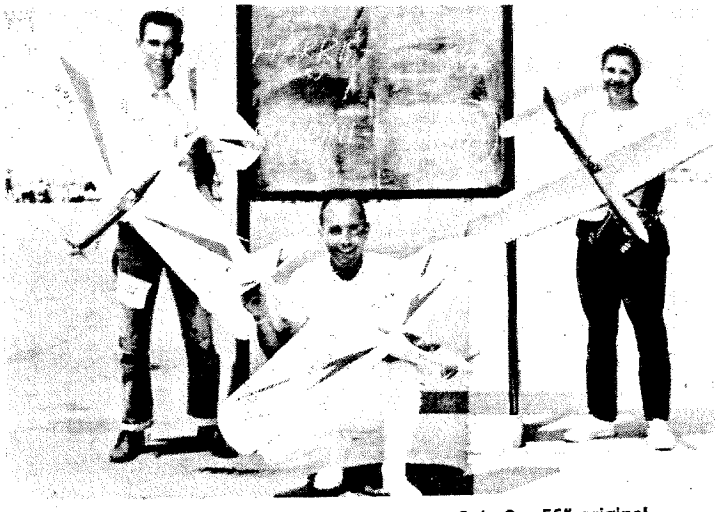


Oldest contestant, William Ellerman, Madison, Wis. (above), 3rd with original copter, Fox 15. R/C Pylon Speed winner (below), Zel Ritchie, Westminster, Cal., Capan design, Space Control.

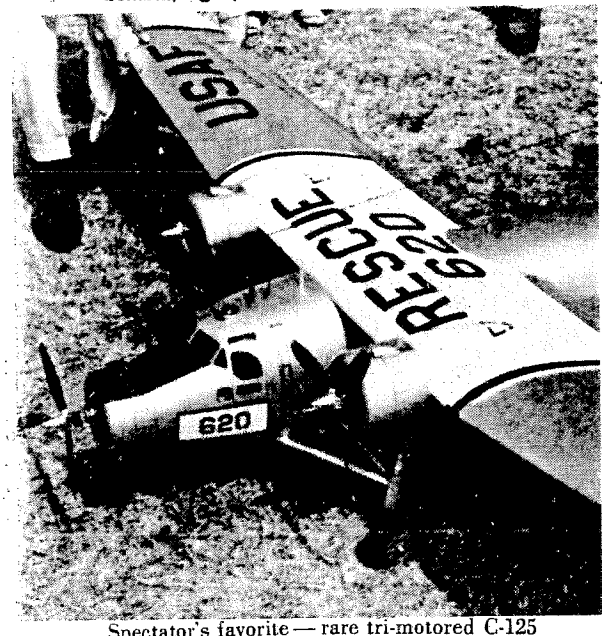
Former Nats' champ Frank Cummings with indoor cabin that set national record (above). Open Class AMA Team Race champs: Bernie Tautz (lt., below), Jack Garcia; ETA 15D, mod Tigeress.



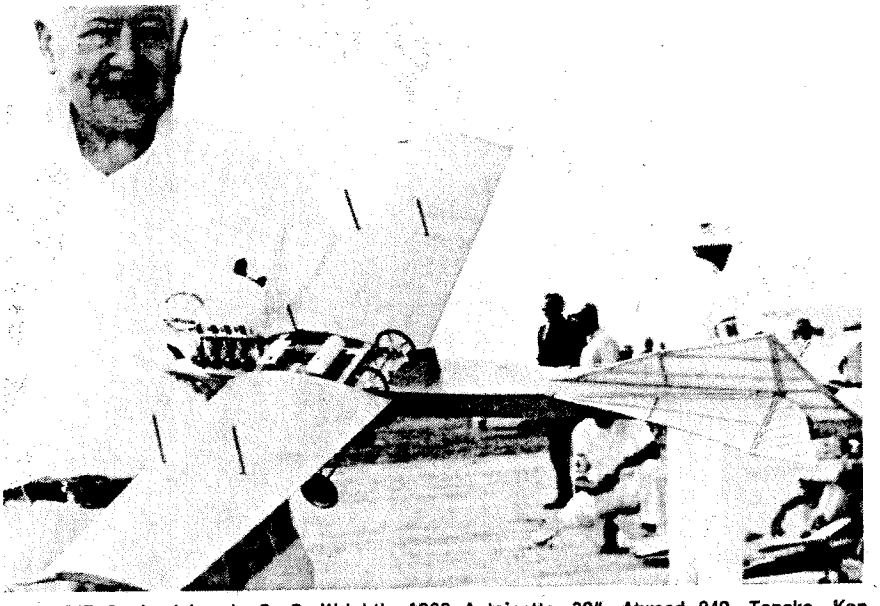
Top Combat Seniors from lt., Jerry Pearce, Pico Rivera, Cal., 2nd, Johnson BB36, Voodoo; Danny Jones, Long Beach, Cal., 1st, Johnson Combat, Egad; Art Jerome, Detroit, 3rd, Johnson Combat, Sneaker.



Stunt champs, from lt., Steve Harris, Fullerton, Cal., Sr., 56" original, 60-oz, K&B 45; Bob Gialdini, Milwaukee, Open, 56" Sting Ray, 48-oz, Merco 35; Gerry Cipra, Cleveland, Jr., Nobler, Fox 35.



Spectator's favorite — rare tri-motored C-125 took fifth in Scale for Claude McCullough.



First F/F Scale (above): C. O. Wright's 1908 Antoinette, 30", Atwood 049, Topeka, Kan. Below, lt., First R/C Scale: Max Hester, Des Moines, Iowa, P-63 King Cobra, Fox 59, Orbit 12-channel. Below, rt., Bill Wisniewski checks displacement; California swept speed.

OCTOBER 1963

R/C modeler

40 CENTS

EDITOR'S MEMO

by Don Dewey

At The Edge Of The Field

I can remember, some twenty years back, being ten years old and scared. Standing at the edge of the flying field, I felt a mixture of excitement at seeing the many gull - winged free flight ships seeking thermals in the warm morning air, and a feeling of embarassment at the crude results of my own first attempts at model building. I had only been there a short time when a man---- unnamed, but never forgotten---came over to the edge of that field and helped me strap on the wing and stab. A few minutes later my first model was in the air and actually flying! That man---who spent most of the afternoon helping a young boy solo---created an image of a modeler that has never been forgotten or destroyed.

This same image has been everywhere apparent since the very beginning of R/C Modeler. When we began work on the magazine, we were told that we had a 92% chance of failure before we even got off the ground.

And so did that first model, twenty years back----if it hadn't been for the help of another modeler. When you stop to think about it, if you have a 92% chance of failure, then conversely, you have an 8% chance of success! We hadn't been at work too long before we found the formula to success --- when you take that 8% and then multiply it by the number of modelers that offered their help in a multitude of ways-----that came over to the edge of the field-----then we couldn't possibly fail.

So we made it to the flight line. The credit goes to each and every one of you for your ideas and suggestions in your letters; for the handshakes and the words of encouragement from those we were fortunate enough to meet personally at the Nationals. And, too, to the many members of the hobby industry for their time and efforts in helping a new venture get started. You'll find their names in the advertisements in this issue --- men who are part of this image --- buying space in a magazine they had never seen, written by people of whom they had never heard!

It's called coming over to the edge of the field..... We have begun with a challenge--to bring the finest material together between two covers of a magazine in order to provide you--the radio control modeler--with a panorama of the RC world in a fashion unmatched by any other magazine or medium. It is your magazine--- it will be what you want it to become. This is our promissory note to you --- our editorial policy.

The true riches of any man's life is in the friendships he is privileged to enjoy ---the measure of his success lies in the challenge to be of service to others. In these respects, we consider ourselves among the most fortunate.

R—C

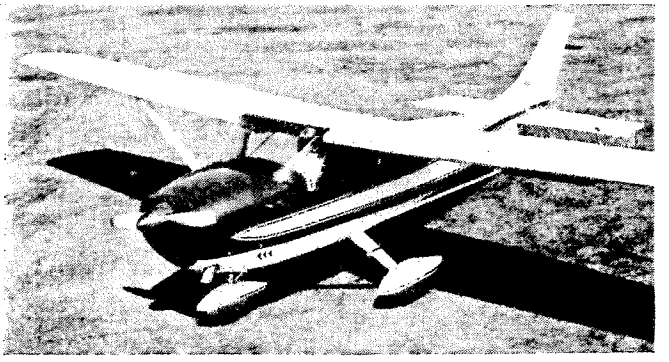
STAGGER—BI

MULTI—BIPE by Phil Kraft

EXODUS

.010—.020 SINGLE CHANNEL

Harrison Morgan and familiar Cub. Took second in Class I



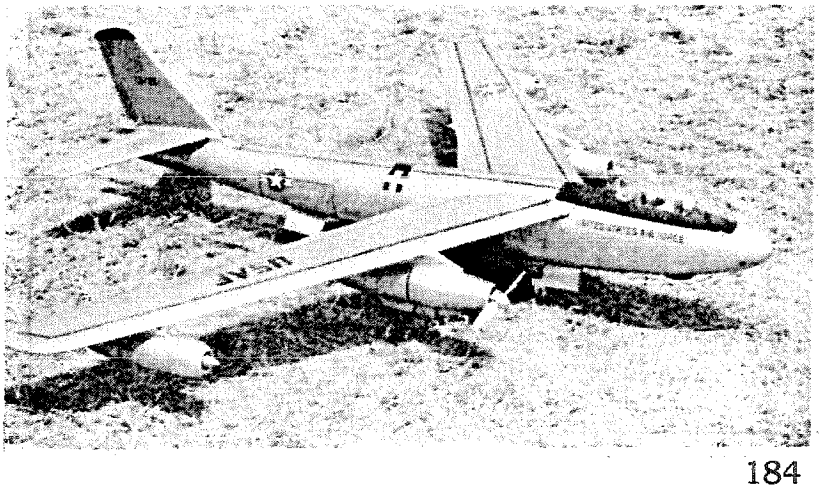
Dale Willoughby's Cessna Skylane. Time ran out for this magnificent entry as engine difficulty developed at flight line. To be featured in RCM.

'63 Nationals

Bud Atkinson with Mooney Mite. Second in Scale. REMAT plus flaps, retractable gear and lights. Orbit 12.

A pair of Champions. First place Class III winners Jim Kirkland and Beachcomber. Sampey 404 proportional. Could that be a Florida tan, Jim?

1963 NATIONALS . . . continued



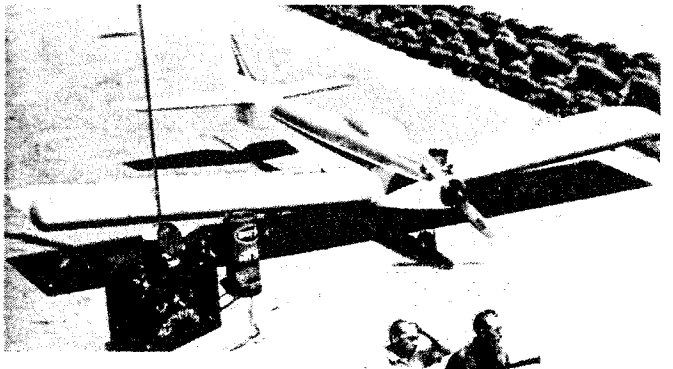
Joe Martin's spectacular XB47-D. Destroyed on landing.

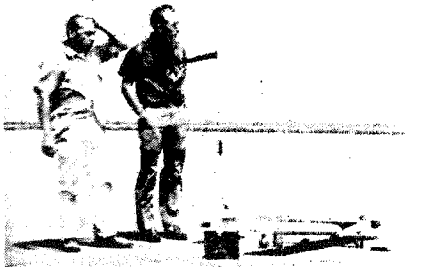
B-24 ala Ralph Jackson. 4th in Scale.

Bernard Williams and modified Live Wire Cruiser. First in Open Rudder. 7 degrees upthrust!

RC Coverage

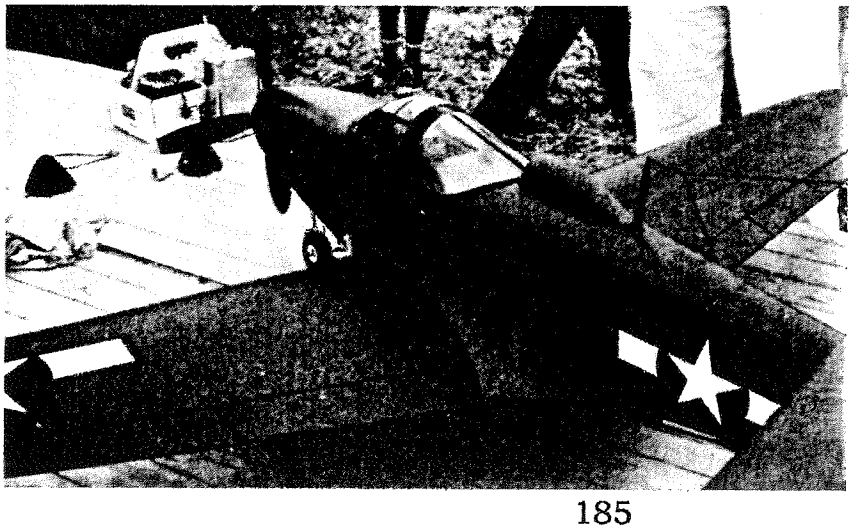
The most beautiful multi at the Nat's — Vic Husak's Altair. Acrylic lacquer.

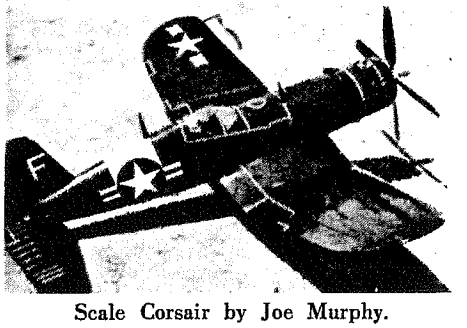




"You mean these aren't the Internats?" Dr. Ralph Brooke and Bob Dunham.

First in Scale — Maxey Hester's P-63. Note instrument panel. Good detail and excellent flight pattern.

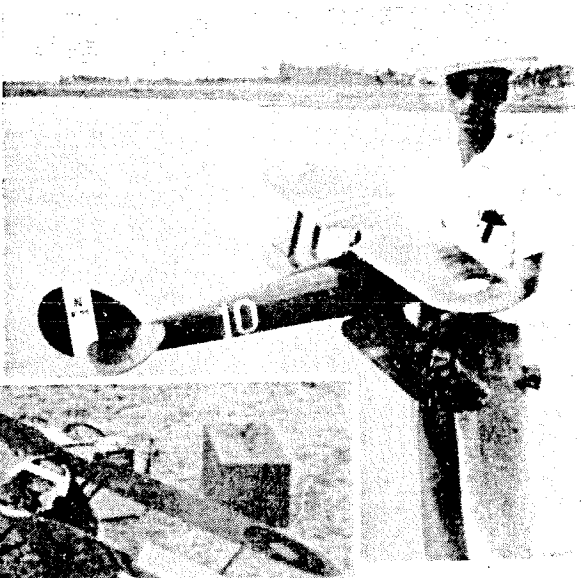




Scale Corsair by Joe Murphy.

14-year-old Doug Hertzog and dad. 3rd in Class I, Junior-Senior.

10-year-old Bobby Wood, youngest RC Nats contestant. Transmitter almost as big as he is. Dad helps with R.O.G.

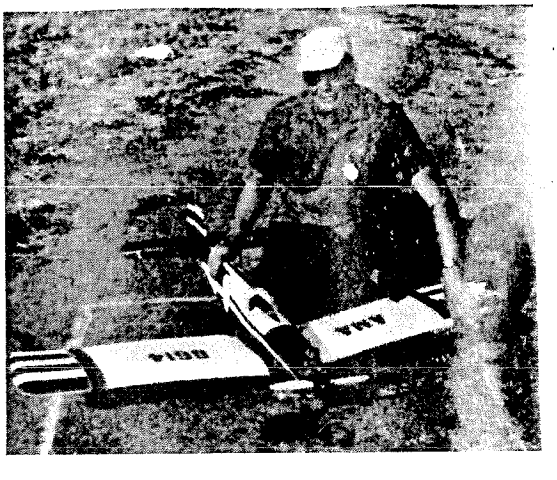


1963 NATIONALS . . . continued

Before and After. Granger Williams worked 'round the clock to repair damage — Went on to capture 3rd in Scale!

Ron Chapman, Canadian Internats contender and Norseman. A fine sportsman.

Zel Ritchie and Phantom. Second in Class III. Space Control and Fox 59.



Willie Williams and original Dominator. 5th in Class III. Kit by Williams features hi-strength plastic ribs.

Carl Goldberg and sneak preview of new Skylark kit. Two Cox .09's. 10 channel. Available soon as twin or single. $12.95.

Phil Kraft and shades. New Kraft-Pullen proportional xmtr.

Spectacular arrival of the Blue Angels, Navy's jet aerobatic team.

Mr. Fast — Zel Ritchie and 1st place Pylon winner.

"Zue" modified from AM plans. Took 4th in Class II. Dave Katagiri.

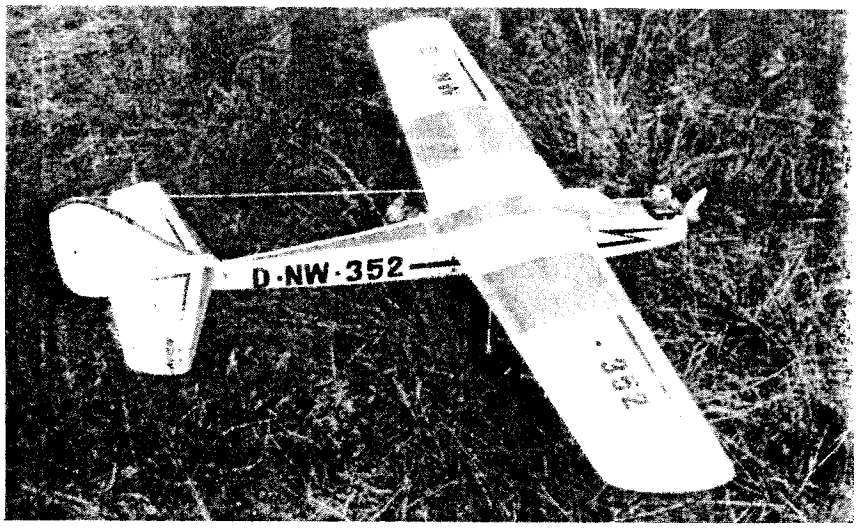
1963 INTERNAT'S

3RD WORLD RADIO CONTROL CHAMPIONSHIPS

Below and right: Crucial moments of final flyoff. Dr. Ralph Brook with Captain Bob Dunham.

Above: Dr. Ralph Brook, World Champion, with F. Bosch (Germany), runner-up, during official announcement of victory.

GENK, BELGIUM, AUGUST 26 . . . RALPH BROOKS F.A.I. WORLD CHAMP STOP . . . U.S. TEAM FIRSTPLACE S



2nd place winner by F. Bosch. Original design, Telecont gear. Note extreme rudder area.

Monty Malherbe. Sultan, Orbit 10. 16th.

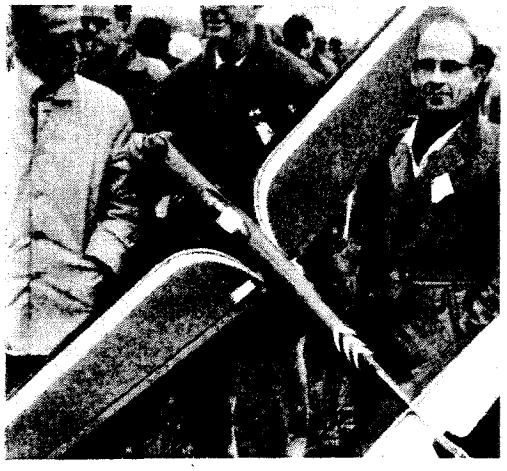
represent participating countries.

H. Schumacher (Germany). Original with Telecont radio. 15th.

Warren Hitchcock (Canada) and Taurus. 17th.

V. Tonnesen (Norway), 23rd. Original, Orbit.

Harry Brooks (England), 28th, taking the easy way to the aerodrome.



