

GETTING STARTED IN CLIMB AND GLIDE

The AMA's provisional event No. 703 offers a way to get involved in an enjoyable competition that requires no expensive high-tech equipment.

BY GLENN GRESENS

"Climb and Glide" is a provisional contest event that first appeared on the modeling scene when rules for Event No. 703 were published in the 1990/91 AMA Rulebook. The original rules featured a complex timing system called "Ratio Scoring" that proved to be unpopular. This problem was corrected in the latest rules, given on page 154 of the '92-'93 Rulebook, and the new event is attracting a wider following among RC fliers.

The basic idea is to launch your engine-powered RC model, climb as high as you can comfortably see it, shut the engine down and then stay aloft for 15 minutes. To make this more difficult, the rules require that the engine be shut off after a run of no more than one minute. A contest official is provided by the CD to see that this

restriction is observed. The person also monitors the balance of the flight and notifies the contestant if, and when, the 15-minute max is achieved.

Engine size is limited to .25 cu. in. two-strokes and .40 cu. in. four-strokes. The only other restriction on the airplane is a minimum weight of 8 ounces per square foot of wing area.

The rules suggest that contests be flown in "rounds," as is the usual practice in RC soaring contests, but the CD is allowed to waive such formalities and in most C&G contests, the fliers crank up and launch whenever their frequency is available and they feel lucky. C&G flights usually cover a wide area and proceed at low speed, except in the climbing phase, so many planes can be flown simultaneously with minimal danger of midairs.



The Big Shadow gets away on another long flight, designer Van Hereford on the sticks. After a minute at this angle of climb the ship is literally a speck and you'll be grateful to have to shut the engine down. Dark, opaque colors on the bottom of the wing and stab will help you keep the model in sight at altitude. A max flight is 15 minutes, so you still have quite a bit of flying to do after the engine quits. It's pretty relaxed flying, though, because there's no penalty for overflying the max time and no landing circle to hit.



Climb and Glide action at a contest in Baton Rouge, Louisiana late last year. Jack Cockerham of Houston, Texas launches an Olympic 650 converted for C&G flying by Jim Skinner of the Baton Rouge RC Club. Manning the watch is another Texan, Ben Beerbower.

The manpower needed for contest organization and management is also minimal, and as full-time radio control is required, almost any RC field is okay for C&G competition. A CD and two or three timers can handle 20 or more fliers.

Where do you get a plane for Climb and Glide flying? For scratch builders, Van Hereford's "Big Shadow" is a good bet. The basic layout and force arrangement has been thoroughly tested in several sizes. Plans for Van's original Shadow, which is a very successful 1/2A-powered RC Duration flier, were

published in the August '92 issue of *Model Builder*. The C&G version is larger and stronger, and with a well-tweaked Fox 15BB, its power-to-weight ratio is much higher. The ease of construction and good flying characteristics of the 1/2A design have been successfully transferred to the larger version so RC modelers with building and flying experience should have no trouble building and flying the Big Shadow.

A good .15 or .20 engine will take the Big Shadow up like a rocket, and a simple three-channel radio will keep everything under control. The plans are more or less self-explanatory, so step-by-step instructions are not included in this article.

