#585

"WHAT IN HEAVEN'S name," the reader may very well ask, "is a high-performance P-30?" Indeed it *does* sound like a contradiction in terms, as much an oxymoron as, say, "House ethics," "friendly foe," or "Jumbo shrimp"! After all, the P-30 event is designated as an entry-level rubber-powered affair; and the P-30 model is a simple, easily built little plane

When a master Scale builder and designer decides to try his hand at a high-performance model for an entry-level event like P-30, we all end up with innovations and ideas that make our own models perform better. ■Dave Platt

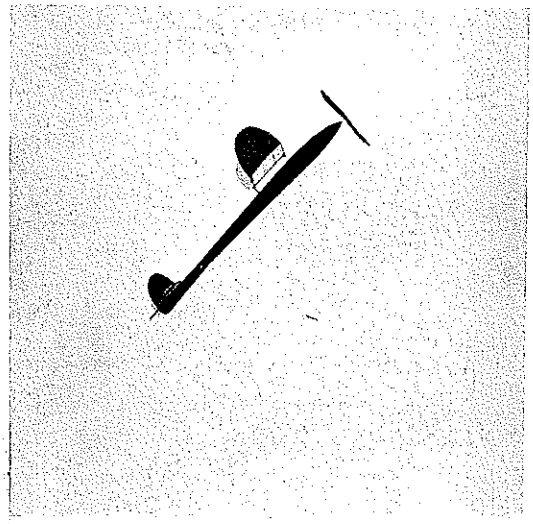
The evolution of the Dragonfly. Version 1, on the left, was a bit overweight, but flew well nonetheless, but the lighter version on the right (the one the plans show) is really competative.

Dragonfly P-30

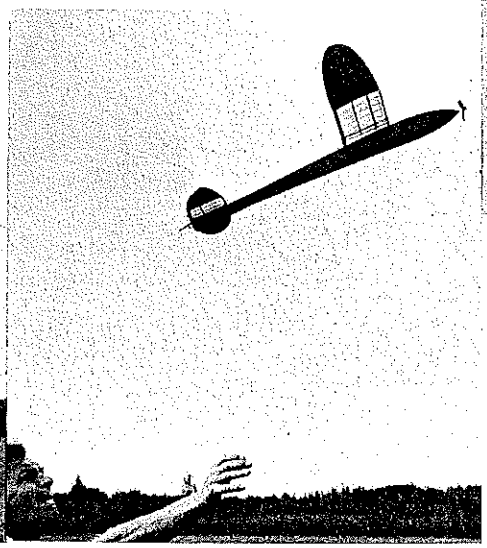
with merely average flight performance. Most well-trimmed ones will fly a minute or so.

So why violate the whole intent by aiming for a higher performance? Why slip in this Dragonfly? Just to see what can be done, that's why (you knew that all along, didn't you?). If we're willing to stretch the boundaries (but *not* the rules) a little, and to tinker with the predictable, we can get more exciting performance and still be within the P-30 class specifications. The Dragonfly should be thought of as one example of what can be achieved.

The P-30 rules formula is simple: No dimension (either wingspan or overall length) may exceed 30 in., and the propeller must be a commercial, *plastic* one, of about 9½ in. diameter, which has not been altered in any way. The airframe (the whole model, less the rubber) must weigh at least 40 grams. We're allowed 10 grams of rubber to power it, for a total of 50 grams minimum flying weight.



The launch and climb-out sequence as author Dave Platt releases the Dragonfly P-30. Steep angle and rapid climb (due to a very light frame and other factors) give this model its competitive edge. Pleasing lines also provide for a nice deviation from the traditionally square-shaped P-30-class models.