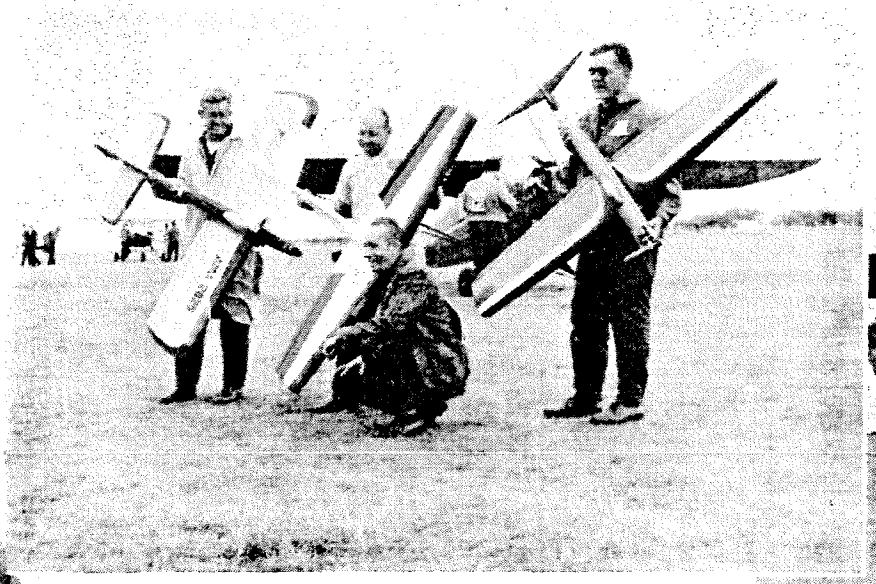
South African team. L. to R.: Malherbe, Culverwell, Connacher.

P. Stephanson (Norway), 12th. Original design, Dee Bee proportional.

Frank Vandenbergh (England), 7th, and #2 model. Orbit gear.

Ch. Teuwen (Belgium) and wife. Taurus, Orbit. 8th.

Airdrome at Genk. 22 flags



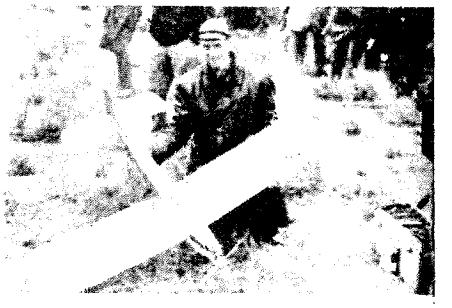
Winning U.S. team. L. to R.: Nelson, Brook, Kazmirski. Center: Bob Dunham, team captain.

Ed Kazmirski, third.

Jerry Nelson, fifth.

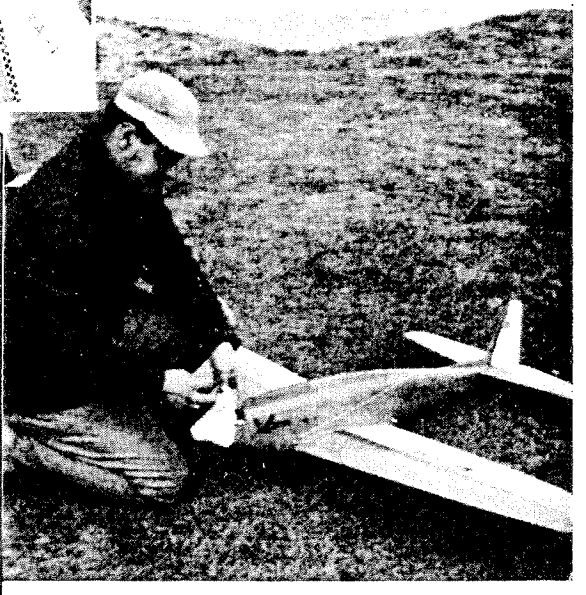
G. Hormann (Austria), 31st. Original with OMV radio.

A. Matthey (Switzerland).



J. Levanstam (Sweden).

Claude Sauthier (Switzerland). Original design, F & M equipment.



P. Eliasson (Sweden) and Mustfire.

1963 WORLD RADIO CONTROL CHAMPIONSHIPS

Official Team Standings

U.S.A.	10,516
Belgium	9,459
South Africa	9,019
Canada	8,756
Germany	8,574
France	7,869
Great Britain	6,751
Sweden	5,906
Netherlands	5,715
Italy	5,072
Switzerland	4,007

And now the excitement was feverish! The flyoff commenced at the end of the third round. Ralph and Bosch flipped a coin to see who would fly first. Ralph lost the toss and Bosch elected to fly second.

Proving he is a real competitive flier, working well under extreme pressures, Ralph put in his best flight of the contest. It was precision of the highest quality. Bosch started his flight, and it too was excellent. Both flights were close, but when the results were announced that evening at the award presentations, Dr. Ralph Brook of Seattle Washington, won the flyoff by a good margin and was the new Multi Radio Control Champion of the World! In addition, at the same award banquet, the U.S. took almost everything they had to offer. Ed Kazmirski even won the Concours D'Elegance with his Taurus.

The most popular design at the Internat's was the Taurus. I would estimate that at least two-thirds of the models flown were Taurus's, and most of them built from Top-Flite kits. Orbit equipment was used by over half of the contestants, just as it was at the Nationals. Bonner servos filled most of the actuator needs. All kinds of engines were in use with a predominance of Super Tigre 56's.

The radio equipment used by both Ralph and myself was the new Orbit Proportional. This system performed excellently throughout the contest. Veco 45's were the power plants and Veco #1 was the fuel used by all of us.

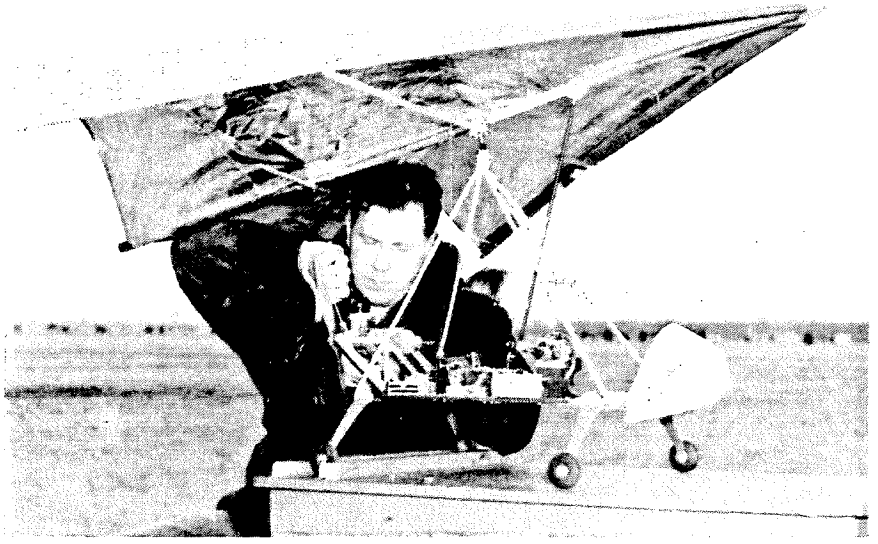
Summing up the contest is easy. The quality of flying and the sportsmanship was the highest I have ever seen. I believe that everyone that entered could do the entire pattern well. The South African and Canadian team did a tremendous job—and they had to pay all of their own expenses over!

In my opinion, Bosch of Germany was the single most outstanding flyer. His shouder wing ship flew as if were on rails—smooth and fast. He was using the Telecont filter system, allowing him to send extremely fast short pulses which made the model fly quite smoothly. His only problem seemed to be outside loops. The corrections required in the outside maneuvers seemed to be quite critical.

Ralph's ship was quite unique in construction, and different from most model designs. The fuselage is of fibreglass construction, round in shape and nicely proportioned. The design and molds were by Bob Kirn. The wing is also different, being of all sheet covered, egg-crate geodetic type construction that is assembled on an elaborate set of jigs and finished with a special built drum-sander that is capable of sanding the sheeting to the exact airfoil to a tolerance in thousandths of inches. Full span ailerons were used. The empennage was of conventional design and construction.

This exclusive coverage for RC Modeler was started on the French Riviera. We are now in Venice, Italy. The new style gondolas are speed boats powered by Chrysler engines. Those things really move out! And the girls...

Well, the 1963 Internats are over. It's been a ball. I would recommend radio control as a hobby to anyone. The possibilities are unlimited!



First powered version of a Rogallo flexwing to fly was a NASA test model similar to this. Demonstration flights made for various government officials, often with John Worth as the "test pilot" operating remote control R/C transmitter. Nice work if you can get same!

John Worth at Creedmore, Long Island, in 1941 at age 17. Free flight is a "Haaren Hot Shot" designed by his buddy, Doug Smith.

From NASA to Academy of Model Aeronautics

meet JOHN WORTH, new Executive Director

The two most important events of modern times, at least from an aeronautical point of view, were the trans-Atlantic flight of Charles A. Lindbergh in May of 1927 and the orbiting of Sputnik I in October of 1957. In a sense the first of these gave the world wings and the second took them away. John Worth, the brand new Executive Director of the Academy of Model Aeronautics, was strongly affected by both of them.

Model building was certainly nothing new when Lindbergh flew the Atlantic but the flight revitalized the hobby and set in motion a new wave of enthusiasm which led to what can justifiably be called the Golden Age of Model Building—the Thirties. John Worth was only three years old at the time of Lindy's flight, having been born in NYC in 1924, but by the time he was eight he intercepted the rising tide of modelling activity and was hooked, in the grand tradition, on a ten-cent flying scale kit.

This first step cast the mold. He built models and models and more models. He flew in contests around the NYC area and belonged to local model clubs, one was the Clemsohn Gas Model Club. He became a sort of airport bum, junior grade, and frequented many of the Long Island airports just to be near airplanes. He went to New York's Haaren High School which, he recalls, was the only one in the country at that time in which you could get diploma credit for a course in aircraft mechanics.

For John the plunge into full-scale aviation came very quickly. When he graduated from Haaren HS in February of 1942 the war was on. One result of the new conflict was a call put out, by NACA at Hampton, Va., for people to work in aeronautical research. The day after he left school John answered the call and headed South—along with other model builders such as Hewitt Phillips, Dick Everett and Frank Zaic who were already on the scene.

For the first, but not the last time in his association with Governmental agencies, all did not go according to schedule. Instead of joining NACA John went to work for the Air Force as an aircraft mechanic's helper. He did well, however, and by the time he was drafted in 1943 he had worked himself up to crew chief. In the service, however, he was destined for another serious disappointment. He went into the Cadets but began receiving instruction just as the pilot training program was being curtailed. He was switched to gunnery school and trained at Ft. Myers, Fla., and Alamogordo, N.M. He was graduated as a B-29 gunner and went overseas —to Tinian and Okinawa—just as the war was ending.

For awhile following his discharge John went back to the Air Force, this time as a civilian crew chief. Then he transferred to NACA where he remained until he took the AMA job. He continued work as an aircraft mechanic on NACA research and transport planes (C-45 and C-47) until 1955. One of his duties during this period was serving as crew chief on the "silent plane" project, an L-5 converted, by means of a super-size muffler and a special 5-bladed prop, to ultra-quiet flight.

Now the influence of modeling asserted itself and led to a new job. John had resumed building after the war, principally free-flight and some sport ukies as well; but along about 1949 his interest had switched to R/C and stuck. In addition to building models and writing articles he formed, with partners, a group called Control Research which was a pioneer radio control equipment and parts supply house. This was a spare-time business and lasted about five years, till 1954.

It was through this sort of strong interest that, in 1955, John Worth landed the model builder's dream job: he was moved to a NACA project concerned with outdoor radio control flying scale models—the Outdoor Testing Unit of the Dynamic Stability Branch of NACA (later NASA). The work, which is a sort of compliment to standard wind tunnel research, began with an old AF drone, but currently there is a crew of seven (two engineers and five mechanics) in the unit. John became the shop supervisor.

The Outdoor Testing Unit is essentially a wind tunnel without the tunnel—and no wind. The crew is supplied with

Continued

John Worth - continued

a shell made in a model shop. They put the necessary R/C equipment, instrumentation and parachute recovery systems in it and fly it. Only a few of these projects are powered models which take-off and land under their own power. The majority of models are tested in gliding sequences which begin with a drop from a helicopter and end with a parachute recovery.

At least that's the way things were until the impact of Sputnik I. That turned everything topsy-turvy. Little boys by the dozen forgot about airplanes and went rocket crazy. NACA became NASA (1958). And the whole emphasis of John Worth's job changed. Before Sputnik it had been a study of the control and stability characteristics of aircraft such as the F-104, the F4H and the X-15. Now it became "the flying characteristics of vehicles returning to earth and deployment techniques of various recovery systems."

In May of 1963 John took a long-delayed vacation. He packed his wife Lillian, whom he had married in 1950 and the four children (three girls, one boy) into a 1954 Ford Station Wagon and spent a month going to and from California via 22 of the States. With the help of many friends who put them up overnight the Worths managed the whole excursion on less than $500.

And why had John had no vacation for so long? Well, the kids got him mixed up in the P.T.A. for one thing. For another he was Chairman of the R/C Section of the AMA Contest Board. As a matter of fact he was so busy he didn't even have time for much at-home model building any more. On top of this he was nominated for AMA President. This came as a big surprise to John who was in for an even bigger one when he was elected. He had naturally been too busy to campaign. He was much better situated than most past presidents have been, however. His Contest Board Chairmanship had given him some insight into the problems at National HQ and by the terms of a new AMA policy. instituted just a month before his election, he was forwarded copies of all AMA correspondence. This brought him up-to-date on current business matters. Finally, unlike many a previous president, he was close enough to Washington to get there frequently and the AMA began to show the results. Now selected as its managing head John brings a great amount of valuable experience to the job.

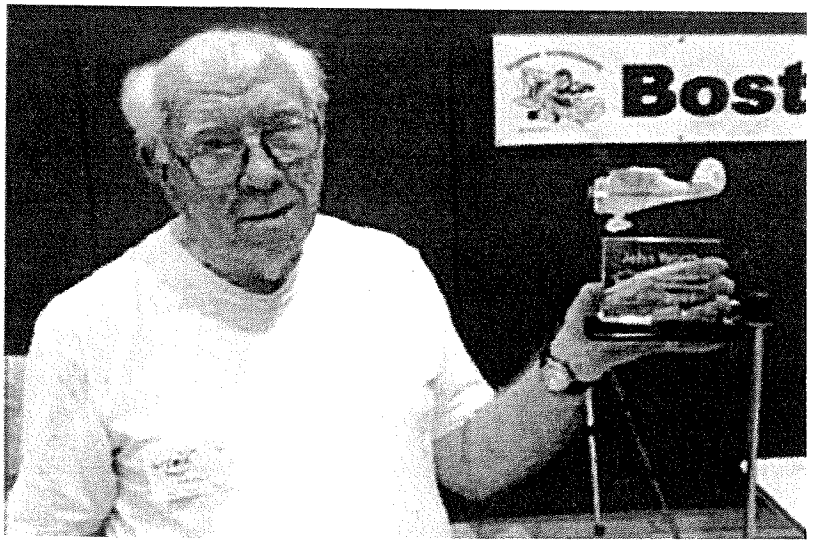
WORTH TALKS ABOUT THE A.M.A.

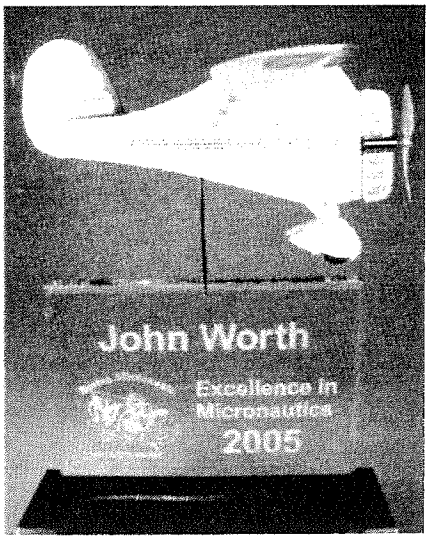
THE MAIN GOAL? "This is twofold: First, to try to provide more specific guide lines for all aspects of the AMA operation . . . to point out what's to be done and the ways in which it is to be accomplished. To establish organizational procedures which will be a help in giving a continuity to the succeeding administration. To provide more efficient operation with better returns on the dollar.

"Second: To solidify the AMA's position as the leader in all phases of model aviation, including aerospace. This will require expansion to provide increased services to include new members and improved services to current members. The biggest task is to rejuvenate and revitalize junior interest—a major aim of 1964 efforts. Emphasis will be on increased promotion of model aviation, on a campaign to obtain more flying sites and on cooperation with hobby and aerospace industries."

The years of '64 and '65 were pivotal years for AMA and John Worth, the new Executive Director, with almost insurmountable tasks including multiple administrative details at headquarters. John had the first automatic data processing system put into use in late '64 primarily to facilitate handling of membership information. Work on new by-laws to invigorate AMA started in '64.

In '65, members were asked to return their old AMA Card or a mailing label from their tiny Model Aviation publication as proof of membership. By '65 John had AMA on the fast track approach by adding other helpful AMA members as its' Officers, such as George Wells (Public Relations), Maynard Hill, Frank Ehling, Howard McEntee, Walt Good, Ron Morgan, Ron St. Jean, Bud Tenny, Bill Netzeband and many more that this writer wasn't privy to. In '65, President Howard Johnson announced the formation of an R/C advisory committee to spotlight trends, needs and problems (John Worth's work in early R/C helped considerably here !). Under John Worth, the Society of Antique Modelers, SAM, came into being (in '65) under the leadership of Lee Freeman and by 1966 the National Free Flight Society, NFFS, with Bob Stalick being named as its first Executive Secretary ... the only way for John Worth and the AMA was UP ... and WELL DONE until he retired in 1986 with membership climbing from 16,.000 + in 1964 to 110,000+ in 1986!! Much of what AMA is today is thanks to John Worth and his people.



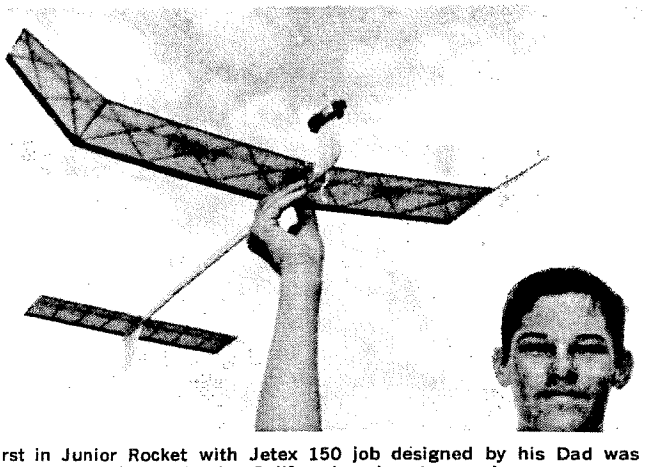


In 2005 John Worth was deservedly recognized for all that he has done for so long in the world of Micro R/C, by the Boston Micronauts at 'Neat Fair'. The award was presented to him by Dr. Gordon Johnson at the Friday night indoor Flying session. Being into his '80's, John still has lots of 'micro R/C' information to provide us on his website www.cloud9rc.com

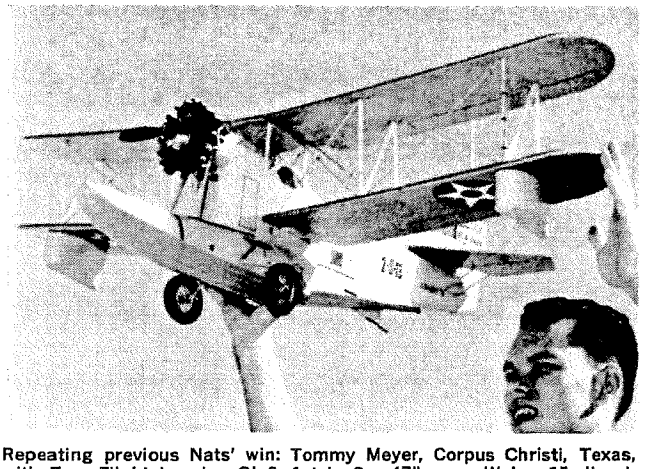
Exclusive Pictorial Highlights! Miniature Aircraft

Billed as "The Greatest Air Show On Earth" the 1964 National Air-Model Championships drew entrants from 8 to 80 years of age, from practically every state who flang at least 5,000 models into the hot Texas air.