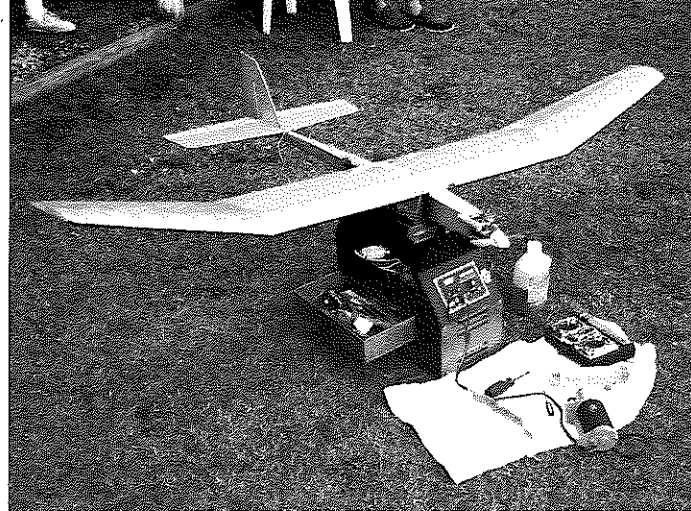
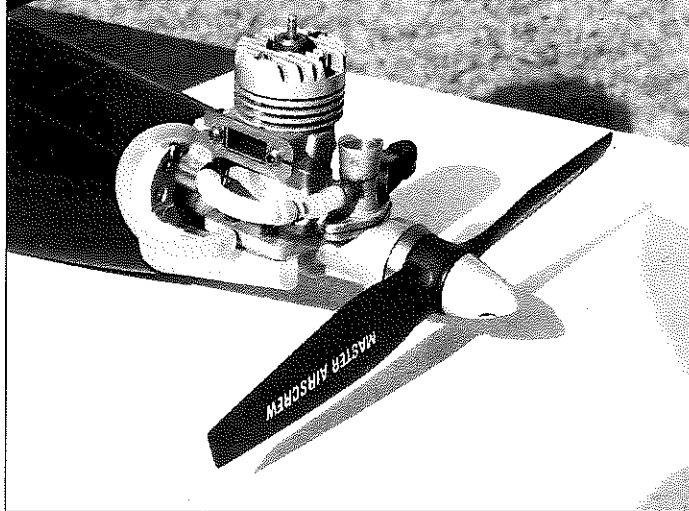
There are other ways for would-be C&G fliers to get the necessary equipment. In fact, many modelers already have a potential C&G model. That old two-meter glider that's been hanging around the shop will be very competitive with a strong .15 engine or maybe a not-so-strong .20. Larger gliders, in the 100-inch wingspan

Gale Helms, an expert modeler in many categories, with his unnamed original design C&G model. Gale belongs to the Baton Rouge RC Club.



BIG SHADOW SPECIFICATIONS

WINGSPAN	83 in.
WING AREA	648 sq. in.
FLYING WEIGHT	36 oz.
WING LOADING	8 oz./sq. ft.
OVERALL LENGTH	40 in.
POWER	Fox .15BB
RADIO	Three channels required (rudder, elevator, engine cutoff).



■ LEFT: The business end of Gale Helms' model sports a Fox .15BB with a 5/16-inch bore venturi and crankcase pressure setup—note that the engine mounting lug has been drilled and tapped for the pressure fitting. ■ RIGHT: Another Olympic 650 converted to C&G flying, this one by Patrick Beard of Baton Rouge.

range, work well with .25-sized engines. Smaller engines can be mounted with strap-on powerpods, but nose-mounted engines are more efficient in the climbing mode and offer much less drag in the glide.

Most glider kits in the 68- to 100-inch wingspan range can be modified for C&G work by shortening the nose and installing a plywood firewall with a radial engine mount. Some

glider plans show an optional engine installation, while others may need a few plywood doublers and corner blocks to secure the engine mount.

