



PRODUCT REVIEW



P-39 AIRACOBRA

Top Flite/Great Planes Model Dist.

By Jim Simpson



For many years I've asked the following question during "bull sessions" in the pits, at hobby shops, and wherever modelers gather to talk.

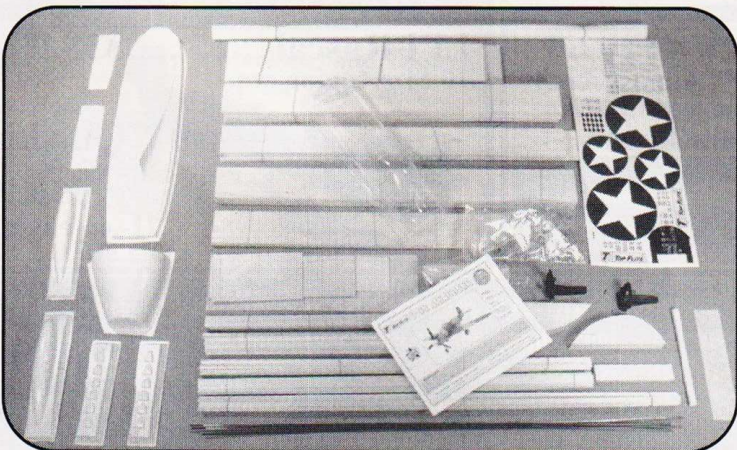
"Name your three favorite airplanes of all time."

The J-3 Cub, P-51 Mustang, and B-17 Flying Fortress seem to be named most often.

My answer would be: Taylorcraft, P-39 and B-52.

So, now you know I'm biased as far as this design goes.

In spite of that, I am going to give you an honest review of this sleek warbird which has an undeservedly bad reputation (remember what was said about the Gee Bee before Delmar Benjamin?).



SPECIFICATIONS

Name	P-39 AIRACOBRA
Aircraft Type	Sport Scale
Mfg. By	Top Flite/Great Planes Model Dist.
	P.O. Box 9021
	Champaign, Illinois 61826-9021, (800) 682-8948
Mfg. Sug. Retail Price	\$249.99
Available From	Retail Outlets
Wingspan	63 Inches
Wing Chord	11-3/4 Inches (Avg.)
Total Wing Area	742 Sq. In.
Fuselage Length	55-1/4 Inches
Stabilizer Span	24-1/4 Inches
Total Stab Area	164 Sq. In.
Mfg. Rec. Engine Range61-.75 2-Stroke
	.70-.91 4-Stroke
Rec. Fuel Tank Size	12 Oz.
Rec. No. of Channels	4-6
Rec. Control Functions	Rud., Elev., Throt.,
	Ail., Flaps, Retract Gear
Basic Materials Used In Construction	
Fuselage	Balsa, Ply & Plastic
Wing	Balsa & Ply
Tail Surfaces	Balsa
Building Instructions on Plan Sheets	No
Instruction Manual	Yes (48 pages)
Construction Photos	Yes

RCM PROTOTYPE

Radio Used	Ace MicroPro 8000 w/7 Servos & 1200 mAh Battery
Engine Make & Disp.	O.S. Max .61 FX
Tank Size Used	12 Oz.
Weight, Ready to Fly	124 Oz. (7 Lbs., 12 Oz.)
Wing Loading	24 Oz./Sq. Ft.

SUMMARY

WE LIKED THE:

Detailed instruction book, plans, miniature plan in instruction book, quality of materials, complete accessories pack, construction techniques, and finished model.

WE DIDN'T LIKE THE:

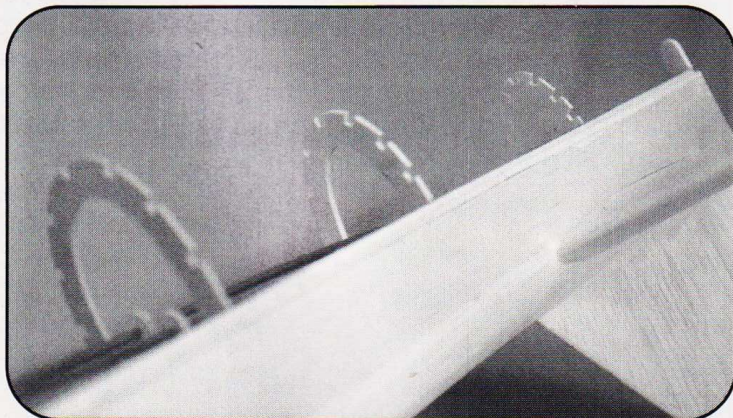
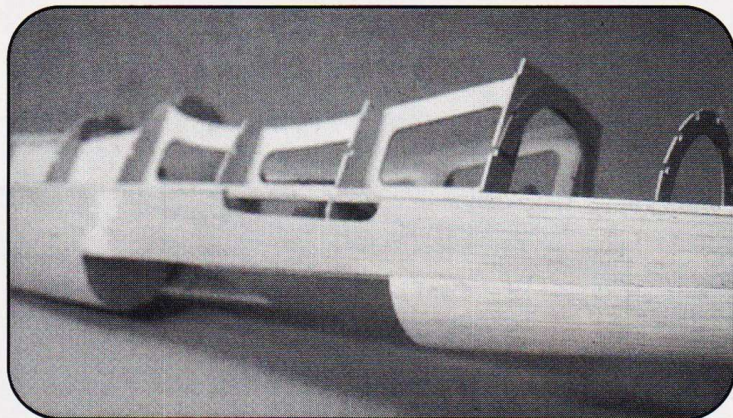
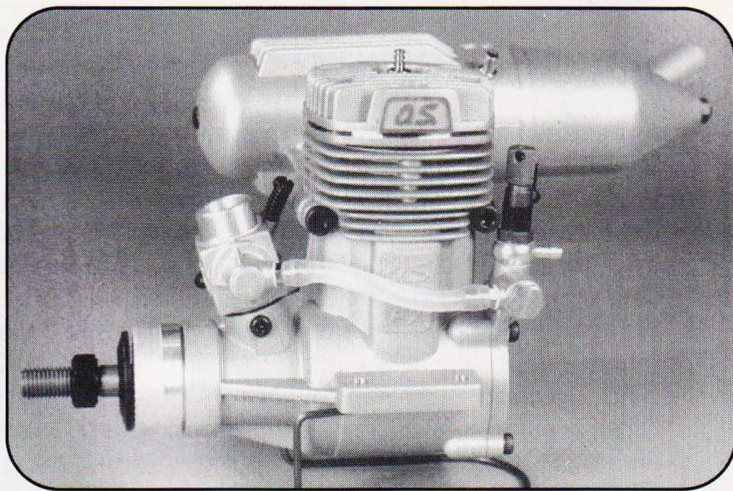
No gear doors provided in kit, and numerous items on gear installation (see text).

But, first, there are two points to be made. In Chuck Yeager's biography, he makes it perfectly clear that, in his opinion, the P-39 is an excellent airplane. The other is the fact that the first Thompson Trophy race held after WWII was won by a P-39 flown by "Tex" Johnston. Second place was won by Tony LeVier flying a P-38 and also rans included five P-51s and four P-63s! The P-39's best course speed was 471 mph in 1948.

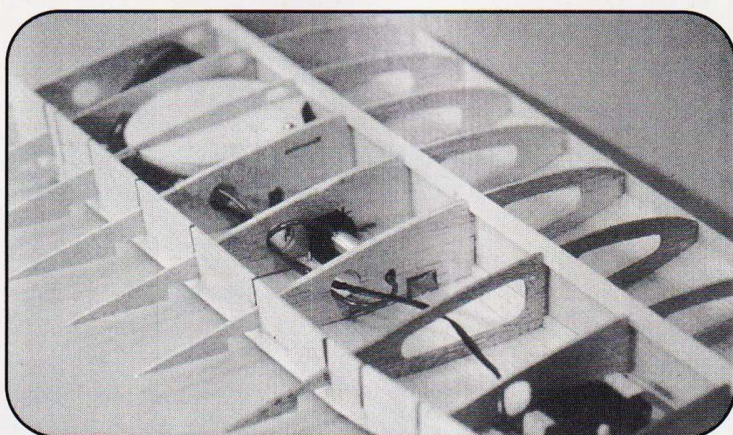
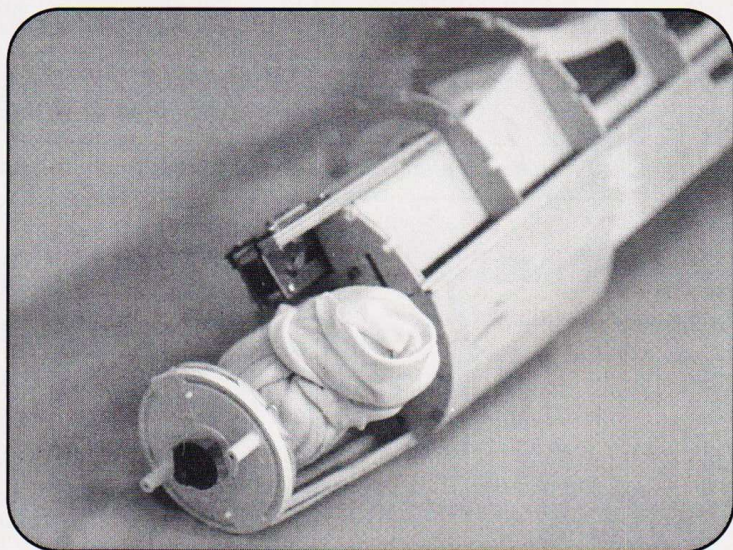