Ordinarily, of course, the key to obtaining good duration with a rubber-powered model lies in finding the optimum marriage of prop and power. As we've seen above, however, in the P-30 class both prop dimensions and power are fixed. Any performance enhancement must therefore come from the airframe design. If we agree on a

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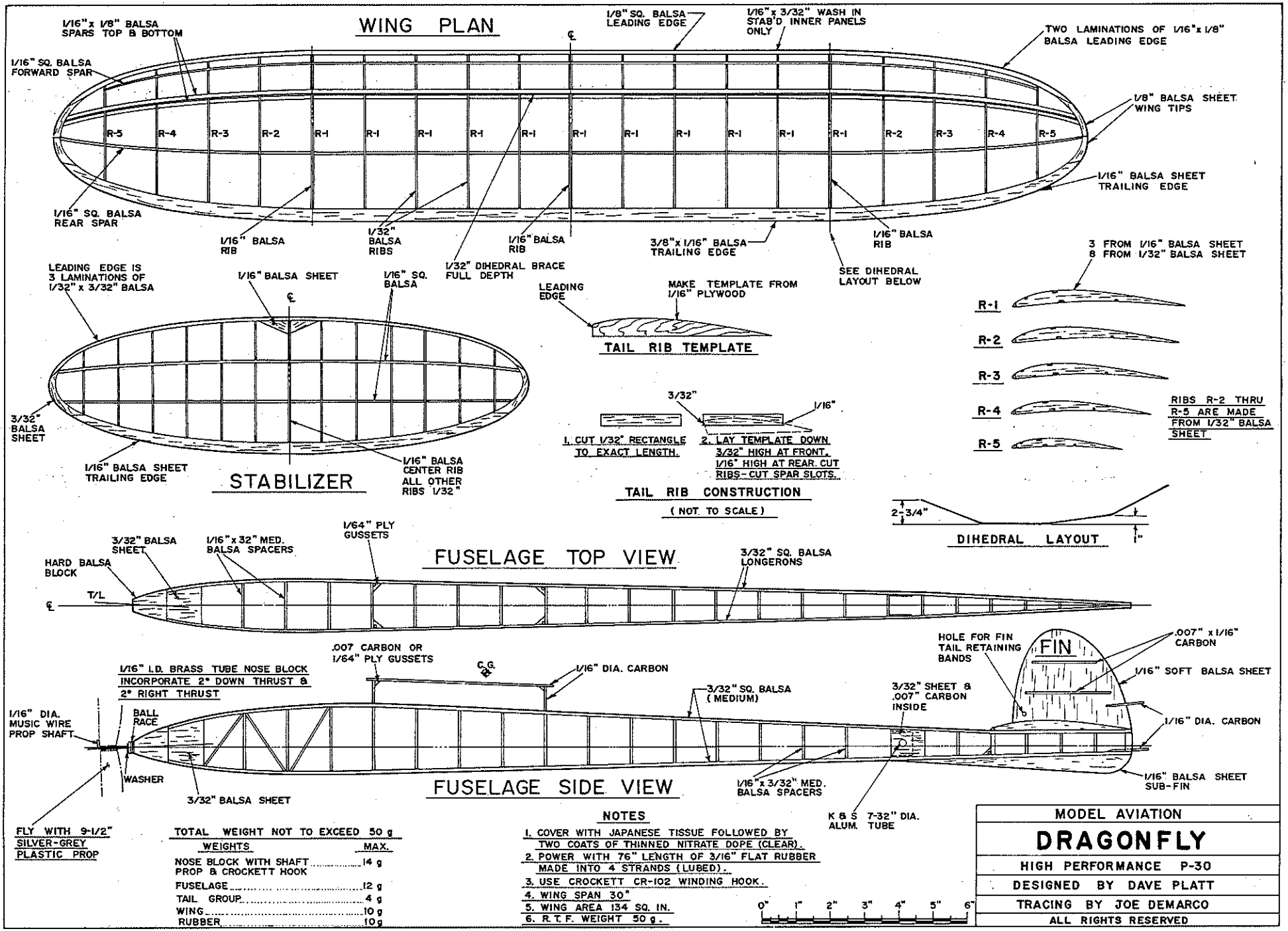