Emphasizing Navy's part in our modelplane Nats: Robert Ritz' Chance Vought Seawolf flew in Carrier; 37" span; 3½-lb; McCoy 60.



First in Junior Rocket with Jetex 150 job designed by his Dad was Dave Maystead, Sepulvada, Calif., who almost won Jr. crown.



Repeating previous Nats' win: Tommy Meyer, Corpus Christi, Texas, with Free Flight Loening OL-8; 1st in Sr.; 47" span; Webra 15 diesel.

Open class (over 21 years) aerobatic winner and Grand Stunt Champ was Ukie whiz Jim Silhavy, 33, Cleveland, Ohio; Nobler.

Magnificent 1¼" to foot Free Flight Nieuport 17 garnered Open class championship for Bruno Markiewicz of Detroit, Michigan.

Championships

Because a lot of model leaders and Navy people planned far ahead, worked long hours above and beyond the call of duty, then labored under the hot Texas sun and far into each cool night, the 33rd National Airmodel Championships at Dallas, Texas, Naval Air Station last July 20th through 26th was a great meet, the highlight in more than 700 competitions sanctioned this season by the Academy of Model Aeronautics.

Without the aid of the U.S. Navy and the use of its facilities there would be no "Nats" as we presently know it. So vast has the competition become only a service organization such as the United States Navy is able to take the Nationals in its stride and accommodate the modelers, the mechanics, and the spectators who may number from 50 to 100 thousand.

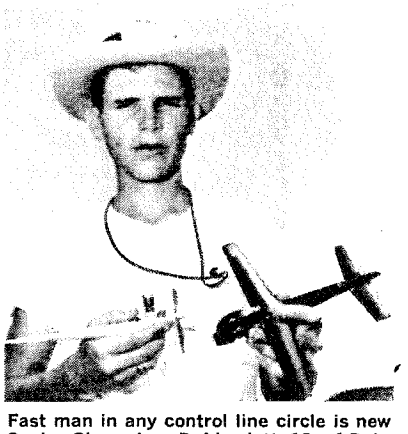
The Nationals' Carrier Cruise has now become the super-goal for modelers-under-16 to shoot for. Each year two dozen are air lifted to Pensacola, the "Annapolis of the Air" where they fly their models on a real carrier (this year the *USS Lexington* of WW-Two fame), then go to sea to witness carrier air operations.

A salute, then, to the winners, the age class champions, the officials, and most of all, to the hard-working Navy crew.

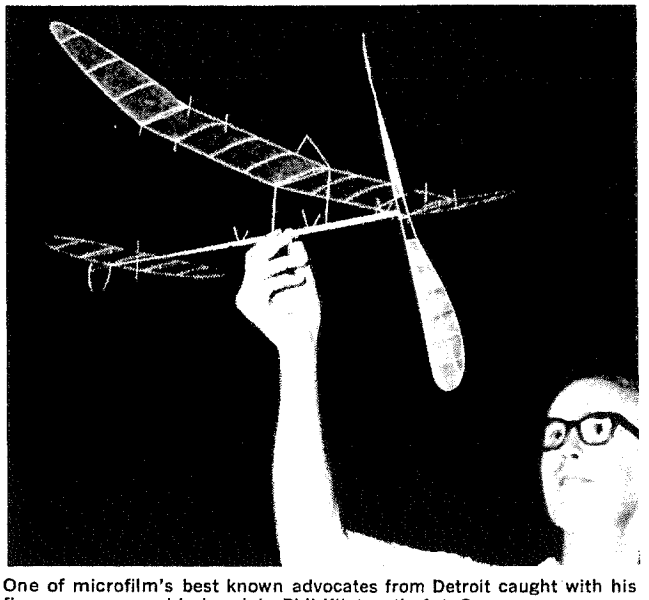
AMERICA'S BEST AIR-MODELERS, TOPS IN DALLAS

Over-21 Open Class Champ J. Phillip Bussell, 26, of Dallas, was designated Grand National (all age groups) Champion, gets award from Adm. A. S. Heyward, Jr.

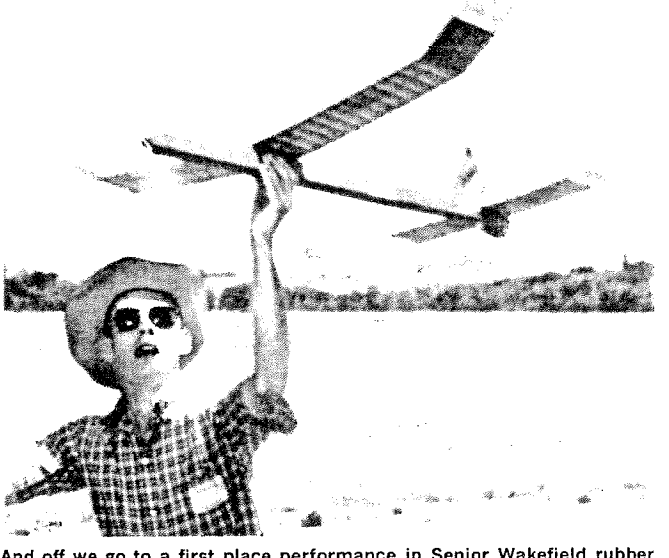
Wayne Meriwether, Kansas City, Kan., took Junior Championship (under 16 years), placed high in Carrier.



Fast man in any control line circle is new Senior Champion, Dubby Jett, 18, of Dallas, who attends Arlington State College.

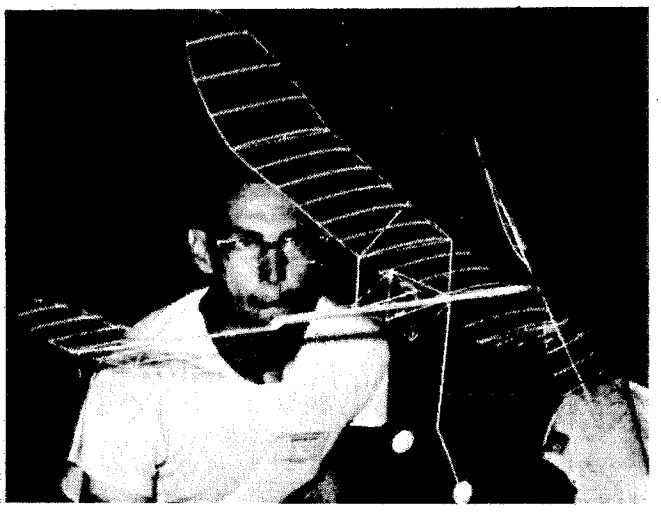


One of microfilm's best known advocates from Detroit caught with his fine paper-covered indoor job: Phil Klintworth, 1st, Open.



And off we go to a first place performance in Senior Wakefield rubber powered event. Don Andrews, Dallas, launches his Parmenter design.

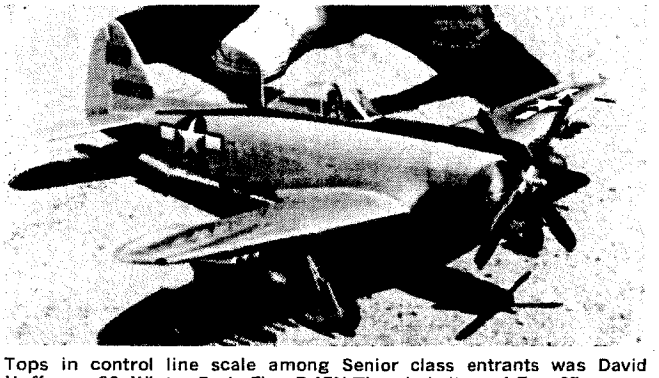
For the Nationals' more than 500 trophies and prizes contestants flew craft which ranged in cost from 10 cents to $1,000; powerplants boasted displacements from one to sixty hundredths of a cubic inch!



Concentration appears to be Chicago Chuck Sotich's middle name as he gets his Indoor Cabin job off on a trial hop. He placed 1st in Open.

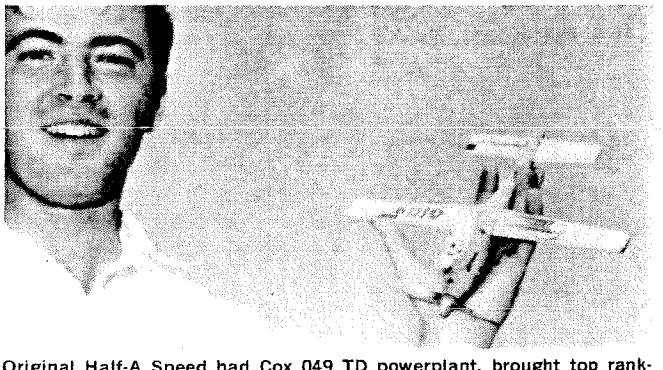
"Parade rest" pose is struck by USAF's Roger Simpson, Mather AFB, whose Super Tigre 15 Condorian was 1st in FAI free flight.

Clean, thick airfoiled neat original design captured Senior class ukie aerobatic honors for Barry Simonds, 17, Roseland, New Jersey.



Tops in control line scale among Senior class entrants was David Hoffman, 20, Winter Park, Fla.; P-47N Thunderbolt used Fox .25.

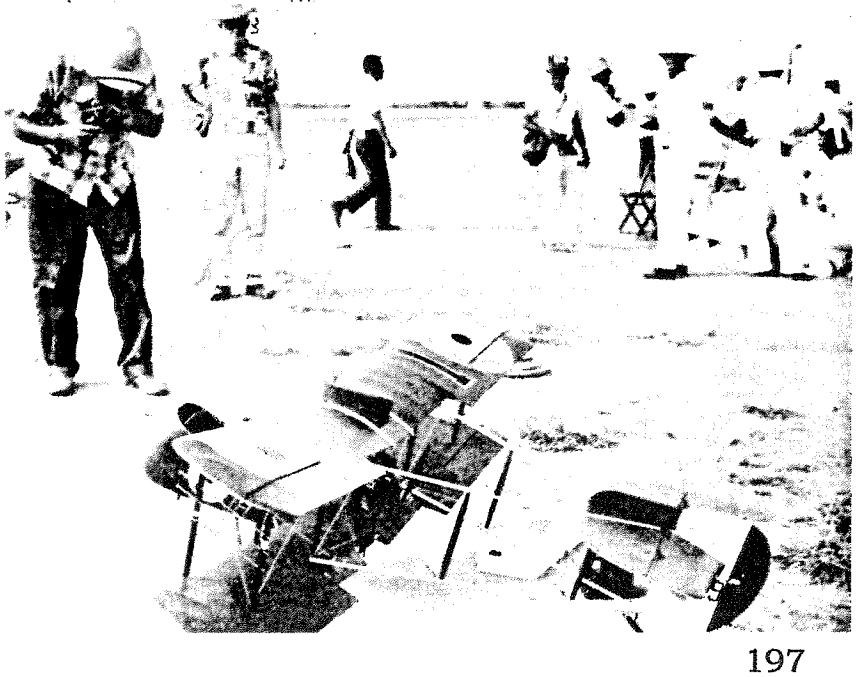
New record and first place trophy for Junior Class A speed went to Dan Wakerley, 12, Napa, Calif. Lauderdale design; stock K&B 15.



Original Half-A Speed had Cox 049 TD powerplant, brought top ranking to Carl Dodge, Cleveland, O. ("AM Annual" has all plane data.)

Lt: Penny von Hekken, 1964's Miss Model Aviation. Lower lt: Bob Carlisle's scale DH-2. Below: Dale Nutter with record-breaking Sidewinder. Jerry Krause looks on. Lower rt: 2nd place Class III winner Zel Ritchie and Phantom with RCM's Chuck and Clare Waas.

Radio Control Championships



When it came to "full house" Multi (Class III) radioplane aerobatics nobody could better Clifford C. Weirick, 36, of Point Mugu, Calif.

Phil Kraft and 4th place wire Kwik-Fli

The Williams brothers Nieuport 28.

Ron Chapman's Golden Norseman II.

The 1964 version of the National Model Airplane Championships, held at the Dallas, Texas Naval Air Station, marked the 41st such event, and the 24th to be directed by the Academy of Model Aeronautics. Having grown from a single event drawing 27 contestants from six cities in 1923, to a 35 event program drawing over a thousand contestants from the 50 states and abroad, it is recognized as the world's largest and most varied model aircraft contest. This year, the Nationals drew an estimated 75-100,000 spectators. The radio control championships, alone, had approximately 125 contestants. Reigning over the 1964 affair as Miss Model Aviation, was eighteen year old professional model, Penny Van Hekken of Oak Cliff, Texas.

The schedule of events for the weeks activities included Pylon, Monday through Friday; Class I, II and III, Monday through Saturday; and R/C Scale, Saturday and Sunday. The first day's activities saw Oklahoma's Dale Nutter set a new pylon speed record with his famous Sidewinder—a time of 59.25 seconds, shattering his own world mark set recently at Bakersfield, California.

On Friday, young John Jennings established a Junior Pylon time of 1:26.6, breaking the world's record he had set only a day or two before!

Scale, this year, was rather poorly attended, with only nine entries. Class I and II competition was of top caliber, but again, not too heavily attended.

What can definitely be said about the 1964 Nat's is that it was the most well-organized, efficiently conducted of all of these annual meets. The Academy of Model Aeronautics and the U.S. Navy have earned the gratitude of every person who participated or attended the Dallas activities. The entire program was a tribute to the people who were responsible for its existence.

A special vote of thanks is due to the Collins Radio Corporation of Dallas for their installation and operation of $20,000 worth of monitoring equipment — simultaneously monitoring all R/C frequencies for the benefit of the entrants.

Another group of individuals who should be remembered for their efforts is Squad 18 of the Amarillo Texas Air Explorer Scouts, along with their three advisors.

The prime interest in the RC events centered around Class III competition, and it can be said without fear of contradiction, that this year's contestants showed a caliber of performance that was without peer. Virtually every top multi flier in the country had entered the Nat's competition, and from day to day, it was anyone's meet. The deciding flight was made by Cliff Weirick and his Candy — in a 25 m.p.h. wind! Despite this handicap, Weirick displayed a proficiency of flying that had to be seen to be believed!

Among the many notables attending the Nat's was Mr. Masahiro Kato, Managing Director of the world famous Kato Model Aircraft Company, and holder of the 1963 Japanese R/C Championship, whose visit, along with that of his public relations representative, Mr. Seiji Kosaka, was arranged by the Royal Products Company of Denver.

Presentation of the Championship awards in all classes, plus the performance of the U.S. Navy Band from Pensacola Naval Air Station highlighted Sunday's activities and marked the final day of the 1964 Nationals.

R/C Biography

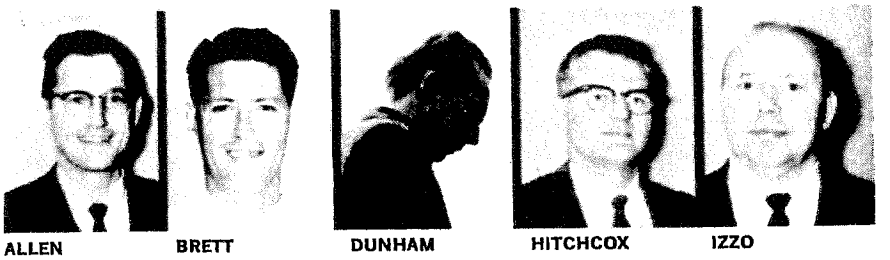
DICK ALLEN (*Apalachin, N.Y.*), 35, Engineer at IBM, General Products Div., specialist on contacts, connectors etc. Married, two boys. Got into R/C when he met Jack Port while stationed at Wright Field; had been modeler before this (mostly control line stunt and combat) but not very avid. Has flown gliders, indoor, speed, just about every type of model. Also competed with most of these. Won Rudder at '57 Nats, but top thrill in R/C came from making highest scoring flight in Finals at '63 Nats Multi—his first year of serious Class 3 competition (he ended up 10th).

TOM BRETT (*Detroit, Mich.*), 38, Senior Design Engineer at G.M. Fisher Body Div., involved with rear quarter and deck lid auto design. Always enjoyed working with hands as youngster, built quite a few solids, but little effective modeling before he got into R/C. Built one ukie while in Navy—it was miserable failure. Training to be Navy flier when war ended. Mech. Eng. degree from Indiana Tech College, then went to Int. Harvester. Moved to Detroit and Fisher Body in '53. In R/C for 8 years. Enjoys building and flying, especially competition— latter comes very easy. Real satisfaction out of working up own R/C plane designs, flying and competing with them. Feels his "Perigee" is ultimate for *his* R/C needs. Wife Helen is his companion on all trips to R/C affairs (she also flies R/C); two teen-age daughters usually stay home. Musically inclined (piano, banjo). Biggest R/C thrill—his world championship win at Kenley FAI R/C in England.

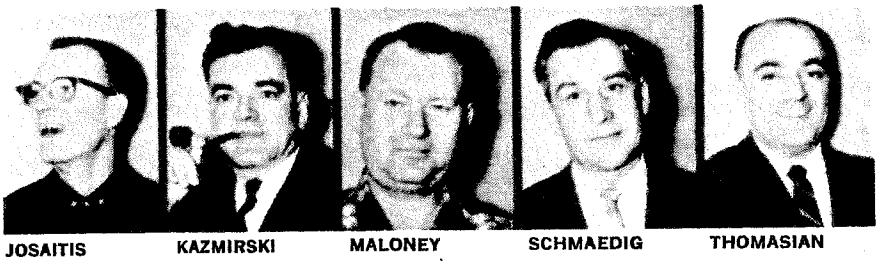
BOB DUNHAM (*Garden Grove, Calif.*), 37, Founder and head man at Orbit Electronics. Has been modeling very actively for over 30 years—every plane category. Three years in Navy, in charge of optical parts of gun sights, range finders, fire control systems—little electronics. Has had many hobbies—racing roadsters, flying full-size planes (owns his own), water skiing. Several time winner at Nats R/C, was on '60 FAI R/C Team, Captain of '63 Team. Winner of uncounted R/C meets in U.S., "retired" from competition for past several years. Operating a hobby shop when he started the Orbit line—had to drop retailing for manufacturing.

ED KAZMIRSKI (*Calumet City, Ill.*), 44, has been in machine shop work all his life. Now partner in shop which specializes in machining steel forgings; Ed designs and builds equipment for this work. Three years in service, building and repairing special equipment for Army Engineers. Married, one child. Built many FF models when he was around 17. Little other modeling till he got interested in R/C—6 years ago. Biggest R/C thrill—winning first meet (at Detroit) while a complete unknown in the field. This was big spur to his continued development of plane design. Best known for his highly successful multi competition planes —Orion and Taurus.
Has been on two American FAI R/C teams, won Nats, countless other meets.

MEET THE EXPERTS



ALLEN BRETT DUNHAM HITCHCOX IZZO



JOSAITIS KAZMIRSKI MALONEY SCHMAEDIG THOMASIAN

WARREN HITCHCOX (*Oakville, Ontario —near Toronto*), 39, General Manager of Hitchcox Motor Sales, Pontiac-Buick dealers. Building planes for 30 years—R/C for 14. Now on his 19th R/C plane —first 7 were deBolt Livewires, very first flew with C-S 465-mc equipment. Has attended several U.S. Nats, never entered. Enjoys competition flying, member of '63 Canadian FAI R/C Team; working hard for trials for '65 FAI R/C in Sweden.