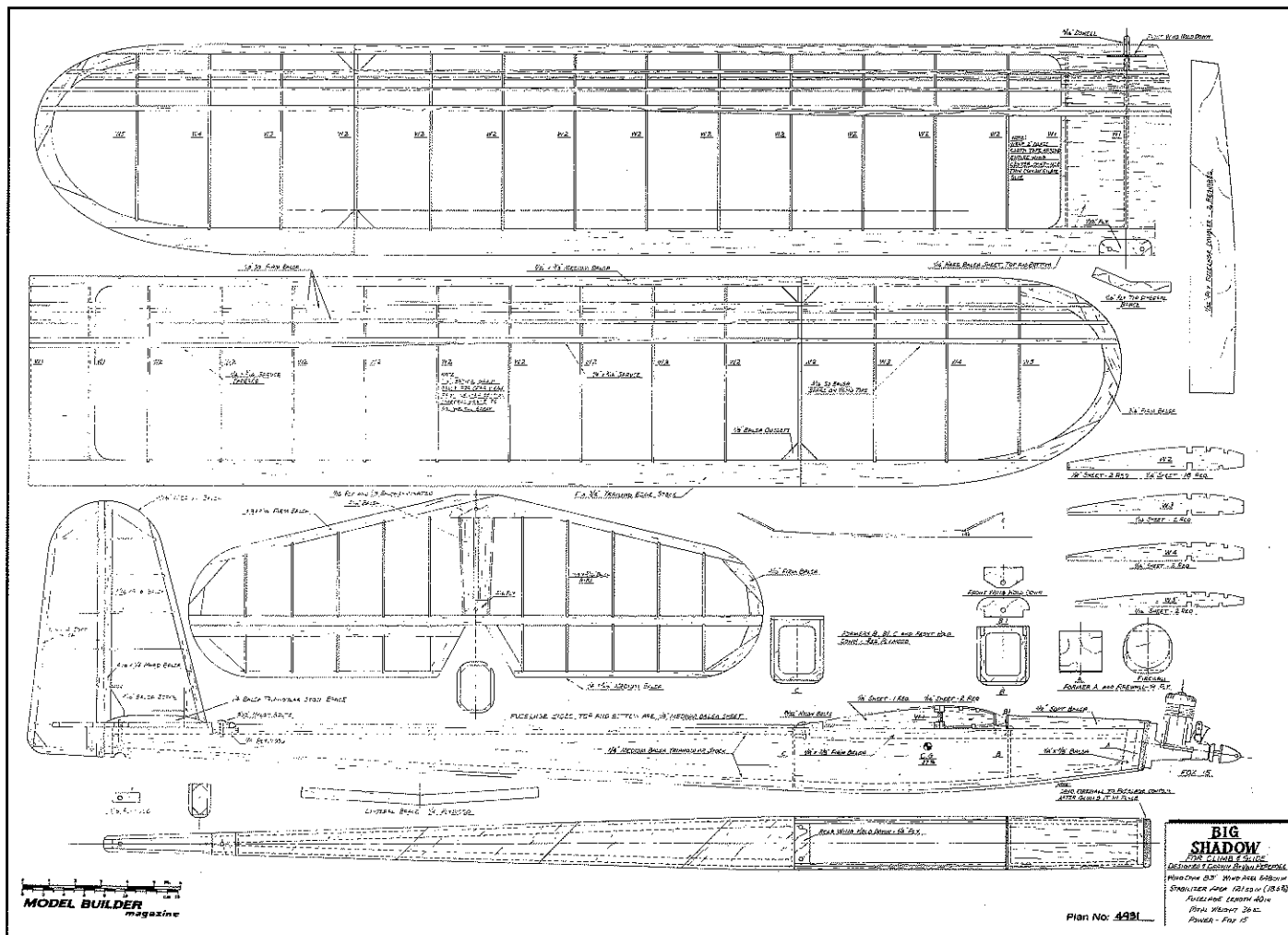
For those who decide to modify an existing plane, the question that immediately arises is, "How much of the nose do I chop off?" A good way to come up with the answer is to move the radio and batteries as far back in the fuselage as pos-

sible, then strap the engine and its mount on the nose with rubber bands and slide it around until the proper CG is restored. In practice, the length of the nose is usually not critical, as the radio components can be shifted to adjust the CG. Hopefully, as Climb and Glide gains in popularity, kit manufacturers will develop special C&G versions of their proven designs.

Almost any RC model can be

flown in C&G contests, but powered gliders are needed for serious competition. The term "serious," when applied to modeling competition, often means that the contestant must invest many dollars in state-of-the-art equipment and devote untold man-hours to polishing his skill, before he can aspire to excellence in whatever modeling category he has chosen.

At first glance, the formula



for success in C&G would appear to be to get a special racing engine, polish its guts, file its prop and use plenty of nitro. Man, this baby will get me up there with the buzzards in a heartbeat, chuckles the "serious" flier. And so it will. Fortunately for the old boy with a standard engine, a minute is considerably more than a heartbeat, and if his plane and engine are well matched, he will also be among the buzzards when he shuts down the power.

At this point, the horsepower race is over and both contestants are very high with one minute on the clock. With 14 minutes to go, both planes are now gliders and a completely different set of flight parameters will determine the winner. Super-light structures utilizing high-tech laminates and complex fabrication techniques would seem to be in order, and serious builders can certainly produce very light, very strong airframes using state-of-the-art techniques and materials.

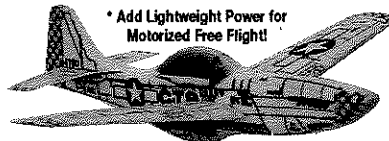
Once again, however, the good old boy with a two-meter glider and a Fox .15 is saved by the C&G rules. A super-light airframe is no bargain if a hefty chunk of lead is needed to meet the specified 8 ounces per square foot wing loading. Even with the engine included, most two-meter gliders can be built within the weight requirement, including the appropriate engine, with only minor revisions to the standard kit, so complex structures based on high-tech materials are not needed to be competitive. Dedicated engine grinders and super-builders will always be hard to beat in any contest, but there is a place for lesser mortals in Climb and Glide.

