

SPECS

PLANE: MiniMag

MANUFACTURER: Multiplex

DISTRIBUTOR: Hitec/Multiplex USA

TYPE: Durable foam trainer/sport flyer

FOR: Beginners and intermediate pilots

WINGSPAN: 39.75 in.

WING AREA: 273 sq. in.

EMPTY WEIGHT: 19 oz. w/wheels; 22 oz. w/floats

22/25 oz. w/2S 1200mAh battery

WING LOADING: 11.6 to 13.2 oz./sq. ft.

LENGTH: 32.25 in.

RADIO: 3-channel required; flown with Hitec Zebra 4 FM transmitter, Hitec Zebra 106SF 6-channel receiver, 4 Hitec HS-55 servos

POWER SYSTEM, WHEELS: Direct-drive 6V Speed 400 brushed motor (included), Multiplex 5x4 prop, Multiplex X16 16A speed control, Duralite 2S 1600mAh Li-Poly

FULL THROTTLE POWER: 12.9 amps, 103.2 watts, 4.69 watts/oz., 75.1 watts/lb.

TOP RPM: 12,390

POWER SYSTEM,

FLOATS: Direct-drive Maxx Products 2815-2000 brushless inrunner motor, APC 5.5x4.5 prop, Multiplex Multicon BL-17 brushless speed control, Duralite FlitePower 3S 1200mAh Li-Poly

FULL THROTTLE POWER: 19.4 amps, 215.3 watts, 8.61 watts/oz., 137.8 watts/lb.

TOP RPM: 19,830

DURATION: 15 to 20 min. mixed flying

MINIMUM FLYING AREA: ball field

PRICE: \$64.99, standard kit (M214211); \$119.99, receiver-ready (M26421); \$194.99, ready to fly (M13209); \$24.99, float kit (M733069); \$99.99, brushless power kit (M993211)

COMPONENTS NEEDED TO COMPLETE: None with RTF version. 50- to 100W power system, 3- or 4-channel radio for standard kit, receiver and transmitter for receiver-ready.

SUMMARY

The Multiplex MiniMag is a smaller version of the popular Multiplex Magister trainer. Like the rest of Multiplex's Elapor foam models, the MiniMag is very durable and offers the convenience of a fully molded foam airframe that can be quickly assembled using regular CA. Once at the field, its flight performance will make you smile while you polish your skills or simply relax with an inexpensive fun flyer you don't have to worry about breaking. Add ailerons and a brushless motor upgrade for more performance and the float kit for even more fun.



MULTIPLEX

MiniMag



This flexible flyer offers something for everyone

by Thayer Syme

PHOTOS BY MIKE SKUBE AND MIKE LEE



Are you a new RC pilot, unsure of your flying skills, who needs a stable, easy-to-fly model? Perhaps you're more experienced and looking for a model with enough control and power options to customize it to suit your preferences? The MiniMag from Multiplex USA offers all this and more.

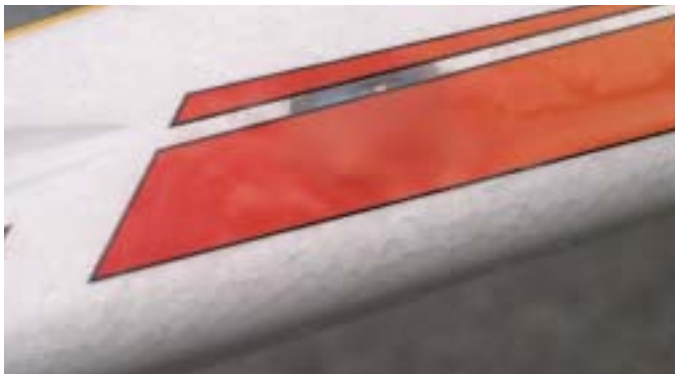
The MiniMag is compact and easily stored and transported, and it flies like a larger airplane—smooth handling and great stability. It is molded by Multiplex in their proprietary Elapor foam. Elapor is known for its durability and ease of assembly with traditional CA adhesives and kickers. Foam-friendly glue is not needed here; in fact, its use is discouraged, as is that of epoxy. I used medium and thick CA and kicker from Mercury Adhesives. The MiniMag is so small and light that even after a few good hits, I have not needed to reach for the glue bottle since its initial assembly. This durability is a welcome change from more fragile foamies or balsa construction.

The MiniMag is a great sport model for smaller fields, and the brushless power and float options really make it fun.