Full-Size Plans Available . . . See Page 172

Old-Timer Three-Views Featured in this Column's First Decade

1978	February	Advanced Challenger
	April	Cumulus (Shereshaw)
	June	Pacemaker (Ohlsson)
	August	Quaker Flash (Megow)
	October	Premier Lion (British)
1979	January	Thermal Magnet (Bay Ridge)
	March	Red Zephyr (Scientific)
	May	Vulcan (Russell—British)
	July	Utility (Hacker)
	September	American Ace (Berkeley)
1980	February	Riser Rider (Marquardt)
	April	Streamlined Cyclone (Bob Jeffery)
	August	Scorpion (Keil Kraft—British)
	October	Tubby (Joe Weathers)
1981	January	Rearwin Speedster (Cleveland)
	March	Hornet (Sal Taibi)
	May	Cavalier (Berkeley)
	September	Mercury IV (British)
	December	Cloud Hopper (Schwartz)
1982	April	Winged Victory (Joe Weathers)
	June	Snow White '20' (Effinger)
	August	King Burd (Burd Models)
1983	January	Hoosier Hot-Shot (Foxworthy)
	March	Citizen (Bill Winter)
	May	T.D. Coupe (Dykzeul)
	July	Bi-Fly (Phil Kraft)
	September	Simplex (Paul Plecan)
1984	January	Live Wire Bipe (Hal deBolt)
	March	Sunduster (Jerry Broffman)
	May	Dragon Fly (Williams)
	July	Blackhawk (Peerless Supply)
	September	Cloudster Mk. I (Cleveland)
1985	February	Pylon Buster (Vasquez)
	April	Commando (Ontario Models)
	June	Lancer (New Cyclone Mfg.)
	October	Buzzer'd (KenHi)
1986	February	Pacificoaster (Joe Weathers)
	April	Varsity (Scientific)
	June	Bowden Trophy Winner (Krupp)
	October	Buccaneer Standard (Berkeley)
1987	January	Nomad (Chuck Hollinger)
	March	Berryloid Winner (Hal Coovert)
	May	Nimbus (Shereshaw)
	July	Li'l Misery (John Worth)
	September	Spook 72 (Modelcraft)
	December	Hangar 13 Ten-Footer (Ralph Beck)
1988	February	Cloud Cruiser (Henry E. Moyer)
	April	Gross Wing (Bernard Gross)

RC Pylon Racing/Hager

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"Here are the results:

"*Standard Q500*—1) Duane Felstet; 2) Dan Powell; 3) Darrol Cady; 4) Wayne Venetz; 5) Ken Helgerson.

"*Modified Q500*—1) Greg Corliss; 2) Duane Felstet; 3) Earl Seaholm; 4) Wayne Venetz; 5) A.J. Seaholm.

"*Formula I*—1) Murray Hamula (1:24.0); 2) Leon Elbert (1:30); 3) Hans Algard (1:40); 4) Duane Felstet (1:39); 5) Wayne Venetz (1:57)."

Here's where to get those kits and engines:

Formula I

Kits:

Item	Manufacturer	Phone	Address
Li'l Toni	Prather Products (Terry Prather)	(213) 835-4764	1660 Ravenna, Wilmington, CA 90744
Denight Spcl. Cosmic Wind	Paul's Flying Stuff (Paul Sternberg)	(619) 743-5458	P.O. Box 121, Escondido, CA 92025
Pole Cat	Ritch's Hobbies (Dick Ritch)	(713) 661-5458	4104 Lark, Houston, TX 77025
Shoestring	Don Rice	(206) 228-4170	12055 206th, Issaquah, WA 98027
Shoestring Li'l Toni	Tom Strom	(206) 246-4258	1420 W. 160th, Seattle, WA 98166
Estrellita	Jerry Small	(817) 481-6456	502 Cherry, Southlake, TX 76092

Engines—Stock:

Supertigre X-40	Ritch's Hobbies	See Above	See Above
Supertigre X-40	John Hancock	(915) 672-8568	P.O. Box 2694, Abilene, TX 79604
Supertigre X-40	Modeltronics (Terry Rollins)	(501) 782-8506	4305 Kelley, Ft. Smith, AR 72904
K&B .40	K&B Mfg. (J.&J. Brodbeck)	(213) 803-1423	12152 S. Woodruff, Downey, CA 90241

Engines—Modified (Ready to Race):

Supertigre X-40	Performance Specialties	(619) 729-1658	P.O. Box 4003, Carlsbad, CA 92008
Supertigre X-40	John Hancock	See Above	See Above
K&B .40	Lee Custom Engines (Clarence Lee)	(813) 352-3766	7215 Foothill, Tujunga, CA 90241

If I've missed someone, please write, and I'll try to get you in. Next month I will list accessories and Q500 kits.