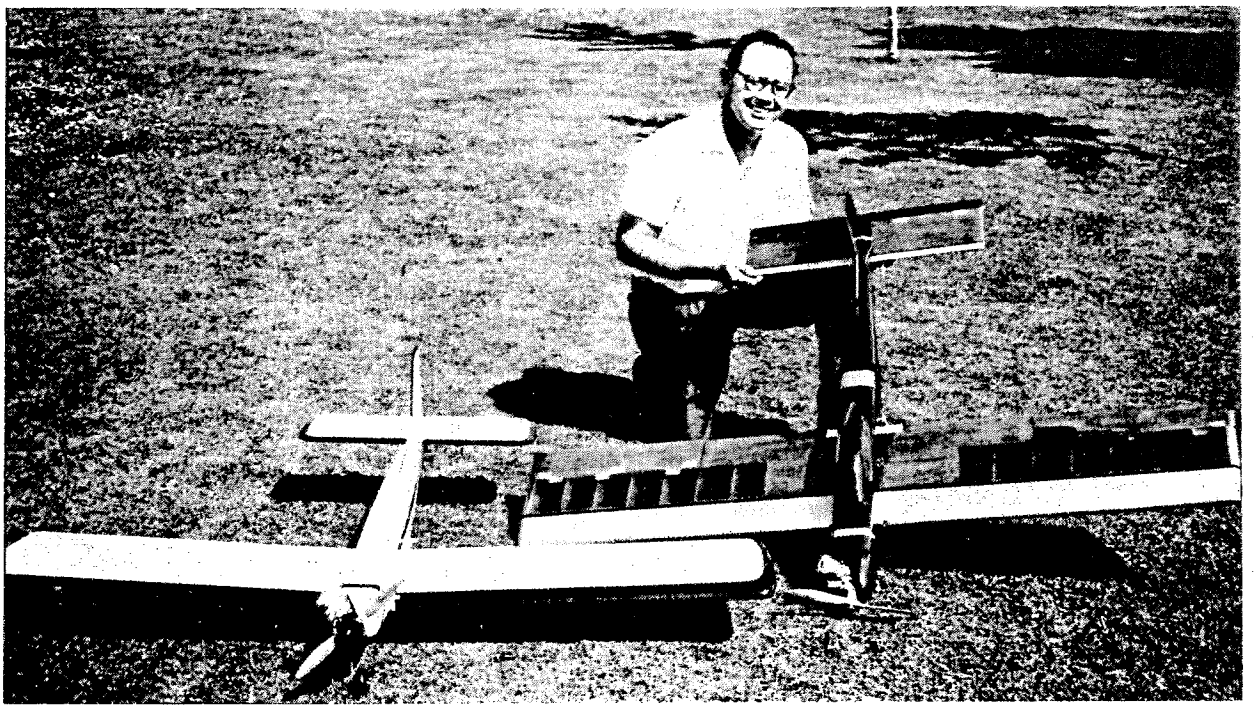
EDWARD IZZO (*Syracuse, N.Y.*), 41, member Syracuse ARCS. Model builder for 33 years—has tried every phase. Entered his first Nats in '38 (FF rubber, indoor). 7 years in R/C—started the hard way, in multi, made just about *all* the equipment—transmitter and receiver, servos, engine throttle, plane. His very first R/C flight ended in fair landing right on field (though R/C was no sweat)—then didn't do it again for next 50 flights! Has aeronautical and mechanical eng. degrees, works in Semi-Conductor Div. of G.E.—designs equipment for processing materials. Flew in B-24's in WW-Two. Wife Louise his mechanic at all meets, also attends all R/C gatherings. Ed. is very active in R/C competition, often wins, always places high. Prefers to design his own R/C planes, no longer builds own R/C gear.

JACK JOSAITIS (*Detroit, Mich.*), 37, active modeler since he was 7. Most interested in FF—both rubber and gas. Not too active in competition. R/Cer for 10 years. Upon entering Univ. of Detroit, aptitude test showed he would make ideal math teacher. Two years of Aero Engineering convinced Jack he was neither a math genius *nor* a teacher. While going to college he had worked in hobby shop at night. So left college for full time hobby shop biz. Runs Joe's Hobby Shop, with brother Don—also mail order R/C business: World Wide Radio Control. Was in Anti-Aircraft, stationed in Germany, during Korean affair.

JOHN MALONEY, (*Cincinnati, O.*), owner of World Engines, runs own print shop, hobby importing and distribution business, Controlaire Electronics (Jack Port in charge of latter). Active R/C builder and flier. Enjoys reading science fiction. Runs own boat on rivers, TVA lakes in his area. Model builder since he was a youngster in Warren, Ohio. Previous to hobby biz, designed and sold equipment for resistance welding; same work for steel mill equipment. Graduated from Purdue, where he studied thermodynamics. Taught aerial bombardiers during WW-Two, which ended just as he was headed overseas in B-29 group.

CARL SCHMAEDIG (*Clark, Rahway, N.J.*) 46. First model was a Baby ROG, some 30 years ago; wonderful education in plane adjustment! HL gliders next, then FF rubber. Worked with Frank Zaic during depression years—much building and flying. Associate Editor of "Model Craftsman" for several years. QM Corps during military service—not much modeling, though a Jim Walker Fireball "followed him back to camp" after one visit home. Quite a while after leaving service, got into R/C with early WAG outfit, a couple of RK61 rigs. Fair bit of successful contest flying with these early outfits. Works for Varitype Corp. as Manager of Product Planning. Early model thrill: 2nd place in Indoor HL glider at NYC Junior Birdmen contest, trophies presented personally in Carnegie Hall by Amelia Earhart. Married, 2 boys, both R/Cers.

HARVEY THOMASIAN (*Northboro, Mass.*) 37. Active modeler since about 10 years old. Spent several war years at Patuxent N.A.S. with Harold deBolt, where they conducted hobby supply center, did much building and flying. Started R/C about 1950. One of top R/C competition fliers in New England area. Enjoys plane design, expert engine man. Married, 2 children. Project Design Engineer in abrasives industry.



THE KWIK - FLI

by

Phil Kraft

Last Summer we became intrigued with the idea of developing a contest aircraft combining high performance with the fastest possible construction time. The construction design was also to feature inherently perfect alignment. After a month of head scratching and many sketches, the basic Kwik-Fli configuration evolved.

Aerodynamically, the ship was large with generous moments and stabilizer area. A thick, fully symmetrical airfoil, with sharply radiused leading edge was selected for its constant speed characteristics and superior stability over a wide range of attack angles. This airfoil section is largely responsible for the Kwik-Fli's superb landing characteristics and general flight "groovieness." The original prototype utilized a flat wing, sans dihedral, to speed construction. Except for appearance, we felt that dihedral was most unnecessary and probably detracted from the aircraft's overall performance.

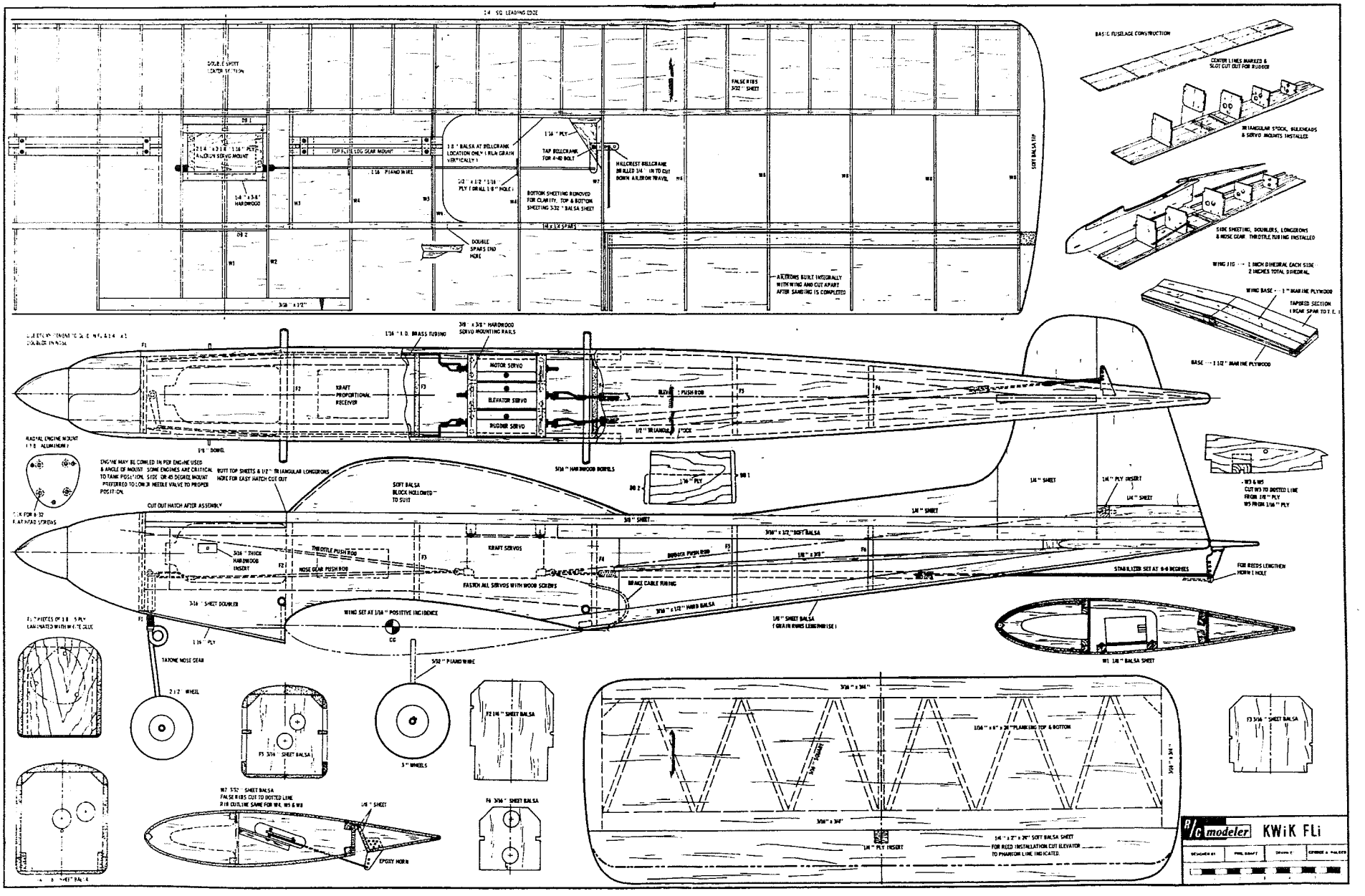
The fuselage was designed so that it could be built from the top down, featuring a minimum number of parts. The entire fuselage may be completed, including mounting the stabilizer, servos, linkages, etc., while it is still pinned to the work bench and the glue drying. Wherever possible, standard wood sizes were selected, requiring very little cutting to shape. For example, the elevator was a piece of 2″ x ¼″ x 24″. The stabilizer consisted of two pieces of 1/16″ x 6″ x 24″ built up over a Warren truss framework. The original fin was of 4″ x 8″ x ¼″ sheet. The radial mounted engine was positioned at an angle of approximately 30 degrees from horizontal to provide the proper fuel tank height in relation to the center of the engine's spraybar.

The first Kwik-Fli went together exactly as planned and with amazing speed. The fuselage structure proved not only to be very accurate and fast to build, but exceptionally light and strong. However, the airplane was, as expected, about as ugly as it was fast to build! The straight wing gave an impression of anhedral, while the overall effect of the airplane was that of a monstrous control liner with all-square surfaces! When first placed on the flight strip, the Kwik-Fli caused quite a few raised eyebrows among the local flyers, while others practically rolled on the flight line with laughter. The comments came thick and fast—"Man, that airplane sure is tired . . . look at the wings droop . . . even the engine can't stand up straight!" "Hey, Phil — you forgot your control lines!" "Are you sure you've got the wheels on the right side?" etc., etc., etc. Doug Spreng's comment was that somebody finally developed an airplane uglier than the Stormer!

Inasmuch as we weren't too sure as to how much control movement would be necessary, we moved the linkages up to give more than the designed control throw. On the first takeoff, the Kwik-Fli went screaming down the runway — we eased back on the stick, it shot straight up, and we quickly found that we had too much throw on the elevator — the ship rolled so fast we practically lost count! Other than that the performance looked very promising. The ship was carted back to the shop, the wings opened up, and the aileron throw cut in half. The elevator linkage was also put back in the last hole where it belonged. We then returned to the local field where the troops were still laughing.

After the next flight, everyone stopped laughting. This ship was the best aircraft we ever had the opportunity of flying! It tracked through inside and outside loops with almost unbelievable precision and with no corrections necessary. The Kwik-Fli could be put into gentle turns either to the left or right without tighening to either direction, and its rolls were very axial. Landings, too, were beautiful — the ship could be brought in and slowed up until it reached a very high angle of attack, very similar to a Navy carrier type landing — rear wheels settling gently to the runway with the nose wheel holding two to three inches off until the ship slowed, followed by the nose wheel gently rocking forward on the runway.

To sum up, we believe the Kwik-Fli is about all you can ask for in performance for contest type aircraft. The framework, ready for covering, can be built in 16 hours. It is extremely rugged and easy to service. Outside of appearance, we don't think you can ask for much more.


BASIC FUSELAGE CONSTRUCTION
CENTER LINES MARKED & SLOT CUT OUT FOR RUDDER
TRIANGULAR STOCK, BULKHEADS & SERVO MOUNTS INSTALLED
SIDE SHEETING, DOUBLERS, LONGERONS & NOSE GEAR THROTTLE TUBING INSTALLED
WING JIG --- 1 INCH DIHEDRAL EACH SIDE 2 INCHES TOTAL DIHEDRAL
WING BASE --- 1/4" MARINE PLYWOOD
TAPERED SECTION 1 INCH SPAR TO T.E.
BASE --- 1/2" MARINE PLYWOOD
1/4 SQ LEADING EDGE
DOUBLE SHEET CENTER SECTION
FALSE RIBS 3/32" SHEET
TOP FUSELAGE LEG GEAR MOUNT
1/16" PIANO WIRE
1/4" x 3/4" HARDWOOD
3/8" x 1/2"
1/4 x 1/4 SPARS
DOUBLE SPARS END HERE
3/8" BALSA AT BELLCRANK LOCATION ONLY (RUN GRAIN VERTICALLY)
1/16" PLY
TAP BELLCRANK FOR 4-40 BOLT
HILLCREST BELLCRANK DRILLED 1/4" ON TO CUT DOWN AILERON TRAVEL
BOTTOM SHEETING REMOVED FOR CLARITY. TOP & BOTTOM SHEETING 3/32" BALSA SHEET
SOFT BALSA TIP
AILERONS BUILT INTEGRALLY WITH WING AND CUT APART AFTER SANDING IS COMPLETED
1/16" I.D. BRASS TUBING
3/8" x 3/8" HARDWOOD SERVO MOUNTING RAILS
MOTOR SERVO
ELEVATOR SERVO
RUDDER SERVO
KRAFT PROPORTIONAL RECEIVER
ELEV. PUSH ROD
1/2" TRIANGULAR STOCK
1/8" DOWEL
5/16" HARDWOOD DOWELS
RADIAL ENGINE MOUNT (1/8" ALUMINUM)
ENGINE MAY BE COWLED IN PER ENGINE USED & ANGLE OF MOUNT. SOME ENGINES ARE CRITICAL TO TANK POSITION. SIDE OR 45 DEGREE MOUNT PREFERRED TO LOW IN NEEDLE VALVE TO PROPER POSITION
BUTT TOP SHEETS & 1/2" TRIANGULAR LONGERONS HERE FOR EASY HATCH CUT OUT
SOFT BALSA BLOCK HOLLOWED TO SUIT
CUT OUT HATCH AFTER ASSEMBLY
1/4" SHEET
1/4" PLY INSERT
W5 PHENOLIC 1/16" PLY
3/16" THICK HARDWOOD INSERT
THROTTLE PUSH ROD
NOSE GEAR PUSH ROD
KRAFT SERVOS
RUDDER PUSH ROD
3/16" x 1/2" SOFT BALSA
STABILIZER SET AT 0-0 DEGREES
FOR REEDS LENGTHEN HORN 1 HOLE
FASTEN ALL SERVOS WITH WOOD SCREWS
BRACE CABLE TUBING
3/16" SHEET DOUBLER
WING SET AT 1/16" POSITIVE INCIDENCE
3/16" x 1/2" HARD BALSA
1/8" SHEET BALSA (GRAIN RUNS LENGTHWISE)
W1 1/8" BALSA SHEET
TAYLORCRAFT NOSE GEAR
2 1/2" WHEEL
5/32" PIANO WIRE
3" WHEELS
F3 3/16" SHEET BALSA
F2 1/4" SHEET BALSA
F6 3/16" SHEET BALSA
W7 3/32" SHEET BALSA FALSE RIBS CUT TO DOTTED LINE FOR OUTLINE SAME FOR W4, W5 & W6
1/8" SHEET
EPOXY HORN
3/16" x 3/4"
1/16" x 6" x 36" PLANKING TOP & BOTTOM
1/4" PLY INSERT
1/4" x 2" x 20" SOFT BALSA SHEET FOR REED INSTALLATION CUT ELEVATOR TO PHANTOM LINE INDICATED.
F3 3/16" SHEET BALSA
R/C modeler
KWiK FLi

Ron Chapman, Bob Dunham, and Ed Kazmirski relaxing between sessions.

Part of the Flying Knights club display. Beautiful white Bi-Fli in foreground.

Ed Izzo demonstrating cored styrofoam wing construction at Syracuse display.

Buffalo

MID-WINTER CONFERENCE

The 1964 version of the Flying Bison's Mid-Winter Conference was held at the Airways Hotel at Buffalo International Airport, January 31 through February 2, and boasted an attendance of nearly six hundred modelers, manufacturers, members of the press, and spectators. The facilities this year were a vast improvement over those provided for past conferences, and at no time did the exhibits seem to be overcrowded. One excellent feature was the use of separate rooms for manufacturer exhibits, providing closely grouped privacy and convenience for interested registrants.

The Club Exhibit event, another innovation with the 1964 conference, was not only well accepted, but provided the individual clubs with a means of demonstrating their pet projects. Two of the displays that drew the most attention were the B & D Proportional set-up by the Flying Knights R/C Club, which was complete in every respect, workable, and illuminated by tiny mirrors and lights so that each component was visible. The second was a demonstration by the Syracuse group on forming cored, styrofoam wings for multi ships — a process that entailed no more than five minutes per panel, and resulted in beautifully tapered wings with a surprising amount of inherent strength.

We were quite impressed with the beautiful, and almost undescribable, finishes achieved with HobbyPoxy and on display at this manufacturers exhibit. You would have to see these magnificent ships to believe it!

The winning model in the "most attractive model" category was a finely built Perigee, finished in candy apple green and gold by Ken Person of Buffalo, N.Y. (See 'Model Finishing Techniques" by Ken Person in this issue). The finish on the models in this group was fabulous when you consider that Ron Chapman's third place winning Norseman (Feb. RCM) was a duplicate of Canada's "Golden Hawks" stunt team paint scheme in the resplendent gold color! Second place in this event went to Ed Izzo of Syracuse.

CONFERENCE

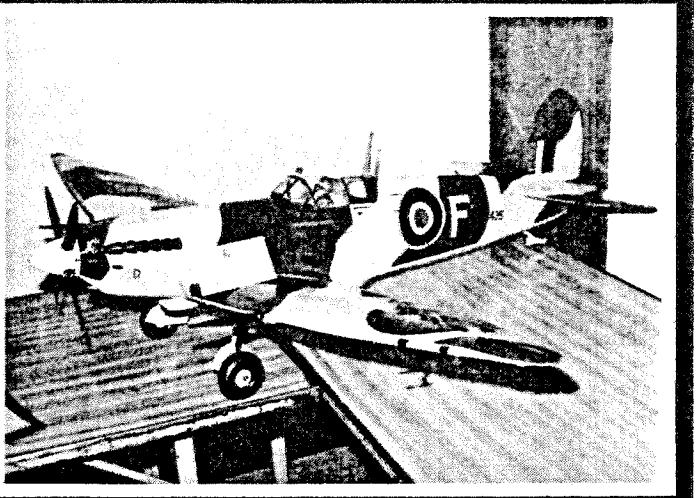
The award for best in scale, or original design, went to Dick Spidel of Ft. Erie, Canada, who entered a large and finely detailed scale model of a WW I Albatross DVA. Tom Detrich, also of Canada, took second, and H. Bussman of Buffalo, third.

On Saturday evening, nearly two hundred people attended the annual banquet and award presentations. Chuck Waas, Managing Editor of RCM, made the presentation of the Flying Bison's VIP Award to one of the best known and best loved members of the RC fraternity, Bob Dunham of California. Dr. Walter Good and Harold "Pappy" deBolt were former VIP award winners. Following the banquet, a four piece combo with Tom Brett at the piano provided music for dancing and for the enjoyment of the ladies in attendance. Movies and slides of various RC activities were shown for the unescorted gentlemen.