LEFT: Pilot figure and cockpit kit are available from Top Flite. **RIGHT:** An O.S. .61 FX was used to power the P-39.



The fuselage under construction. The top half is completed, then the bottom is added to it.



LEFT: The engine and nose gear is installed early in the construction process. **ABOVE:** The P-39 wing is lightweight and is very strong. Note full span shear webs/spars and lightening holes in the ribs.

Introduction

The Top Flite P-39 Airacobra (Gold Edition) is a 1/7 sport-scale model kit. Planes like this are more commonly known as "warbirds" and come in many sizes. Someone told me recently that there are 17 different versions of the P-51 on the market. Not so, the P-39, but one look at the box art and you wonder why? This P-39 is obviously designed to accurately replicate the WWII fighter plane and does so very well. For instance, the tail feathers are beautifully tapered symmetrical airfoils and the rudder, elevators, and ailerons duplicate the fabric-covered surfaces of the full-size

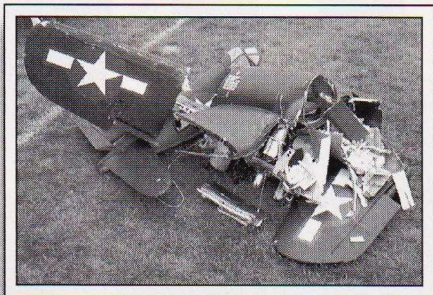
plane. This kit also incorporates provisions for retractable landing gear and scale flaps. Perhaps best of all, this design features construction methods and "jig tabs" that make it a lot easier to build than many "sport" type planes. A good example is how the fuselage is built top half first (over the plans) or even better — that the wing panels are built upside down, making retract installation easier. And did I mention that "washout" is built in to enhance stability?

For shipping purposes, you might need to know the box is 4-1/2" x 10" x 43-1/2". The box top is "eye candy." The top, sides, and ends are packed

with good information, lots of photos and specifications, and all this in full color. You will be well advised to read every word.

Opening the box reveals some significant details like those huge and beautiful wing fillets do not have to be carved and sanded — they're molded plastic (and as I found out later, they're easy to install and fit well). The canopy has the frame molded in and that makes it easy to paint. The wing ribs already have lightening holes in them. There is a big stack of sheet balsa for covering the framework. The parts bag is so complete it even includes clevis and pushrod connectors. Decals include

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even the tiny details like "No Step" signs. It would be difficult to find a way to improve the materials included.

Construction:

A most complete and comprehensive 48-page instruction book makes building this plane an enjoyable experience. I always read through the booklet before starting, and follow the instructions to the letter (as far as possible) while building the plane. The building sequence is nothing like I usually do but it was refreshing to do this in a new way and the end result sure made it a worthy effort. My advice to you is to do likewise and enjoy the result.

The plans are enormous — but they include dotted lines which indicate where best to cut them apart for ease of handling. Even better, the centerfold of the instruction booklet is a reduced copy which is easily detached and handy to have when the structure being built covers a detail you wish to see.

With plans and instructions like these, quality parts naturally follow. This must be a computer aided design (CAD) because every part fit perfectly.

I would not put the required effort into such a plane without incorporating both retract and flaps. Since this is a scale model and I just "happened" to have lots of documentation, it was easy to decide which version this model would be.

The tail surfaces are built first. Here we used the Great Planes Aliphatic glue for the first time and it works great. Another first was the use of their Plan Protector. This is a roll of transparent plastic material which is thicker than waxed paper but serves the same purpose. I liked it and plan to use it a lot in the future. Following their method of construction produced the truly beautiful symmetrical and tapered surfaces which are so much more realistic than the usual flat sheet tail parts. Each rib has its own jig tabs to assure perfect alignment and allow sheeting the complete topside without a twist. The control surfaces all have sheet balsa cores to maintain the outline shape and 1/16" balsa strips which are glued in place then sanded to yield scale-like structures.