The power limits and wing loading requirements for C&G are comparable to rules developed and thoroughly tested in hundreds of SAM Old Timer RC Assist contests. The durability and flyability of planes designed to these criteria are known quantities. O.T. pilots are usually very good at finding and using thermals, and antique planes with RC aboard can be very competitive against modern designs in C&G contests.

So-called "sport fliers," whose experience might be limited to heavier and faster models, will require a word of caution at this point. The aircraft specifications for Climb and Glide have been established to provide a model that will climb very rapidly under power and glide very efficiently when the power is shut down. To achieve these goals, the immutable laws of physics require a trade-off in maneuverability, but fortunately, there is no need for high-speed maneuvering in the C&G flight envelope.

Rule No. 1 is, therefore: "Point the nose up and keep it there until the engine stops." The Big Shadow has been designed to handle any maneuver that might occur within the C&G flight envelope, and modern gliders are designed to withstand high-G launches. Loops and rolls under power, however, should be avoided with any air-

continued on page 77



P51D MUSTANG

HAND CRAFTED FREE-FLIGHT GLIDERS

Best Looking, Best Flying, Most Durable Gliders in their Class!

★ READY TO FLY ★

- Large 23" Wingspan
- Plug-In Reinforced Wing
- Unbreakable Body
- Totally Adjustable Tail
- Capable of Loops, Straight & Level Flight, & 50' Diameter "Boomerang" Banks that Return to Thrower

\$15.95 plus \$3.00 S&H

• Call for Specifications

Money Orders shipped same day, Checks must clear, 30 Day Satisfaction Guarantee

Phone/Fax 516-324-7771 For More Info.

RIKER AIRCRAFT, 70 Richardson Ave., East Hampton, NY 11937



THE SPORT OF R/C SKYDIVING

Exciting free falls, smoke/streamer trails, neon tracking, etc. Parafoil Ram-Air parachute opens and maneuvers by R/C. Send \$1.00 for illustrated Info Pack on this thrilling low cost sport, Jump planes, etc. plus the New Glo powered parachute plane.

R/C SKYDIVERS

Box 662 MB

St. Croix Falls, WI 54024

IKON N'WST

FINE KITS SINCE 1977

WILD AND WONDERFUL

1/4 scale Rearwin Speedster - 96.5", 17-18 lbs.

- Wood Hand Selected
- Fiberglass Cowl
- Complete Plans
- All Parts Hand Cut
- Instruction Manual
- Photo Page



Emil Neely's Model

To order kits, call 1-800-327-7198. For a catalog of all our fine kits. send \$4.00.

Idaho Residents Add 5% State Sales Tax.

IKON N'WST

P.O. BOX 306

Post Falls, ID 83854

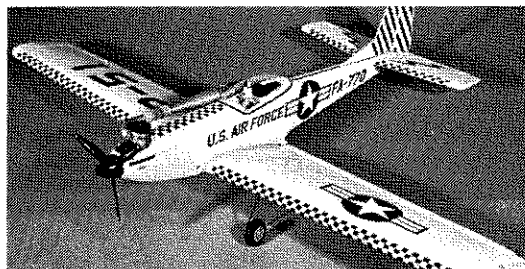
1-208-773-9001

SHOOT YOUR ENEMY DOWN!

LANIER RC's

P-51 Sport

CAT. NO. 74112



THE ORIGINATORS OF ALMOST-READY-TO-FLY AIRCRAFT MADE OF PLASTIC AND FOAM.

Fuselage Length: 45"
Rec. Engine Size: 45-60 or 4 Stroke 80-90
Flying Weight: 6 lbs.

Wing Span: 63"
Area: 630 sq. in.
Radio Channels: 4

Available at your favorite Hobby Dealer. Replacement parts available. Dealer and distributor inquiries invited. Write today for your free color catalog.

P.O. Box 458

Oakwood, Georgia 30566

404-532-6401

Made in the U.S.A.

CLIMB & GLIDE cont. from page 55

frame designed for soaring flight.

The strength and stability of the Big Shadow was thoroughly tested one summer afternoon when I launched what was supposed to be a routine practice flight with designer Van Hereford at the controls. The launch was approximately straight ahead with the wings level, and it became immediately apparent that the radio wasn't working. While the launcher and the pilot wondered helplessly if the switch was "on," the plane flew across approximately 300 yards of open field toward the distant treeline. Naturally, the engine performed ferociously over the entire distance. The wingtips were seen to flutter violently just before the plane entered the dark forest at about shoulder height. Damage was limited to a pulverized wing.