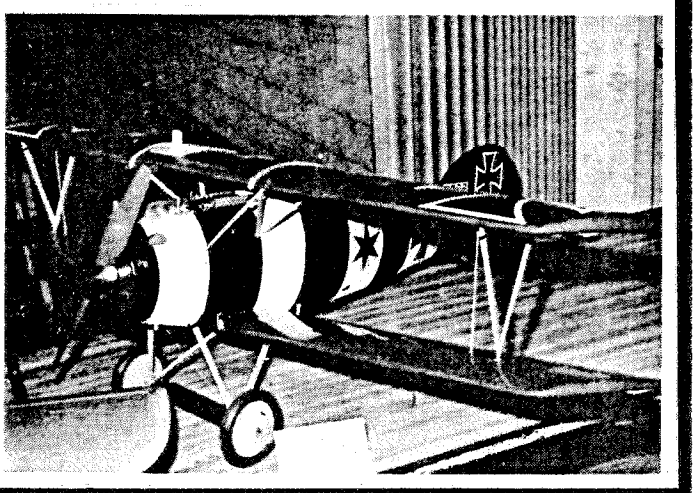
During the conference, many RC notables took their turn at the speaker's rostrum. Among them was Ed Lorenz, speaking on the FCC Committee; Bob Dunham on RC events around the world; and Ed Kazmirski on general modeling ideas. The question and answer panel was comprised of Dunham, Kazmirski, Howard McEntee, Ed Lorenz, Bev Smith, Ed Izzo, Tom Brett, Bill Winter, and Chuck Waas. Most of the discussion centered around the new proportional systems, many of which were featured and demonstrated at the show. Tom Brett, Kazmirski, and Dunham led a discussion of the single versus twin proportional, with the general consensus of opinion leaning toward the single stick models.

The new AMA rules were another topic of discussion with the vast majority feeling quite strongly toward establishing a Novice event — particularly in Class I where the less experienced modeler with single channel equipment and escapements is forced to compete against ten channel rigs used in Rudder Only competition.

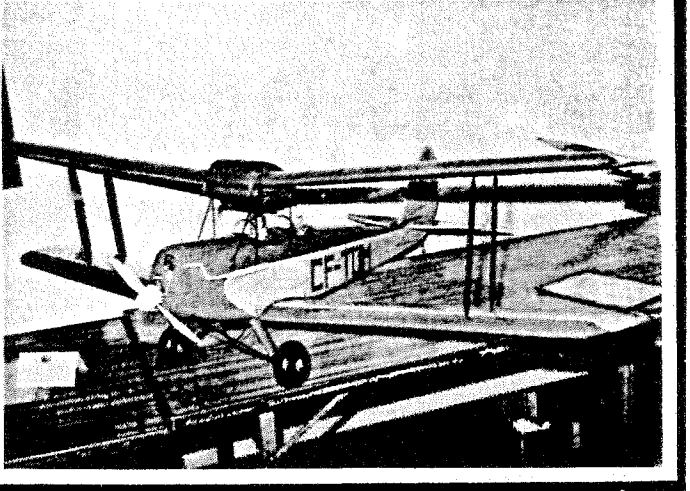
All in all, the photographs tell the story. Congratulations to the Flying Bisons for a memorable weekend, and for their excellent hosting of this annual Conference.



Tom Dietrich's IX Spitfire.



Dick Speidel's prize-winning Albatross.



Scale Gypsy Moth, also from Ontario's Tom Dietrich.

Two contenders await the starting flag at Turlock, Calif., airport.

Top finalist Joe Martin with K&B trophy.

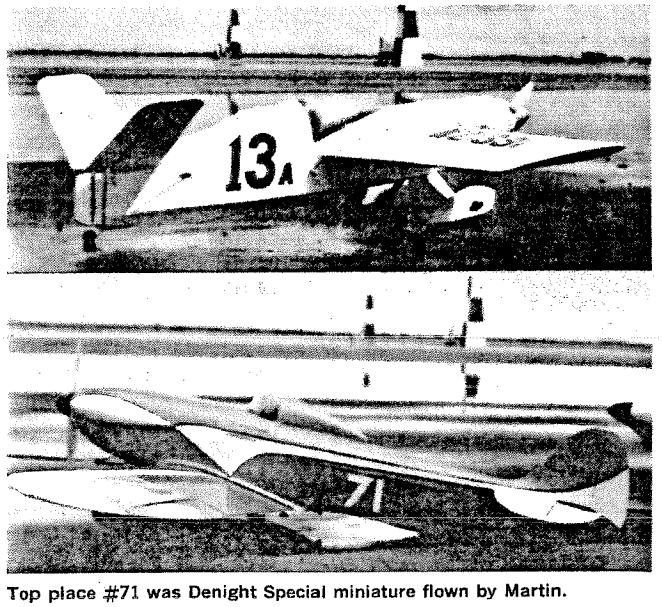
Radio Controlled Scale Racers

The first R/C Goodyear Races by the National Miniature Pylon Racing Association, at the Turlock, California, airport proved to be a successful and inspiring radioplane contest for both spectators and flyers. This new race event requires a good deal of skill to fly and a nice looking plane modeled after a Goodyear racer, or at least one with like proportions, within certain size limitations.

Rules and guides for the event inspired by Jerry Nelson proved adequate during this two-day event. Jerry directed the contest with the help of other members of the East Bay Radio Controllers.

The models were judged for scale and finish to determine handicap take-off position by John Brodbeck of K&B, his brother Bill (a race pilot of full size Goodyear and stock planes), and Tony Palethorpe. Points received determined what time interval was required *(See pg. 205)*

Bob Heise's #13A "Swea' Pea" (left, below) on pylon turn.



Top place #71 was Denight Special miniature flown by Martin.

Judges John (lt.) and Bill (rt.) Brodbeck and Tony Palethorpe.

from the start flag to time of take off.

On the first day, Saturday, ships were flown individually for time trials and to prove they could meet the minimum take-off and flying requirements. They then paired with planes of similar speed and split into two categories called "finals" for the fastest ships and "semi-finals" for the slower group. The real excitement for flyers and spectators was when the actual racing began between two planes at one time. A 2½ mile race consisted of ten laps around a three pylon course from a standing start. First over the finish line being the winner.

Most of the flying was of good quality First place in the finals by Joe Martin with the Denight Special #71A showed a rare bit of flying and was done with a reed set. His ship was light and the K&B series 64 really hauled it along screaming. His turns were well banked and not so tight as to lose that all important forward speed. One of the battles between Jim Stevens (2nd place finals) Little Gem #77A and Ray Downs Shoestring #44C (4th place finals) turned into a thriller. They arrived at the pylons together, several times wing tip to wing tip or one a little behind the other, going into the turns as close and tight as safety would allow. Once Jim Stevens cut a turn shorter and went under Ray Downs with a scant 6 inches to spare. Someone remarked a 12 inch prop wouldn't have made it.

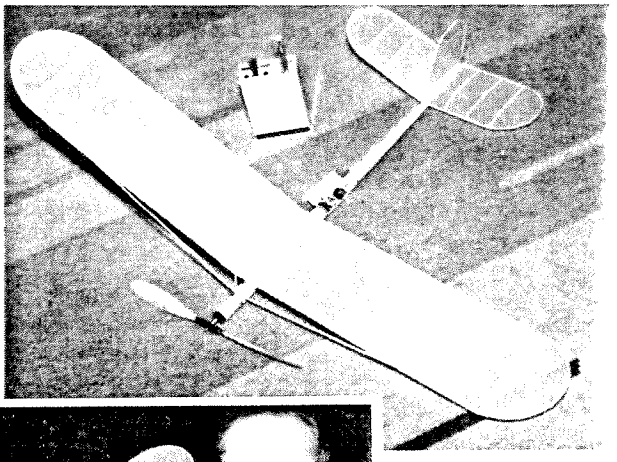
Some of the flyers who had little or no contest experience mastered the art of transition from Sunday flying to this hot contest in a few awakening laps. Don Blessing, flying his wife Sheri's Stevens Special (#77G) to 1st in the semi-finals did a great job using a 2 stick Orbit 3 plus 1 set. Ferren Green flying Cosmic Wind #33 did a great job of flying into 2nd place semi-finals on Sunday after being plagued by problems on Saturday.

One of the prettiest ships of semi-finals entry was Dick Riggs' Aeolus #30C. Not only did he fly it into 3rd place but won the Testors best finish plaque for "semi-scale." His flying was very smooth and steady on a single stick Orbit 3 plus 1. After years of flying "bang-bang" on reed sets he has mastered the transition to a single stick. (Somebody said it could be done.)

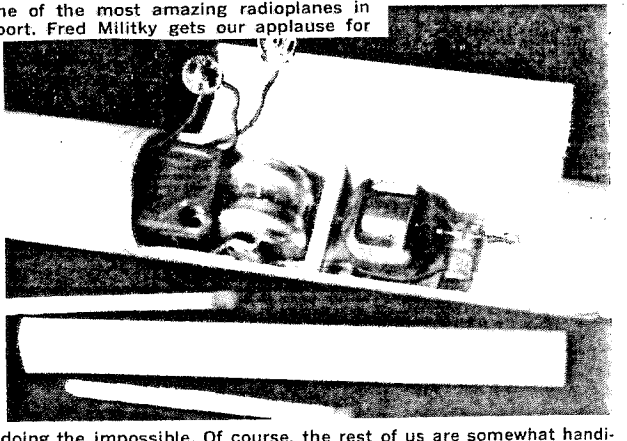
Jerry Nelson's Cosmic Wind #12A never made the race. It flies beautifully too. He started a take off, saw the ailerons weren't connected so idled down the engine. That was great until he shut off the transmitter. The engine went to high speed and it flew away into a fence.

Winn Biscay's Lil Knarfe #96A flew very well and gave a tight fight to every opponent. His story since losing the race is that his caller for the far pylon was color blind. The flaggers used colored flags to match the frequency of the ships flying the course and Winn's caller thought they were gray until the race ended. The contest comment now is: "Thanks for offering to help, but I got enough trouble".

The next contest should have three times the entries. The way the rules are set-up entries probably will be mostly scale to prevent a handicap point loss in time flown, have a good finish to gain points, and be as light as possible for speed and smooth fast turns.

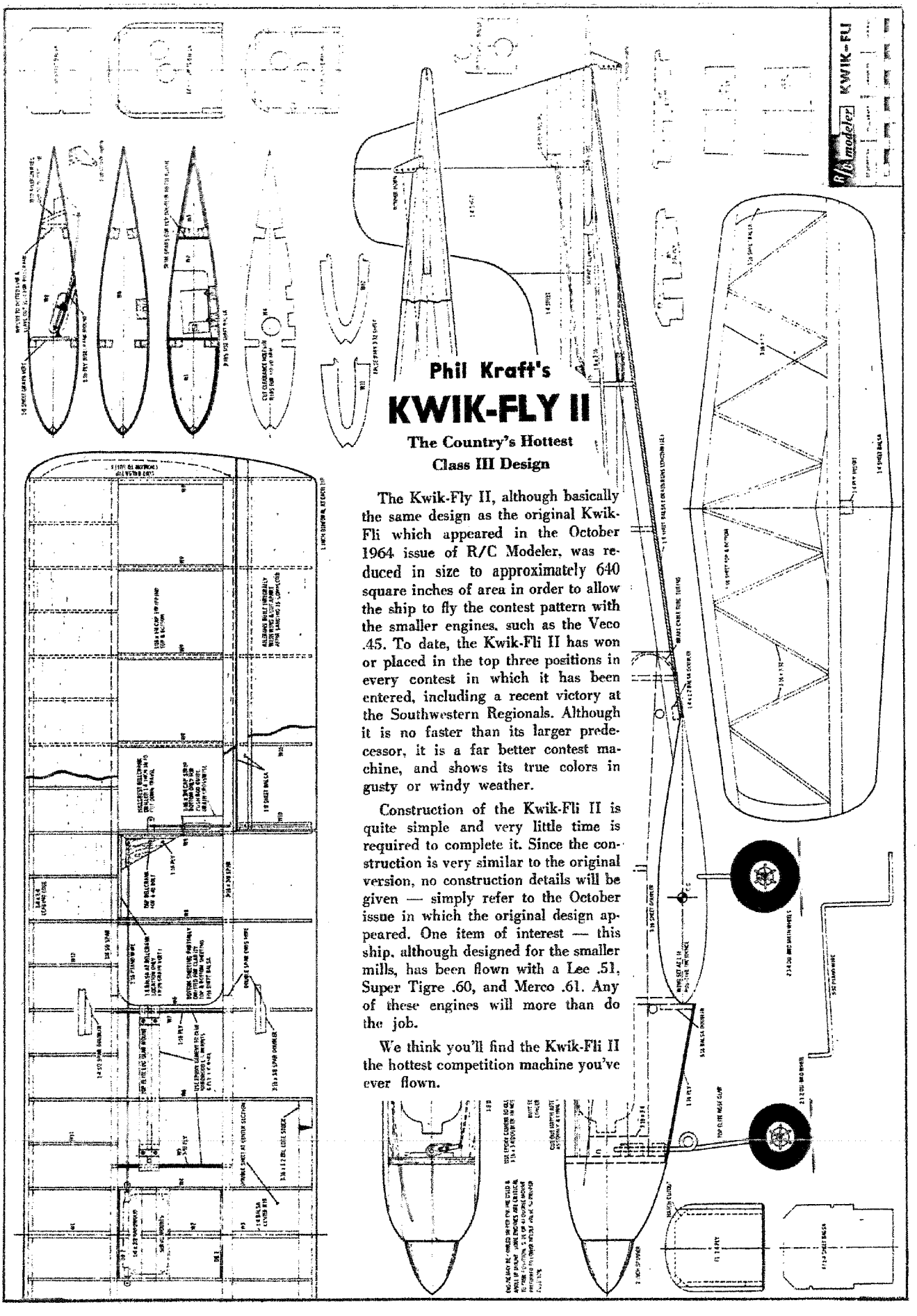


Take one salt mine, add one electric motor powered model (very, very light), an ultralight receiver, battery and actuator, and what have you got? Obviously one of the most amazing radioplanes in the history of the hobby/sport. Fred Militky gets our applause for



doing the impossible. Of course, the rest of us are somewhat handicapped—not having a salt mine nearby. Howard (VIP) McEntee provides the technical details in his column. Oh! to what depths man will go to pursue his favorite hobby!

Indoor Electric R/C! Fred Militky (c/o Johannes Graupner, 7312 Kirchheim/Teck, Postfach 48, Germany) has flown R/C plane with electric propulsion for around 2 minutes, expects to raise this duration. He is designer of the Silentius electric-drive kit plane sold in this country—a very fine flyer, incidentally. His first D.C. powered R/C flight was with the kit plane in late 1963. While successful, it appeared that much better results could be had with a lighter plane. As a modeler with considerable indoor plane experience, this came easy. He decided to stick to the Micro-Mo T-03 motor, employs 15-1 ratio version. Plane shown, less radio and propulsion equipment but including prop weighs 18-grams, has wing span of 920-mm and fuselage length of 600-mm. Motor alone weighs 25-gm and the saltwater battery only 4-gm. Latter is rated at 2.2 volts at 1.5 ampere-minutes. Bentert receiver weighs only 7-gm, magnetic actuator is 8-gm, 3 volt receiver battery is 6-gm. Total plane weight ready to fly is 68-gm (roughly, 2.4-oz, span 37"). After indoor glide tests to trim, the plane was taken deep underground to a salt mine, where there was a large area of completely dead air. One channel of a Grundig Variophon multi transmitter was utilized; actuator holds rudder full right, signal puts it full left; thumb is the "pulser". With four witnesses, the first flight was 1 min 45 sec. Further efforts will be to raise this, of course. Does this give anyone ideas for indoor activity next winter?



Phil Kraft's

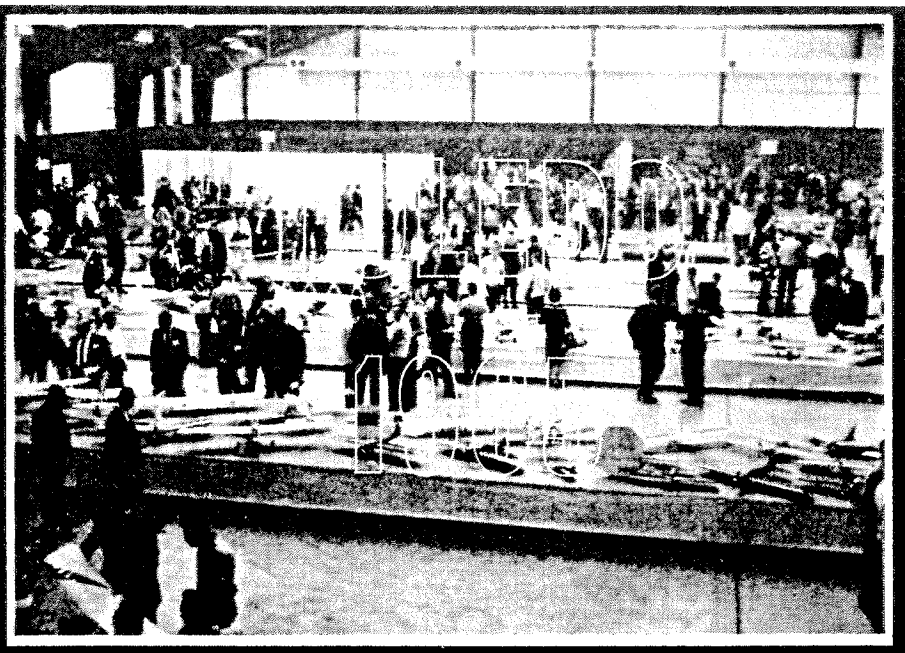
KWIK-FLY II

The Country's Hottest Class III Design

The Kwik-Fly II, although basically the same design as the original Kwik-Fli which appeared in the October 1964 issue of R/C Modeler, was reduced in size to approximately 640 square inches of area in order to allow the ship to fly the contest pattern with the smaller engines, such as the Veco .45. To date, the Kwik-Fli II has won or placed in the top three positions in every contest in which it has been entered, including a recent victory at the Southwestern Regionals. Although it is no faster than its larger predecessor, it is a far better contest machine, and shows its true colors in gusty or windy weather.

Construction of the Kwik-Fli II is quite simple and very little time is required to complete it. Since the construction is very similar to the original version, no construction details will be given — simply refer to the October issue in which the original design appeared. One item of interest — this ship, although designed for the smaller mills, has been flown with a Lee .51, Super Tigre .60, and Merco .61. Any of these engines will more than do the job.

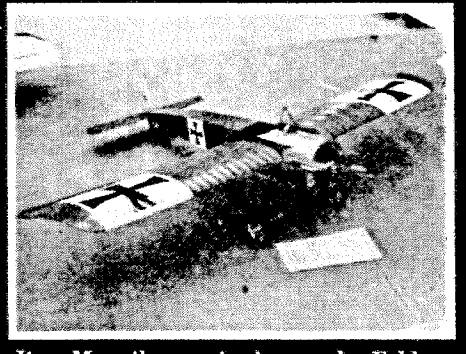
We think you'll find the Kwik-Fli II the hottest competition machine you've ever flown.



Despite one of the worst storms of the season, RC'ers came by the hundreds to view this R/C spectacular sponsored by the Weak Signals Club. With virtually every manufacturer previewing new equipment for the coming season, it was a modeler's paradise . . .

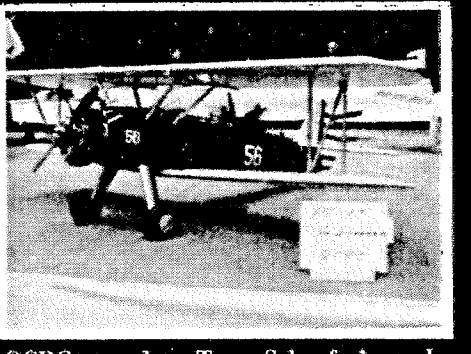
By CHUCK WAAS

There were models of every kind on display . . . conventional, and unconventional

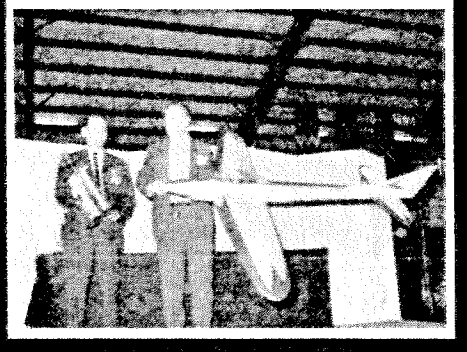


Jim Moynihans winning scale Fokker E III Eindecker. 68″ span. Min-X 10 and Bellamatics.