Here we must also mention another new product we used for the first time. It is the Hinge Slot Cutting Tool (also by Great Planes). This new machine cuts the exact width, depth, and length required with a simple pull of the trigger. I learned it is necessary to brace it with your thumb to prevent a starting torque jump, but it is sure a great tool to use.

Next in the assembly process comes the fuselage. The two side longerons and the formers combine as a "crutch" to ensure proper alignment and eliminate the "banana" curve so often seen in round built-up fuselages. To this structure are added wing and tail "saddles" which ensure correct incidence angles which are so important to good flying qualities. Before removing this structure from the building surface we are asked to epoxy the tail surfaces in place.

Once up, the remainder of fuselage construction is an adventure in building technique. Not only do we finish framing it, we also install the engine mount with the engine, the retractable nose gear, and most of the control linkage. Although not mentioned, this is the best time to install a tube for the antenna and build a battery box underneath the retract air accumulator. Really study the plan and nose gear before gluing the mount rails in place. There is no cross section on the plans to show the elevation of the gear mount rails and no instruction on when or how to cut the former F-2 to allow nose gear strut clearance.

Wing construction is next and is a deceptively simple way to obtain a compound complex shape. Again, just follow the instructions, checking off each box as you go and referring to the photos often. There are two things I would add: First, be sure to leave enough slack in the air and servo lines to allow removal after the wing sheeting is in place. Second, be sure to leak-test the air lines and run the servos before adding the final sheeting. The flap construction and installation is pure genius. After fitting the hinges and testing them, you would do well to glue them into the flaps to be sure they do not rotate later. Just remember to coat the hinge "knuckle" with petroleum jelly (I use Campho-Phenique from a small tube for ease of application, and it makes my plane smell good).

The next section of instructions is about finishing the fuselage. There is a picture of the nose gear retracted which emphasizes clearance for nose gear steering cables. It shows the 1/4" plywood gear mount with roundness where corners used to be. This is too difficult to do after installation. It would have been wiser to make a straight cut from the notch to the aft end of the mount when preparing it for installation. This will also give proper clearance for the steering cables. The other thing that worried me was the tangle of servo leads, air lines, and

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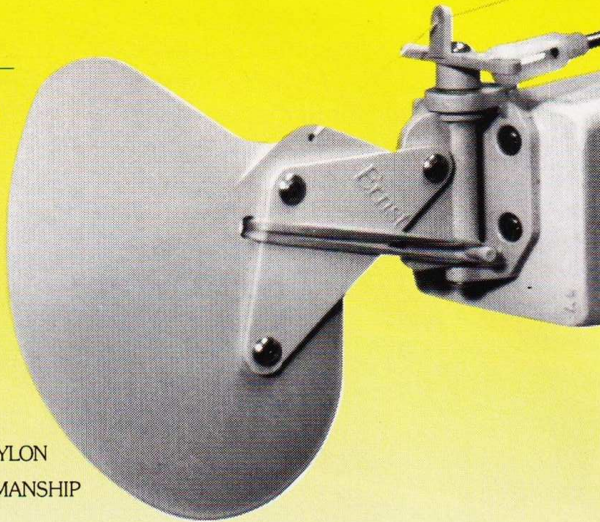
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steering cables in the fuselage cavity above the wing center section. Perhaps the cable housing tubes need to transverse the entire compartment.

Covering:

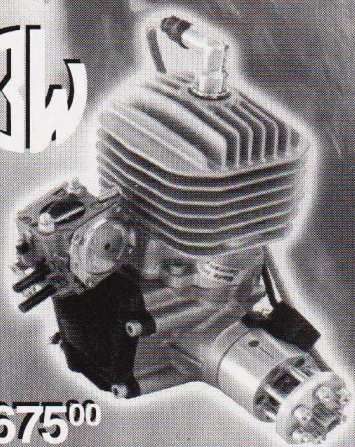
The entire aircraft was covered with Top Flite MonoKote. The color scheme I chose is flat dove gray bottom, with flat olive drab top and white wing and rudder tips. When using the flat gray and flat olive drab colors, you must forget all you ever knew about applying MonoKote. Since this entire model (except control surfaces) is sheeted with balsa, you cannot tack the covering around the outside and shrink or tack it along one side and pull it tight — then tack it along the other side. It seems best to cut the pieces slightly oversize and start in the middle — then work outward — first smoothing out the wrinkles with one hand while following with the iron in the other. Of course, you may either use your other two hands to hold the model or figure out some other way. I used a Robart molded foam model stand and cut out the uprights to match the fuselage curve; also used a folded wool blanket to cover the bench top.