A spare wing was bolted on and the next flight was launched with the switch firmly in the "on" position. Which brings us to Rule No. 2: "Always energize and test the control system before starting the engine."

Rule No. 3 is: "Provide the most dependable engine control system you can devise." It is uncomfortable to find your plane at the limit of your eyesight with the engine still going strong. Engine control should not be a problem with modern RC carburetors, as they can usually be adjusted to provide a positive shutoff. Fuel tanks should be sized for not much more than a one-minute run to provide a back-up to the RC system.

There are three proven ways for getting started in Climb and Glide: Order the plans from *Model Builder* Plans Service and build a Big Shadow; modify an existing glider; or build a new one with the appropriate engine in the nose. For those who enjoy design work, the simple but effective C&G aircraft specifications will provide a challenging arena for the exercise of creative talent. And while it hasn't been done yet, at least to our knowledge, there is no reason why the new ARF gliders and electric sailplanes can't be modified for Climb and Glide by those who love to fly and hate to build.

In any modeling contest worthy of the name, careful preparation and sharp flying will always be hard to beat, but in Climb and Glide, the need for expensive equipment and endless practice has been eliminated. Sport modelers as well as serious competitors are participating in the new event and hopefully, a combined event for both C&G and its little brother, RC Duration, can be scheduled for the 1993 Nats. Meanwhile, RC clubs in search of contest events that can be staged with a minimum of manpower and expense should check out Events 702 and 703 on the last two pages of the '92-'93 AMA Rulebook.

Van Hereford, the designer of the Big Shadow, would be glad to hear from anyone interested in more information on the new airplane or the new contest event. Write to him at 1855 So. Woodhaven, Baton Rouge, LA 70815. **MB**

JOMAR IS MOVING!

As the *premier supplier* of accessories for Electric Flight, 1/4 Scale, Scale, and Sport flying, the increased demand for the product has pushed us once again to new, larger, **Permanent** headquarters!! We apologize for any minor delays this may cause in filling your order. . . Please feel free to pass along the new address & phone number to your friends in the hobby! The new phone and address are effective APRIL 1993.

The NEW ADDRESS is:

JOMAR PRODUCTS
3440 RIVER HILLS DRIVE
CINTI, OH 45244 513-271-3903

TAIPAN PROPELLERS

GLASS FILLED NYLON PROPELLERS FROM AUSTRALIA



The MIDWAY MODEL COMPANY
 P.O. BOX 9
 MIDWAY CITY, CA 92655
 (714) 895-6569 <PHONE>
 (714) 895-6629 <FAX>

- TRUE PITCH TO THE HUB
- PRECISION ENGINEERED
- RUGGED BREAK RESISTANT DESIGN
- HIGH THRUST EFFICIENCY
- PROVEN PERFORMANCE
- GAS OR ELECTRIC POWER
- DESIGNED BY GORDON BURFORD

7 X 4 .. \$1.19	10 X 4 .. \$1.89
7 X 6 .. \$1.19	10 X 6 .. \$1.89
8 X 4 .. \$1.29	11 X 5 .. \$2.19
8 X 6 .. \$1.29	11 X 7 .. \$2.19
9 X 4 .. \$1.49	14 X 6 .. \$5.95
9 X 6 .. \$1.49	

The Hawk Returns!

Excerpts from Model Airplane News

"An absolute joy to fly!"

"Class is the word, in looks and performance."

"A masterpiece of engineering."

"The assembly and flying manual is the best we've seen."

"It's a classic and a class act all the way. Everybody should have at least two!"

Complete Kit \$350.00
 plus \$7.50 postage & handling
 MasterCard and Visa

Only available from:

ROSS
 MODELS INC.

708 Dermody Way, Sparks, NV 89431 (702) 358-7677

SPECIALIST

CUSTOM AM 'SUPER' SYSTEMS SINGLE AND TWO STICKS

THREE, FOUR, SIX, AND EIGHT CHANNELS
 DUAL AND EXPO RATES, MANEUVER CONTROLS,
 CHANNEL MIXING, END POINT ADJUST,
 SERVO REVERSE, RX MONITOR.

STILL THE BEST • MADE IN THE U.S.A.

MILLCOTT

MILLCOTT CORPORATION
 5595 HEATH LAKE ROAD, SAGLE, IDAHO 83860 • (208) 263-2566