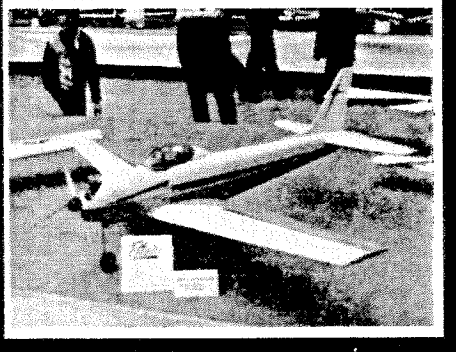
Part of the model display, and a magnificent Buhl Pup in the foreground.



QCRC member Tom Schaefer's scale PT-17. Level of workmanship is obvious.

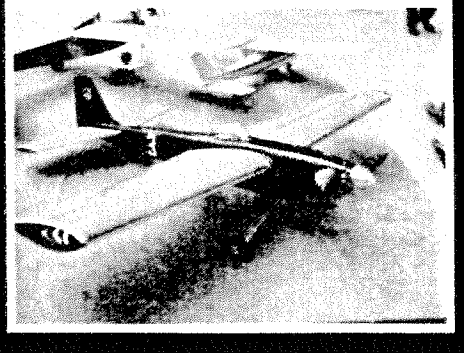


Vic Husak being presented RCM editor's Trophy for 8′ 'Cream Puff' design.

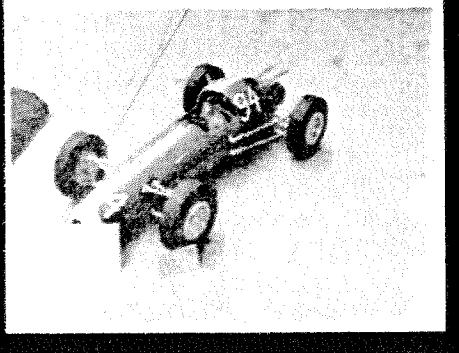


Bob Choronzuk of Chicago's 66″ span Class III entry, the Polaire.

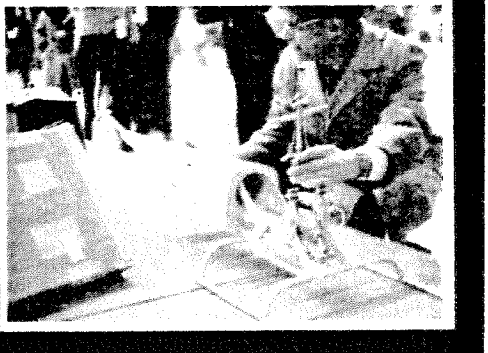
Dayton Works member, Charles Bossi and his Twin Hornet, Coin type fighter-bomber.



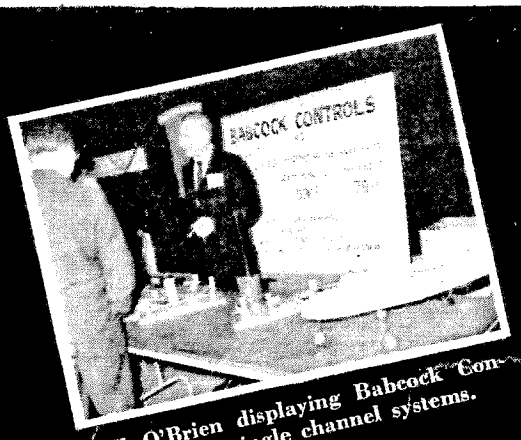
RCM's Bernie Murphy entered this Paul Ennis designed Marksman. Hobby-poxy finish. Took second.



Believe it or not — an O&R compact powered R/C car!



An example of excellence in design and craftsmanship . . . an R/C helicopter.



Bill O'Brien displaying Babcock Controls line of single channel systems.

Jack Levine — Lee's Hobby Industries.

Bernie Murphy — Accutrol Servos.

Paul Runge of Ace R/C discusses the ever-increasing Ace line of products.

Big Frank — and the Midwest display.

Min-X — a fabulous line.

F&M Electronics display their reed and proportional systems.

Jack Port — [illegible] Controlaire Exhibit.

World Wide Radio and Jack Josaitis.

Gerry Krause and Bob Elliott with four versions of the Logictrol proportional system.

Bev Smith, Hobbypoxy, and Little Toot.

Citizen-Ship's proportional system.

Top Flite's complete line of R/C ships from the compacts on up.

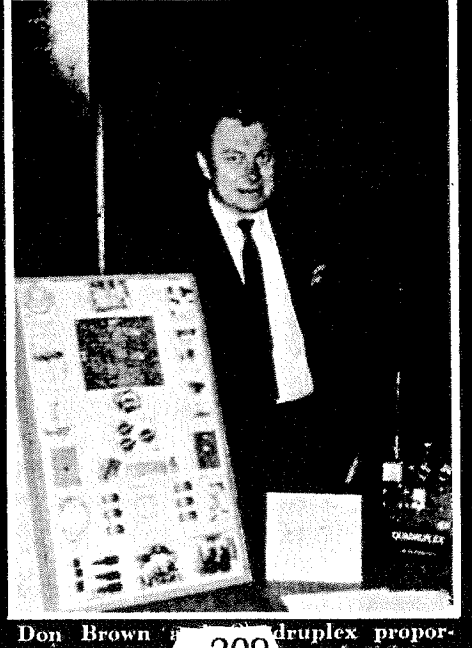
Transatlantic's ready-to-fly R/C ship.

Dwight Hartman with Olympia Sailing sloop.

Hal deBolt with two new ones — a Jenny Bipe and P-Shooter.

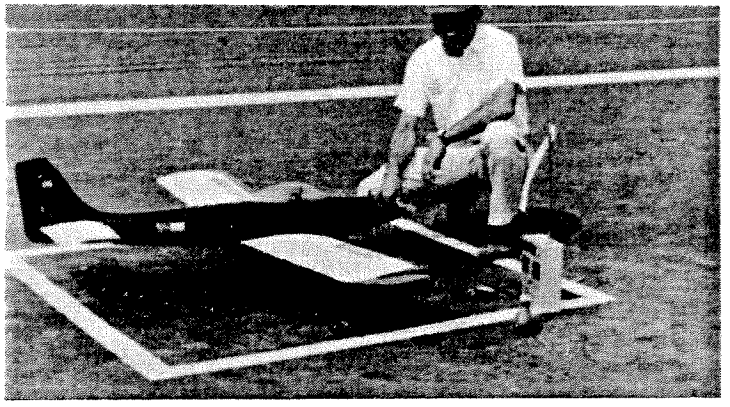
And despite the snow they flew big ones . . .

Roy Gelber with new items from MRC-Enya.



Don Brown and his duplex proportional kit.

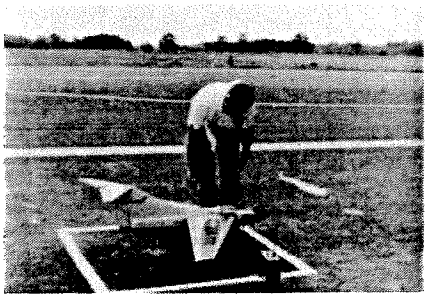
. . . and even the little ones.



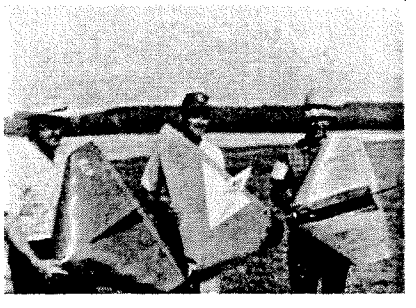
1965 NATIONALS

Cliff Weirick makes it two in a row as Navy hosted Nationals makes its T.V. debut. Here is RCM's exclu-

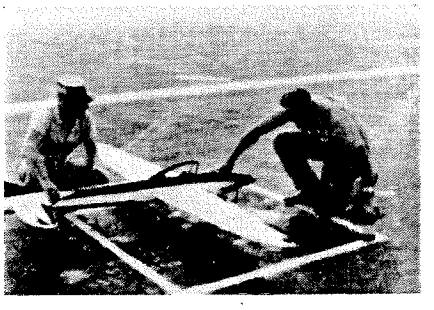
Two in a row for victorious Cliff Weirick. GlasKraft Candy fuselage. (RCM Design)



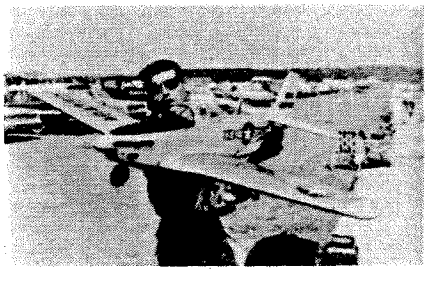
Tom Brett prepares his unusual Class III original design.



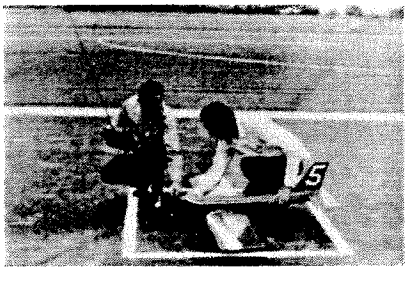
Three AMA open plyon entrants — Austin Leftwich, extreme left, new record holder.



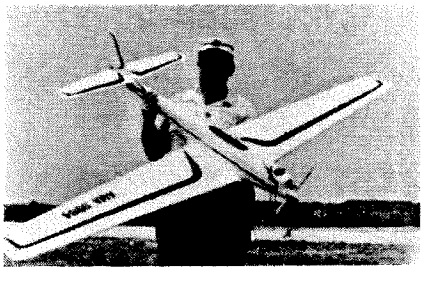
Vic Husak, with his large economy size (8') Class III entry.



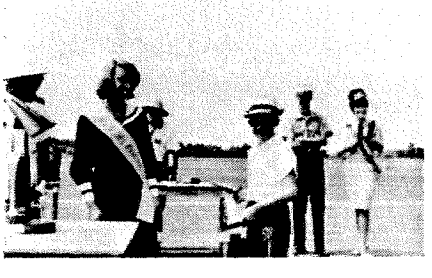
Scale Mustang entered by John H. Krauer.



Doug Spreng with Don Mathes of Micro-Avionics. Ship featured a single wing flap.



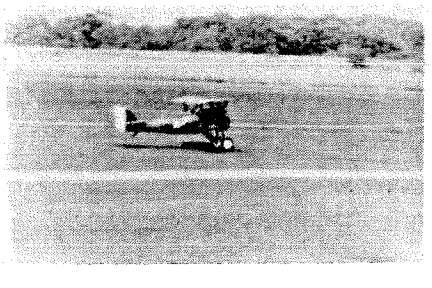
Ed Izzo, 7th in Class III, favors high aspect ratio design.



Bobby Woods accepts 5th place trophy for Class I Jr-Sr.

Cliff Weirick calls the shots for Phil Kraft during heated Class III competition.

Triangle TV syndicate filming the R/C activities for N.B.C. TV.



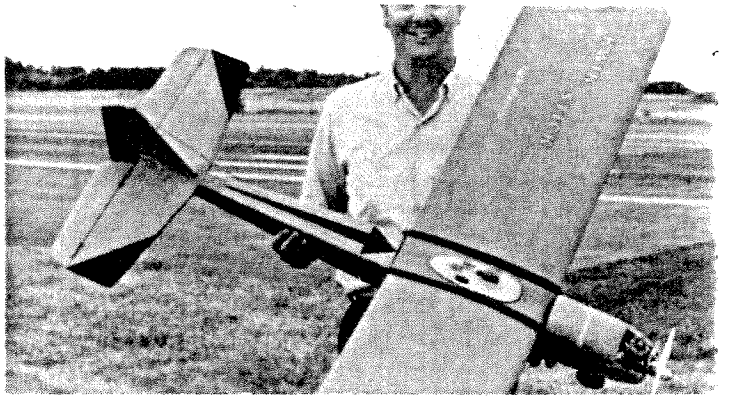
Bob Bailey's Nieuport 27 hits flying speed just prior to takeoff.

F. W. Peoples' Jacelyn-Parsons Aerobatic Special.

15 year old Bob Kelly receives trophy for best performance by a Junior in Class III.

WILLOW GROVE, PA.

sive report on the highlights and final results of the 1965 Nationals at Willow Grove Naval Air Station.



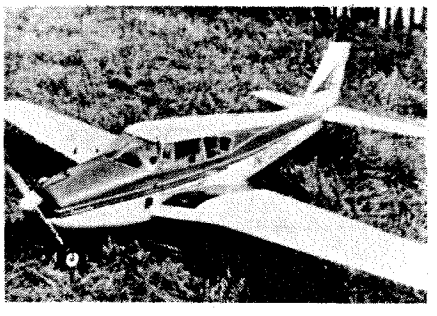
Nick Neville of Rocket City R/C Specialties — a well-deserved 1st in Class II. Scored higher than 90% of Class III entrants and highest ever recorded in Class II.

Miss Model Aviation congratulates Gary Davis — 1st in Jr-Sr, Class I.

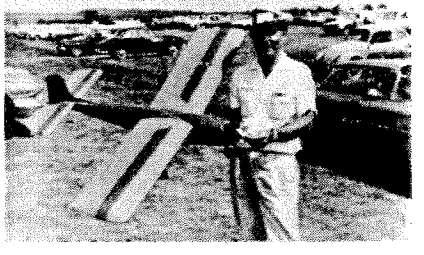
The start of a heat in a Goodyear plyon event. Cliff Weirick, center, won the event.

N.M.P.R.A. perpetual trophy awarded to winning Goodyear team of Maurice Woods and Cliff Weirick.

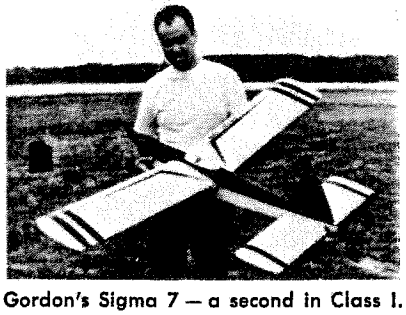
Bill Northrop took 3rd in scale with giant D.H. Gypsy Moth.



Ralph Jackson's Piper Comanche — 2nd in scale.



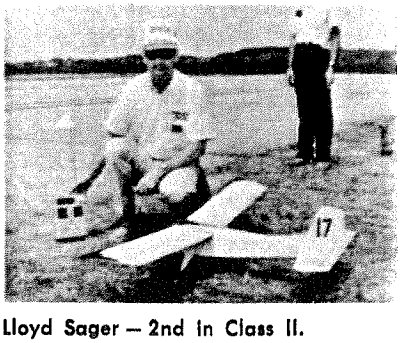
Bud Atkinson — a 2nd in Class II for the Propo Cat.



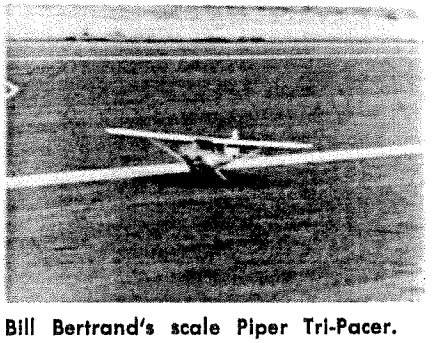
Gordon's Sigma 7 — a second in Class I.

The star of the show — Hal deBolt held lead until the last day of the meet exceptional flying, Hal.

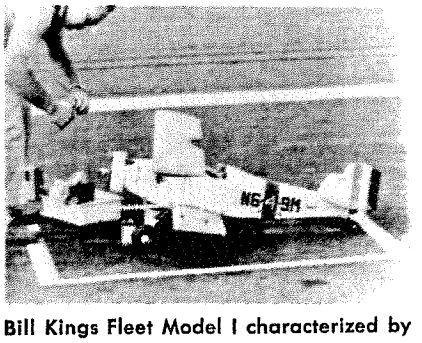
Miss Model Aviation presents Eby with 1st place Class III Novice trophy.



Lloyd Sager — 2nd in Class II.



Bill Bertrand's scale Piper Tri-Pacer.

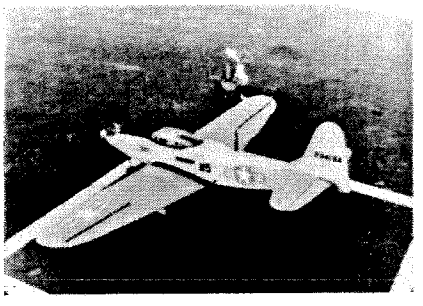


Bill Kings Fleet Model I characterized by excellent airborne performance.

AMA Plyon		Class I Open		Class III Open	
1st	**Austin Leftwich**	1st	**Jackie Gardner**	1st	**Cliff Weirick**
2nd	**John Rohrbach**	2nd	**George Gordon**	2nd	**Hal deBolt**
3rd	**Ted White**	3rd	**M. Reed**	3rd	**Harold Coleson**

Austin Leftwich with 75 mph Delta — a new record for A.M.A. pylon.

Walt Burgin's Taylorcraft lifts off on scale qualifying flight.

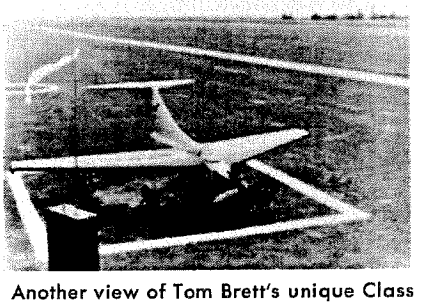


John Rohrbach's scale entry — Merco 49 powered P-63.

George Hahn's scale Victa Airtourer.

Hale Wallace's Cessna Skymaster — a remarkable aircraft.

Carl Goldberg with Mehlin Smith — CG's new Shoestring kit, available soon.

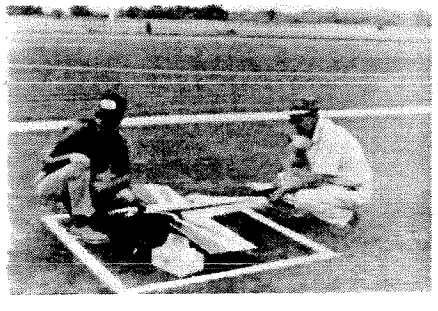


Another view of Tom Brett's unique Class III design.

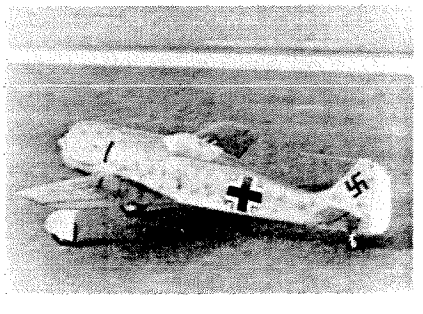
Ed Kazmirski with another of the "Big 'Un's".

Lou Andrews with the Aeromaster. Flown by Huber, the Class III bipe will be available soon as an AAMCO kit.

Russ Morgan and trophy for best total high point, Jr-Sr.



Jim Kirkland and Citron, shown here with Hal deBolt.

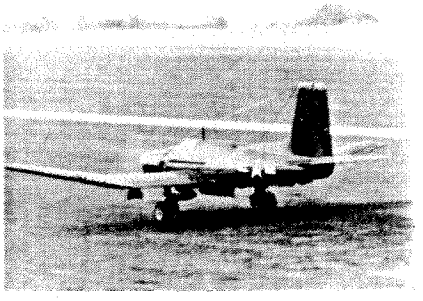


Focke-Wulf 190 entered by Dick Nicely.

Three Goodyear midgets await the flagman's signal.

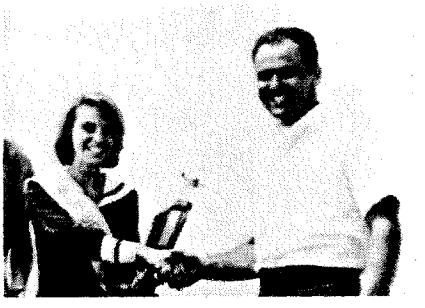
Class 1 Jr-Sr.		Class II Open		Scale	
1st	**Gary Davis**	1st	**Nick Neville**	1st	**C. McCullough**
2nd	**R. Schmidt**	2nd	**Lloyd Sager**	2nd	**Ralph Jackson**
3rd	**Russ Morgan**	3rd	**Bud Atkinson**	3rd	**Bill Northrop**

Jackie Gardner, top man in Class I Open. This year's Class I entries double that of 1964 Nationals.