The iron temperature is important. I used a 21st Century iron, set at about 250° for application. When covering the control surfaces, it is necessary to tack the covering at one end, then stretch the covering tight and tack it at the other end. Do the same on the sides. Trim the covering just enough to allow it to wrap completely around the edges and iron it down securely. Hint: rub the areas between the ribs and near the edges with a crayon or a candle to keep the MonoKote from sticking where you do not want it stuck. Cover both sides before trying to shrink the covering tight.

When you apply heat to shrink the surface, wrinkles will appear from one end to the other. If you are patient and careful, you can make them go away with judicious application of heat. I found I had to hold the nozzle of my heat gun close to the surface and move it real slow — working from one end to the other to get it tightened up. I estimate it took about four times as long to work with these colors as with the regular stuff but the compliments so far seem to make it worth the effort.

My usual custom is to cover the tail surfaces, then glue them in place on the plane. This plane is not built that way, so the task of getting a smooth covering job in the intersections

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would be extremely difficult. The Great Planes answer to that problem is the neatest little trim iron you'll ever see. Again, it is 21st Century technology — just smaller. The big secret is the shape of the iron. There are two tips provided so take your choice. Not only did this nifty tool make the tail joints look good — it also came in handy in many other places like around the retracts, control surface wells, hinge lines, and any other place attention to minute detail was required.

Engine:

The engine is an O.S. .61 FX with a remote needle valve, which is nice from a safety point of view. However, the fuel tubing from the needle valve to the carb is in line with the mounting holes and my electric screwdriver cut this tube every time I installed the engine, so I wised up and waited to replace it after the final assembly. The muffler is well built and has an adjustable outlet cone to set the optimum angle. Mounting the engine is reasonably easy with the adjustable engine mount supplied with the kit. The tank installation is unique. Consider this, there is no hatch and the tank must go above the retractable nose gear. The solution was to mount the tank on a plywood plate which is inserted through the wing opening and slides forward into position where it is secured by a single #4 screw at the back end. Really nifty ... and, yes, the plywood plate is part of the kit. The tank is a Great Planes 12-ounce square type which fits like it was designed that way!

Though not necessary, I am using an 8-channel Micro Pro computer radio with seven servos and a 1200 mAh battery in my plane. It is my favorite and makes set-up a cinch since everything is adjustable. A plain vanilla six-channel radio with standard servos will do the job nicely. It is definitely worth the effort to label or color code the servo leads which go into the wing. It is also worthwhile to arrange the retract line plugs so they can be connected to each other when the wing is removed but cannot be connected backwards when installing the wing. I found it best to use a micro servo to run the air valve and mounted both on a small piece of plywood secured with two screws such that it could be removed for maintenance, if required.

Flying:

The world's smoothest test flights

began during the building phase and were completed in the shop before leaving to go flying. If you faithfully followed the instructions, you should have a super straight plane.

There are any number of ways to check the balance or C.G. — just be sure the balance point is in the range shown on the plan side view. It is also worth the effort to balance the plane laterally. The instruction book tells exactly how to do both. It also tells the steps required for final hook-up and checks including control surface throws. Finally, we've come to the radio range check. Do one with the engine off and one exactly the same way with the engine on. There should be no (or very little) difference.

Control travel is given in the instruction book for both high and low rates. I ran my plane off the end of the runway on the first take-off attempt because I feared a snap roll. Second attempt, I just hauled it off and away we went. The difference was about 20 knots of wind (i.e., calm on first try — lots of energy on the second). I also used high rates for the second flight but soon switched aileron back to low and was easy on the elevator.

My plane weighs 7-3/4 pounds (empty tank) so it has the wing loading of any of the good old pattern ships. I did not need to worry about snap rolls. This plane is so stable it would not stall. Full up elevator just slowed forward flight to a crawl but it didn't even "mush." Rolls on both high and low rates are too fast to be considered "realistic" but are fun to do. For "real rolls" just use a slow-roll button, exponential, or go easy on the aileron stick. Loops are small and fast on high rate but can be made very large as a function of speed.

The question of does it perform the task for which it was designed is best answered with a resounding yes. It is fast and stable and just flat beautiful going by with the gear in the well. Simulated low-altitude strafing runs and "tank busting" will be part of every mission.

Conclusion

I'm so satisfied with this plane that I plan to build another soon, and since I have campaigned P-39's in scale in years past, I would do it again with this design should I decide to "un-retire!" The relative cost to value is high because this is a plane you can have a lot of fun with, yet be impressive as well.