Please keep those cards, letters, and photos coming in!

Dragonfly/Platt

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no-compromises approach to our building, significant gains in performance can be made. So "easy building" goes out the window. Still, constructing a model like the

Dragonfly is only slightly more complicated and time-consuming than building a standard P-30.

Redesigning the airframe isn't the only secret to getting high performance in a P-30. Other characteristics have to be factored in, too.

First, it's essential to build the model down to the minimum weight allowed by the rules. If yours does turn out overweight, banish the offending part and replace it. Many P-30 ships are built without due care in this matter, and consequently often weigh 60, 70, or even 80 grams in flying trim. With such models, duration inevitably suffers.

Second, we must ensure that this plastic propeller we're forced to use is at least smooth running, that friction is minimized, and that the freewheel works perfectly. In this latter regard, it is all too common for a P-30 to have a faulty freewheel mechanism, resulting in a frozen prop. Or sometimes the nose block itself will fall out at the end of the power run and remain dangling on the motor. If your Dragonfly is built and powered *exactly* to the plans, you'll avert both these problems, either of which obviously has disastrous effects on the glide.

Ten grams of 3/16-in. rubber works out to about 76 in. in length, before lubricant. If this is folded into four strands as intended, the length that results puts a slight tension on the rubber when it's completely unwound, and this retains the nose block. Furthermore, the key to a perfect freewheel is to solder a washer onto the prop shaft about ¼ in. or so behind the prop. Make sure that the prop spins very freely on the shaft, but that it doesn't wobble. With the motor pulling the shaft rearward, the washer will be next to the ball-race, and the prop will have plenty of room to slide rearward until the clutch is disengaged entirely, ensuring a good freewheel.

Third, the use of a winding tube (I rolled mine from a bit of drafting Mylar) will allow you to wind the rubber motor to the limit, without fear of an exploded fuselage. Without the tube, anxiety about the possibility of an accident forces a more prudent wind-up, and duration suffers.

Fourth, the P-30 rules formula limits the wingspan, but not the wing *area*. Therefore, a very low aspect ratio could be of double benefit: As the area is increased, the wing loading is reduced; and as the wing chord is raised, the airfoil should become more efficient. Whether there exists some practical, or even theoretical, limit to this approach remains as yet unproven. The Dragonfly's aspect ratio of 6.7 is only half that of a typical Wakefield, yet may still not be bordering on too low.

Of the many airfoils that could have been chosen, the 7% Gard was finally selected. The decision was purely arbitrary, and undoubtedly one of the comparable Benedeks, Isaacsons, or a similar brand would have been just as good. Perhaps what settled the matter was that Mr. Gard noted his recommended turbulator locations, whereas the others did not. While the reasons may not be clear, we have observed that the fitting of upper-surface spars at these locations seems to work just as well as an actual turbulator.

In performance, the Dragonfly has given very persuasive results. Its glide is a soft, light, almost undulating float quite unlike that of the typical 30-in. Rubber model. Besides vastly increasing ordinary still-air duration, such a glide makes the most of even the weakest lift or good air.

It's always difficult, even foolhardy, to quote dead-air times, as "dead air" may be technically a misnomer. (How do you keep dead air still, or compare my dead air to yours?) Nevertheless, we can describe a typical Dragonfly flight as follows: a fast, steep upward right spiral for about six seconds, followed by a gradually diminishing climb angle but significant further height gain until the 35-second mark, at which point the rubber is unwound and the model is some 150 ft. high. Easing into a wide right glide, the plane lands with about 1:40 to 1:50 on the clock. With any lift at all, you're immediately over the two-minute max.

Two final suggestions: *Always* light the DT, and don't go thinking you can fly the Dragonfly in a school playing field. This little rascal needs some room . . . Ask me how I know!