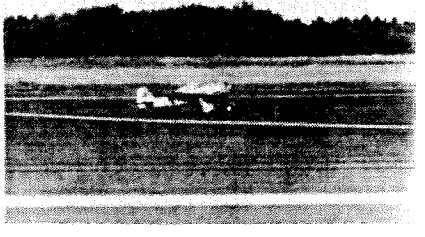


Claude McCullough's Douglas XTB 2D-1 tops in scale with 10,498.5 points.

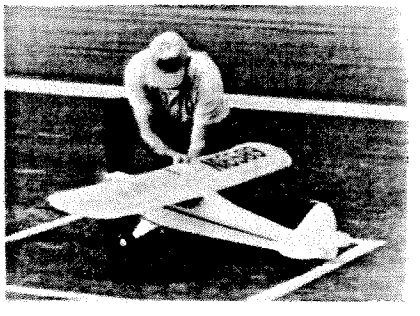
Ted White — 3rd in AMA pylon. To the victor. . . .?



Gordon, 2nd in Class I Open, accepts trophy from Miss Model Aviation.



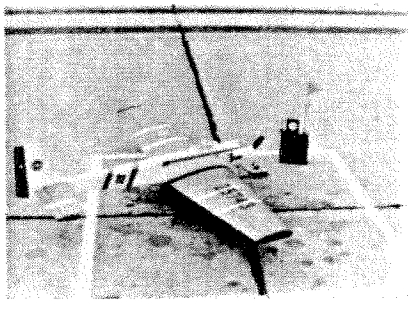
Dick Nicely's Focke-Wulf at start of flight.



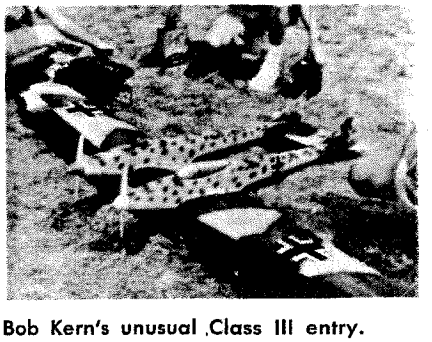
What Nat's would be complete without a scale Cub?

Bill Kings Fleet Model I in the approach.

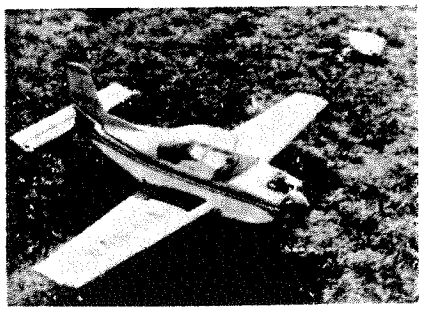
A legend in his own time — Hal Goldclank executing a figure 7.



Jim Fieldings Hammerhead — to be featured in October RCM.

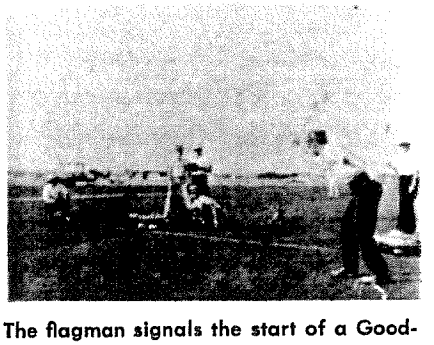


Bob Kern's unusual Class III entry.

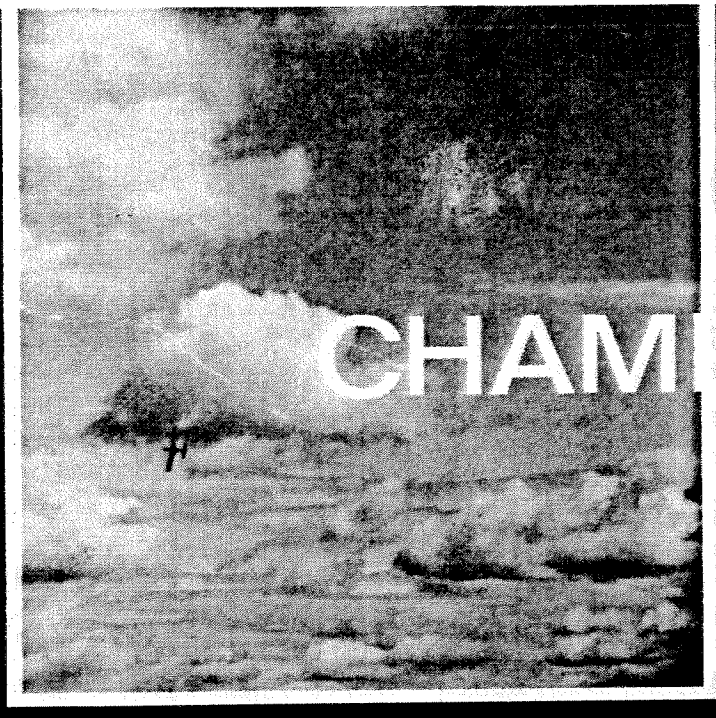


Close-up of George Hahn's Airtourer.

Weirick assisting Phil Kraft with Kwik Fli.



The flagman signals the start of a Goodyear qualifying run.



1965 WORLD CHAMPIONSHIP

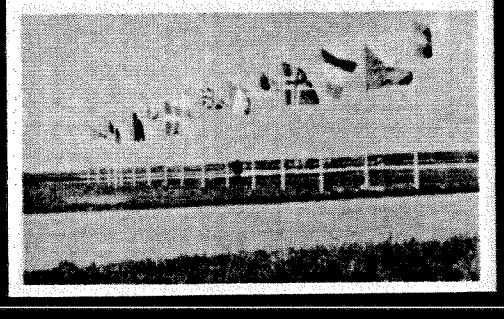
FOR RADIO-CONTROLLED MODEL AIRCRAFT

Team Results	Flight Scores 1st	2nd	3rd	Total
USA	17,772	19,506	20,668	57,946
Great Britain	15,020	16,102	17,105	48,227
Canada	15,793	15,321	16,967	48,081
Belgium	12,212	15,635	15,742	43,589
W. Germany	15,497	13,455	13,677	42,629
South Africa	14,610	9,885	14,790	39,285
Italy	11,158	12,706	13,373	37,237
Sweden	12,419	11,274	12,263	35,956
Denmark	10,508	9,716	12,971	33,195
Norway	9,253	9,169	10,059	28,481
Holland	7,514	9,897	9,576	26,987
Japan	8,453	9,776	5,490	23,719
Czecho-Slovakia	1,274	2,072	1,339	4,685

RALPH BROOKE, U.S. TEAM WIN 1965 INTERNATIONALS

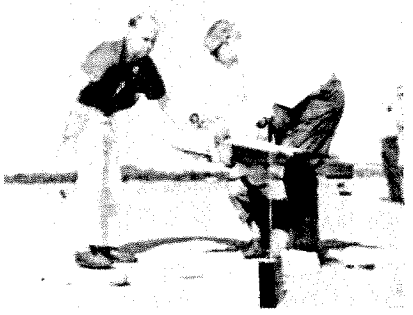
An RCM Special

BY GEOFF FRANKLIN

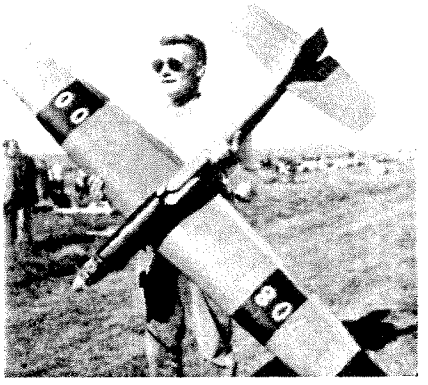


AUGUST 12 - 13 - 14

LJUNGBYHED · SWEDEN

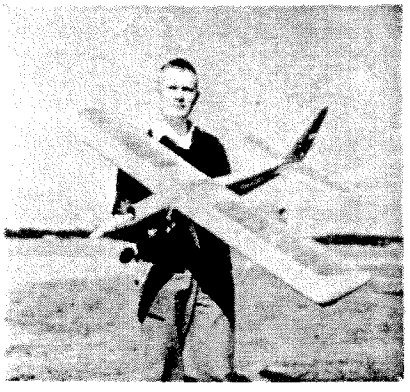


World Champion Ralph Brooke with his Crusader. Orbit Digital, Merco 61.



2nd Place, Chris Teuwen of Belgium, with S.T. 56 powered original.

Cliff Weirick led until engine sagged on 2nd flight. Finished third.

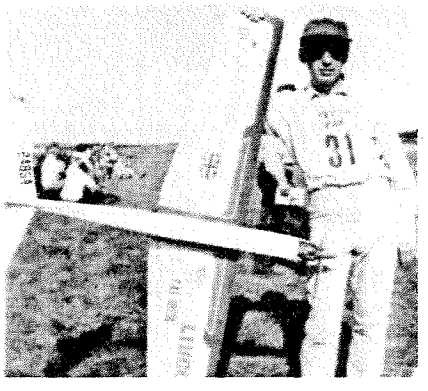


P. Stephanson of Norway, fourth. Merco 61 original. Bonner radio.

Great Britain's Chris Olsen and Pete Waters. Olsen, fifth.

Zel Ritchie, sixth, helped U. S. win team championship. Phantom IV.

Canada's Ron Chapman and seventh place Norseman.

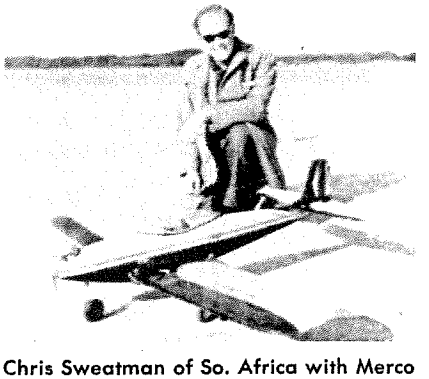


Stu Foster and highest placing reed entry. Nimbus II powered by Merco 61.

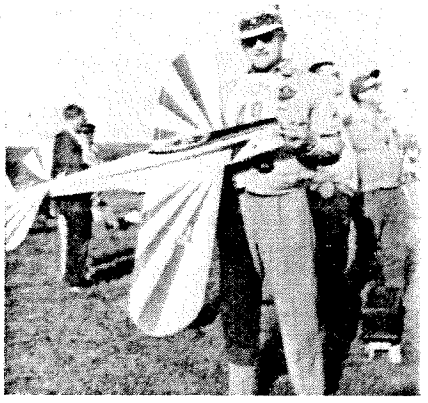
Canada's Harry Tom and Cutlass design. Kraft proportional.

Jesper von Segebaden with Swedish Mustfire entry. Bonner radio.

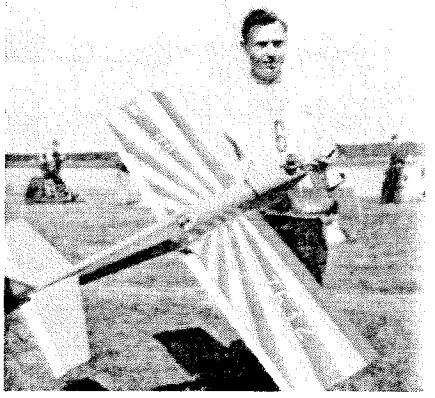
Fritz Bosch, West Germany, with Tiger Bipe. 12th. Simprop radio.



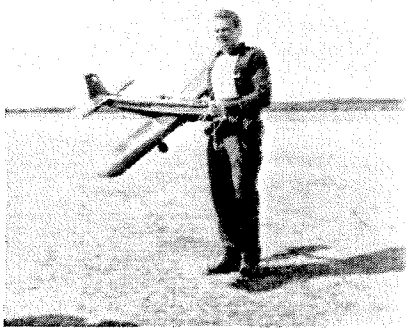
Chris Sweatman of So. Africa with Merco 61 powered Decoder.



Warren Hitchcox, Canada, and Merco powered Norseman.



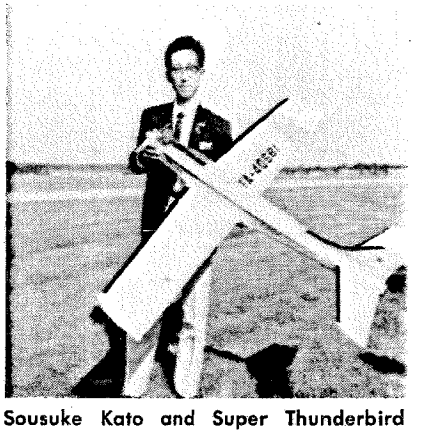
Georg Haegeman of Belgium with original Zinneken. Bonner Digimite.



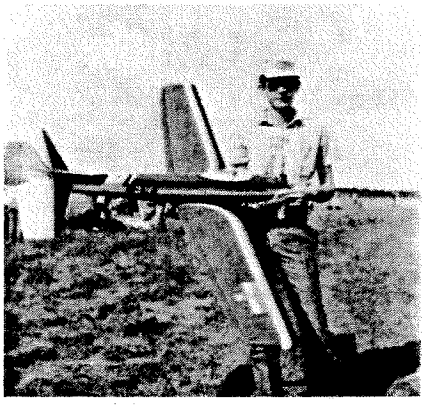
Denmark's Nordahl—Rasmussen and S.T. 56 Beachcomber. Bonner radio.

Pete Waters, Great Britain, and Min-X reed Altair-6 design.

Erminio Corghi of Italy and X-18. Controlaire reeds.



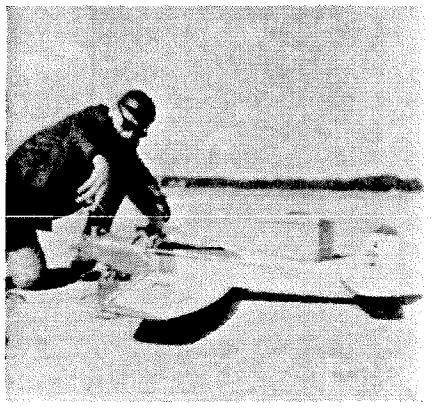
Sousuke Kato and Super Thunderbird Orbit proportional.



Johannes Wessels and South African Taurus entry. Veco .45, Digimite.

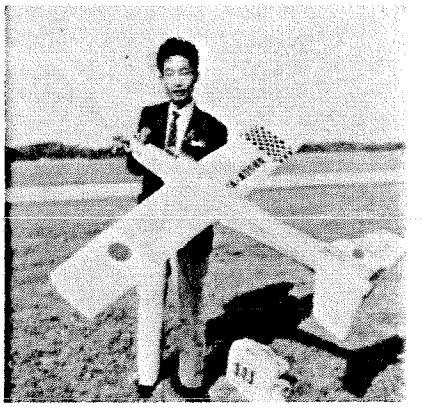
Italy's Oreste Mantelli and Sirius design. Orbit 10.

Francesco Guglieminetti, Italy, and KK original. KB 45, Digimite.

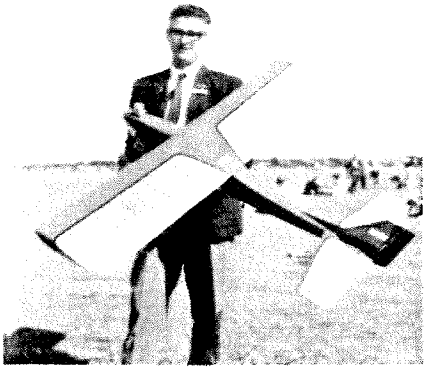


Jan Levenstam, Sweden, and Merco .61 powered Mustfire. Kraft 10.

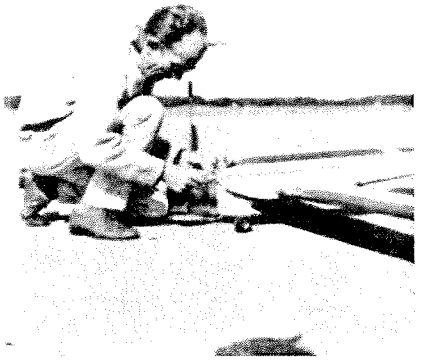
Jan van Vliet, Holland Blizzard. F & M proportional.



Masahiro Kato, Japan and Super Thunderbird. Orbit proportional.



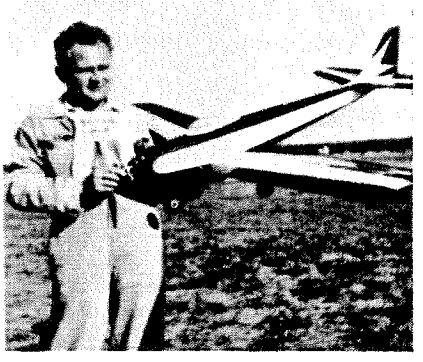
Ulf Tonnessen, Norway, and Flint Stone. Home-made proportional.



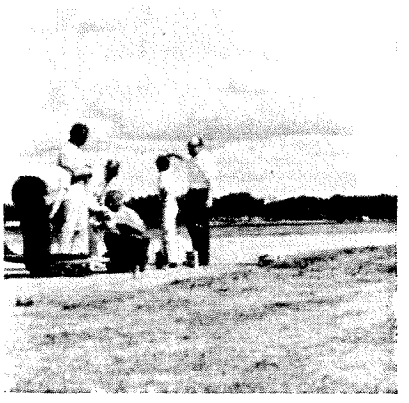
Rolf Dilot, Sweden and Taurus. Min-X 10, Merco 61.

Joe de Dobbeleer, Belgium, and original Demoiselle. Digimite, S.T. 56.

Frans Matrens, Holland, and S.T. 60 powered original Rumpie.



Jiri Michalovic, Czecho-Slovakia, and original with home-made 9cc engine.



U. S. Team, Cliff Weirick kneeling next to Candy.

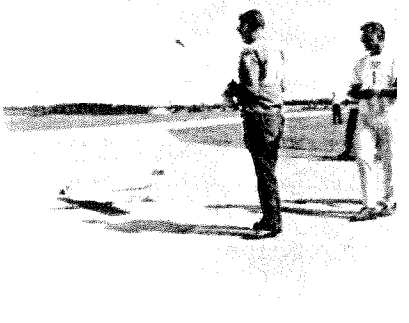
Manager Ed Kazmirski watches as Weirick goes through the F.A.I. pattern.

Two time champion — Ralph Brooke and victorious Crusader.

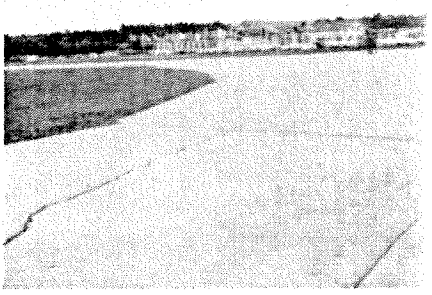
Close-up of Ralph Brooke's ship, Ritchie's Phantom IV in background.

Weirick, Candy, and — — — — friend.

RCM's Overseas editor, Geoff Franklin on right, talks with Cliff Weirick.

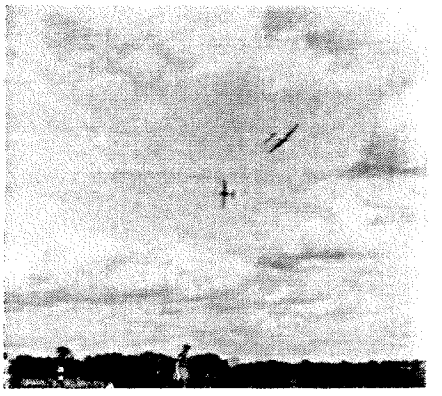


Zel Ritchie taxis Phantom as team manager Kazmirski looks on.



The flags of the many nations entered in the World Championship.

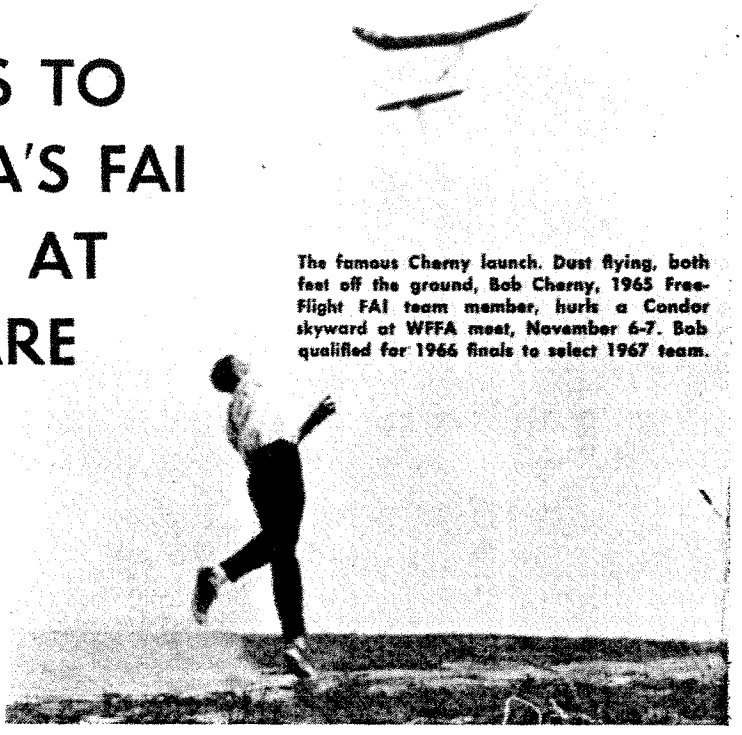
Noted R/C author, Windy Kreulen with RCM's Geoff Franklin.



The end of another example of International friendship and competition.

Final Results	Aircraft	Motor	Radio	Flight Scores 1st	2nd	3rd	Total
Brooke, Ralph Charles, USA	Crusader Centurion	Merco 61 Veco 61	Orbit Digital Orbit Digital	6151	7008	7188	20,347
Teuwen, Chris, Belgium	Trouble-Original	ST 56	Bonner Digimite	6168	7216	6609	19,993
Weirick, Clifford Glen, USA	Candy	Veco 61	Bonner Digimite	6217	6403	7269	19,889
Stephansen, Poju, Norway	Maximum 4	Merco 61	Bonner Digimite	5997	6103	6779	18,879
Olsen, Christopher H., Great Britain	Upset	Merco 61	F&M Reed	6005	6066	6257	18,328
Ritchie, Zelbert W., USA	Phantom IV	Fox 59	Orbit Digital	5404	6095	6211	17,710
Chapman, Ronald Edward, Canada	Norseman 4	Merco 61	CRC Electronics Propo	5848	5013	6732	17,593
Foster, Stuart Lawsen, Great Britain	Nimbus II Nimbus II	Merco 61 Merco 61	Orbit 10 Reed Orbit 12 Reed	5092	5476	5862	16,430
Blauhorn, Karl, Western Germany	Taurus	OS-60	Multiplex-Proportional	4691	5313	6168	16,172
Tom, Harold, Canada	Cutlass Cutlass	ST 60 Merco 61	Kraft Proportional Kraft Proportional	5616	5504	4930	16,050
von Segebaden, Jesper, Sweden	Mustfire	Merco 61	Bonner Digimite	5186	4939	5600	15,725
Bosch, Fritz, Western Germany	Delphin Tiger	ST 56 ST 56	Simprop-Proportional Simprop-Proportional	5654	2827	6974	15,455
Sweatman, Christopher, S. Africa	Decoder	Merco 61	Constellation 7 Propo	4675	4958	5578	15,211
Hitchcox, Warren, Canada	Norseman 4	Merco 61	CRC Electronics Propo	4329	4804	5305	14,438
Haegeman, Georg, Belgium	Zinneken-Original Beachcomber	ST 56 ST 56	Bonner Digimite Sampey Starlite 500 Prop	4649	5176	4454	14,279
Nordahl-Rasmussen, H., Denmark	Beachcomber	ST 56	Bonner Digimite	4189	4934	5140	14,263
Waters, Peter T., Great Britain	Altair-6 Altair-4	Merco 61 Merco 61	Min-X 12 Reed Min-X 12 Reed	3923	4560	4986	13,469
Corghi, Erminio, Italy	X-18 X-26	ST 51 ST 51	Controlaire 10 Reed Controlaire 10 Reed	3966	5000	4438	13,404
Kato, Sousuke, Japan	Super Thunderbird	ST 60	Orbit Proportional	4065	4826	4502	13,393
Wessels, Johannes H., S. Africa	Taurus-Mod.	Veco 45	Bonner Digimite	4659	3862	4574	13,095
Mantelli, Oreste, Italy	Sirius Sirius-2	ST 46 ST 51	Orbit 10 Reed Controlaire 10 Reed	3826	4316	4413	12,555
Guglielminetti, Francesco, Italy	KK Original	K&B 45	Bonner Digimite	3366	3390	4522	11,278
Hakche, Jan, Denmark	Beachcomber	Merco 49	Homemade 10 Reeds	3469	3844	3927	11,240
Bauerheim, Kurt, Western Germany	Corsar	ST 56	Homemade-Proportional	5152	5315	535	11,002
Culverwell, Clifford A., S. Africa	Taurus-Mod. Taurus-Mod.	Veco 45 ST 56	Constellation 7 Propo Constellation 7 Propo	5276	1065	4638	10,979
Levenstam, Jan, Sweden	Mustfire	Merco 61	Kraft 10 Reed	3590	3303	3749	10,642
van der Burg, Arend, Holland	Hazwena' Taurus	Merco 61 Veco 45	Orbit 10 Reed Orbit 10 Reed	3708	2621	4127	10,456
van Vliet, Jan, Holland	Blizzard Firefly	Merco 61 Merco 61	F&M Proportional Bonner Digimite	845	4569	4964	10,378
Kato, Masahiro, Japan	Super Thunderbird	ST 60	Orbit Proportional	4388	4950	900	10,326
Tonnessen, Ulf, Norway	Flint Stone-Original Munin Original	Merco 61 Merco 49	Homemade-Propoflex Orbit 12 Reed	3256	3066	3280	9,602
Dilot, Rolf, Sweden	Taurus-Mod. Taurus	Merco 61 Merco 49	Min-X 10 Reed Bramco 10 Reed	3643	3032	2914	9,589
de Dobbeleer, Joseph, Belgium	Demoiselle-Original	ST 56	Bonner Digimite	1395	3243	4679	9,317
Andersen, Erik Rohde, Denmark	Original	Merco 61	Bonner Digimite	2850	938	3904	7,692
Matrens, Frans, Holland	Rumpie-Original Taurus-Mod.	ST 60 ST 56	Orbit 12 Reed Simprop	2961	2707	485	6,153
Michalovic, Jiri, Czecho-Slovakia	Original	Homemade 9 cc	Orbit 10 Reed	1274	2072	1339	4,685

AMA GOES TO WFFA'S FAI MEET AT TULARE



The famous Cherny launch. Dust flying, both feet off the ground, Bob Cherny, 1965 Free-Flight FAI team member, hurls a Condor skyward at WFFA meet, November 6-7. Bob qualified for 1966 finals to select 1967 team.

■ The newly organized Western Free Flight Assoc. held its first annual invitational meet and banquet last November. Attending as official representatives for AMA were President Howard Johnson, Executive Director John Worth and, for Public Relations, George Wells.

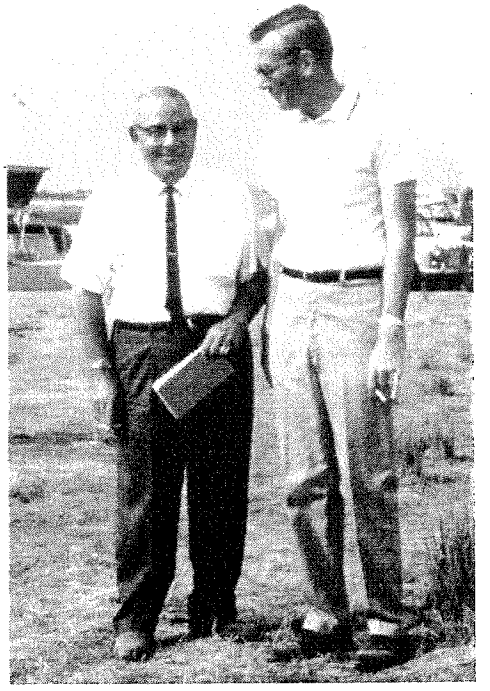
At the banquet it was indicated by officers of the organization that a close working arrangement with AMA was intended to promote free-flight FAI activities. Many famous flyers were on hand, including former FAI FF team members Bob Cherny ('65) Doug Galbreath ('63), Bill Hartill (Team Manager '65).

The banquet also provided an excellent opportunity for the AMA officers to explain many details of HQ operation, FAI representation, team travel and selection problems and plans for future progress.

It is expected that WFFA will be able to do for all the West Coast what the Southern California Aero Team (SCAT) has been able to do in the Los Angeles area to promote greater activity and understanding of FAI free flight. The organization will also serve to represent a unified Western voice in AMA's related programs and policies.

One of the problems of promoting this activity was noted at Tulare. This excellent meet was run in wonderful country for free flight flying but quite far away from population centers. To promote the activity for non-entrants would require a special effort to convince people, early enough, that here was something truly worth traveling to see.

Now that this first annual meet was an operational success it is likely that the next one will receive greater promotional emphasis.

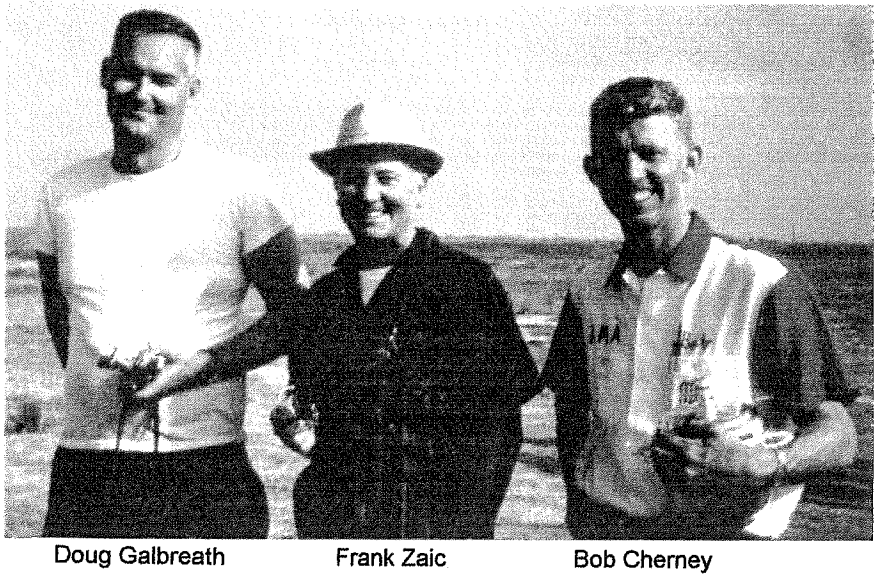


Howard Johnson, AMA President and George Wells AMA P/R

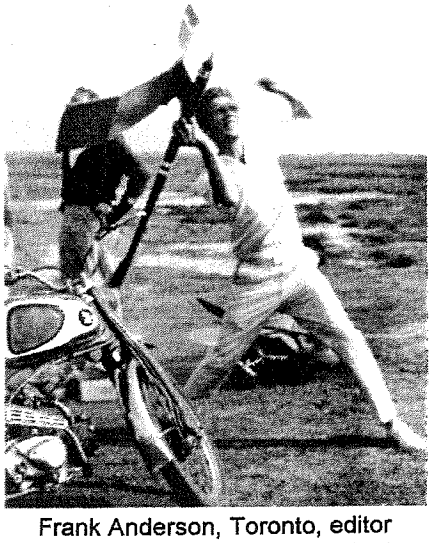
Really wrapping up the year, on November 6th and 7th, your editor had the opportunity of rounding out a great 1965 by visiting California on business and became a contestant at the first F.A.I. Invitational with such competition notables as Bob Cherney, Doug Galbreath, Bill Hartil and onlookers; AMA Prexy Howard Johnson and George Wells, Public Relations and had my first personal meeting with Frank Zaic who left his latest book for 1965 at my hotel!

I didn't win anything but had an opportunity to spend time in California with John Tatone and Ocie Randall.

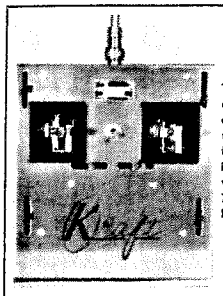
Thus ended a fine year for this editor, Frank Anderson, AMA 2001/MAAC 200.



Doug Galbreath Frank Zaic Bob Cherney



Frank Anderson, Toronto, editor of Airfoil, and visiting contestant.

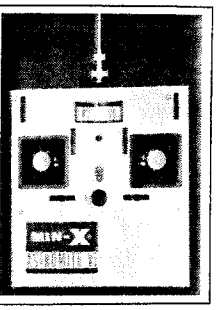


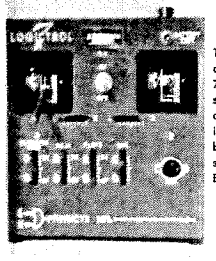
KRAFT KP-6

The Kraft KP-6 is a six channel digital system, available in either single or two stick configuration. All up system weight with four servos is 23 ounces. Servos are Kraft units with triple linear output and 3.5 lbs. thrust minimum. Six partial servo amplifiers are contained in the receiver unit for expansion to six proportional channel operation. Complete system includes transmitter, receiver, four servos, battery packs, chargers and wiring harness. System price $489.95. Available on 27 Mc., 6 meter, and 72 Mc. (when available). Kraft Systems Inc., 2519 Lee Avenue, South El Monte, California.

MIN-X ASTROMITE 6

The Min-X Astromite 6 is a six channel system employing three watts input. All control surfaces may be interchanged insofar as transmitter sticks are concerned without mechanical transmitter changes. Servos are of Min-X design and utilize a linear output with 3 pounds thrust. Airborne weight is 24 ounces. Complete system includes transmitter, receiver, four servos, battery packs, charger, junction board, and harness. Price is $499.95. Min-X Radio Inc., 8714 Grand River, Detroit, Michigan 48204.



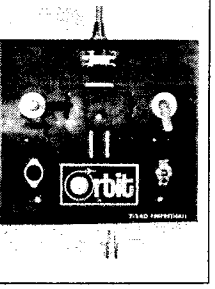


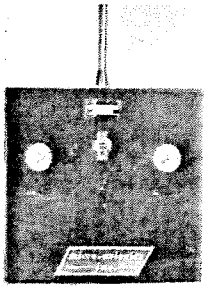
E.K. LOGICTROL 5 and 7

The Logictrol II is available in either a 5 or 7 channel system and in single or dual stick configuration. The Logictrol 5 can easily be converted to a 7 channel version by factory modification. Total airborne weight of the system is 23 ounces. Transmitter output is .75 watts. Frequencies available are 27 Mc., 6 meters, and 72-76 Mc. (when available). Servo output is either rotary or push-pull. System includes transmitter, receiver, servos, battery packs, chargers, and wiring harness. System prices are: Dual stick 5, $425; Single stick 5, $450; Dual stick 7, $495; Single stick 7, $520. E. K. Products Inc., 14875 Dillow St., Westminster, California 92683.

ORBIT PROPORTIONAL

The Orbit 7-14 and 4-8 Digital proportional system offers seven proportional channels and four channels, respectively. Airborne weight with four servos is 25 ounces. Servos provide linear and disc operation for choice of installation. Complete system includes transmitter, receiver, battery packs, charger, and four servos. 7-14 price is $550. 4-8 system price is $450. The Orbit Full House proportional system is an analog system utilizing the same servos as above. Airborne weight is 27 ounces. Price is $595. The Orbit 3+1 Proportional System provides rudder elevator and throttle trim and is complete, as above, but with three servos. Airborne weight is 19 ounces. Price is $350. Nicad power supply for the 3+1 transmitter is an optional accessory at $35. All Orbit systems are available with single or dual stick. Orbit Electronics, Inc., 11601 Anabel Avenue, Garden Grove, Calif.



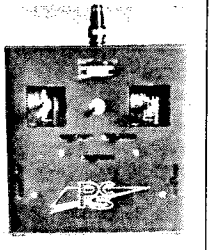


MICRO AVIONICS PROPORTIONAL SYSTEM

The Micro Avionics Proportional system is a five channel digital unit with a two stick configuration. Stick assemblies are sealed units by Micro Avionics. Servos feature linear plus disc output for choice of installation. Complete system includes transmitter, receiver, four servos, battery packs, chargers, and wiring harness. Complete system price is $395. Micro-Avionics Inc., 346 E. Foothill Blvd., Arcadia, California.

PROPORTIONAL CONTROL SYSTEMS

The PCS proportional control system is a five channel digital system available in a two stick configuration. Complete system includes transmitter, receiver, four servos, battery packs, chargers, and wiring harness. Servos feature triple linear output. Available on 27 Mc., 52 Mc., and 72-76 Mc. (when available). Total airborne weight is 19 ounces. Complete system price is $299.95. Proportional Control Systems, 4963½ Valley Blvd., Los Angeles, Calif. 90032.

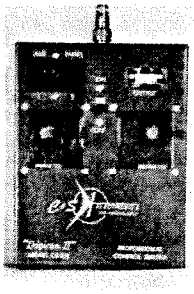


BONNER DIGIMITE 8 and 4

The Bonner Digimite 8 offers eight proportional channels operating on the digital principle. Transmitter is of the two stick configuration with the elevator and aileron on the right stick only. Servo ouput is dual linear with 3.5 lbs. of thrust and .62 in. travel. Entire 8 channel system includes transmitter, receiver, four Digimite servos, chargers, power packs and wiring harness. Available on 27 Mc., 52 Mc., and 72 Mc. (when available). The Digimite 4 includes the transmitter, receiver, four Digimite servos, charger, power packs, and wiring harness and is available on the same frequencies. Airborne weight is 25 oz. Digimite 8 price: $615. Digimite 4 price: $425. Bonner Specialties, 9522 W. Jefferson Blvd., Culver City, California.

CONTROLAIRE DIGITAL PROPORTIONAL

The Controlaire Digital Proportional System is a five channel digital system, including transmitter, receiver, four servos, power packs, chargers, and wiring harness. Servos are Controlaire proportional units featuring dual linear output with a rack travel of ½" and a thrust of 4 pounds. Airborne weight of the system is 25 ounces. Transmitter is available in a two stick configuration with prime controls on one stick. Price is approximately $500. Controlaire, Div. of World Engines, 8206 Blue Ash Road, Cincinnati, Ohio 45236.



C & S DIGICON II

The C&S Digicon II Proportional System is available in either a 4 or 6 channel version, operating on the digital principle. Transmitter is a two stick system utilizing Bonner stick assemblies. Servos are of the Bonner Digimite configuration featuring dual linear output with 3.5 lbs. thrust (approximate). Airborne weight with four servos is 27 ounces. Complete system consists of transmitter, receiver, four servos, power packs, and charger. The system price for the four channel version is $495. Price of the 6 channel system is $550. C&S Electronics, 13400-12 Saticoy Street, North Hollywood, California.

DEE BEE QUADRUPLEX CL5

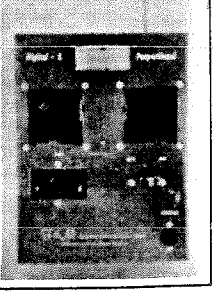
The Dee Bee Quadruplex CL-5 is a single stick system offering four basic control channels plus an auxiliary channel for electric brake operation. An up-kick button is also provided for reliable spin entry. Servos are mounted on a glass epoxy board with the exception of the aileron servo which plugs into the servo board. Servos are disc output with differential input circuitry. Total throw is ⅝" lock to lock. Available on 27 Mc. or 52 Mc. System includes transmitter, receiver, servos, all batteries and charger. System price is $579. Dee Bee Engineering Co., West Lambs Road, Pitman, New Jersey 08071.

in 2006, none of these radio manufacturers have survived; however, prices are now down to around $200. to $300. for imported radios - not in the $350. to $595. range that they were in 1965!

See these Radios in color on the rear of this book !

F&M DIGITAL

The F&M Digital-5 is a five channel digital proportional system with .75 minimum transmitter output. A standard two stick arrangement is used, utilizing the Bonner stick assemblies. Servos are the new F&M units with dual linear output and thrust in excess of 4 lbs. Total airborne weight of the Digital-5 system is 26 oz. System is complete with four servos, battery packs, charger, transmitter and receiver. System price: $495. F&M's Digital-3 is also currently available as a three channel proportional system. F&M Electronics, Inc., 135 Vermont St., N.E., Albuquerque, New Mexico 87108.



MICRO

ORBIT

KRAFT

PCS

C&S

CONTROLAIRE

DIGIMITE

F&M

QUADRUPLEX

LOGICTROL

MIN-X