TIPS FOR SUCCESS

The MiniMag is a well-designed package that goes together quickly and without trouble. Heed the instructions, and leave the epoxy and foam-friendly CA on the bench. Regular medium-viscosity CA and kicker do the job with Elapor foam.



The servos are mounted in molded pockets behind the cabin area. Make sure that the servo operation and control deflections are all correct before you seal the servos into place with the decals.

You only have to mount the tail surfaces and attach the control horns.

With its various power, control and landing-gear options, the MiniMag offers the flexibility that many pilots will welcome. I recommend that you fly it in its most basic configuration first. Three-channel control with the Speed-400 motor gives smooth control and ample

AIRBORNE

Beginners and other low-time pilots will appreciate the simplicity of 3-channel flying with rudder, elevator and throttle control. There is plenty of roll coupling with the rudder, so the ailerons really are not needed for training or general sport flying.

The included S-400 motor is a great option for training. It is inexpensive, yet it still gives enough power to practice take-offs and touch-and-go's on hard surfaces. I didn't have any trouble taking off from the base paths of the local high school ball field. Do not expect to get it off a typical grass field though. If you fly off grass, consider removing the landing gear and hand-launching. With a firm hand-launch, the MiniMag accelerates and climbs easily. There isn't any trouble landing in grass without the gear, as the relatively short prop does not extend very far below the fuselage. Just set up a smooth glide and flare before touchdown. The MiniMag glides quite well with power off, so there isn't any reason to carry power once you have made the field. If you do use power to stretch the glide and you're belly-landing, be sure to chop the power just before touchdown to protect the motor shaft and the prop from being damaged. If you keep the wheels on, a gentle flare is all that's

needed to settle in on the runway. Use the rudder as necessary to keep it straight on rollout. The optional steerable tailwheel gives you all the control you need on the ground.

With the stock S-400 motor, the MiniMag will do basic 3-channel aerobatics. Loops, barrel rolls, hammerheads and limited inverted flight are well within its capabilities. This setup should more than satisfy new fliers and experienced pilots who prefer a more sedate sport flying style. More experienced pilots looking to wring it out a bit more will appreciate the extra control offered by the ailerons and the power increase that comes with going brushless. If your sport flying is on the lighter side, there's no shame in leaving the MiniMag as a 3-channel bird. It handles very well without the ailerons, and it will also be lighter.

The power and aileron upgrades are mandatory if you want to add the float kit. You will want the ailerons to help keep the wings level on the water, and the extra power is needed to get off the water. Hitec/Multiplex USA offers a great combo that drops right in to replace the Permax Speed-400 brushed motor with a direct-drive Himax inrunner that gives you the option of going with either 2S or 3S Li-Poly packs and with different props. If you prefer an outrunner to turn a larger prop, the Himax HC2812-1080 is nearly a drop-in replacement for both the original S-400 and the brushless Himax 2815. The slower turning outrunner and larger prop are quieter than either of the other options but with a little less yaw stability and limited top speed. It also requires that you modify the mount slightly, as there are reinforcing fins in the mount that help to stabilize the inrunner's can. The outrunner needs clearance on these fins, and this is easily achieved with a Dremel tool and a sanding drum or another abrasive insert. I used one of Robart's Rough'n'Tough carbide cutters.

Which of the brushless motors is better? It really depends on your preferences, as both fly the model very well. Hitec/Multiplex USA offers the Himax inrunner as a complete upgrade package. They do not endorse an outrunner configuration, as they have not yet tested one.

Or, try the Magister ...

The Magister is a popular midsize trainer that shares its durable Elapor construction and convenience with the smaller MiniMag. If you are looking for a larger, more stable trainer or sport flyer with the same "bounceability," consider the Magister. Available as an airframe kit, the Magister can be powered with a .25 to .40 glow engine or an electric power system. It is also available as a full RTF electric package with installed radio and power systems. All you have to do is mount the tail surfaces and landing gear



and install 6 AA batteries in the transmitter.

We flew the electric RTF version, and we felt that its smooth, stable flight characteristics were well complemented by its power for its mission as a introductory trainer. As is usually the case, pilots who are looking for a lively sport flyer could easily upgrade to a brushless/Li-Poly power system for less weight and more performance.

SPECS

- PLANE:** Magister
- MANUFACTURER:** Multiplex
- DISTRIBUTOR:** Hitec/Multiplex USA
- TYPE:** 4-channel trainer
- FOR:** Beginners
- WINGSPAN:** 64.25 in.
- WING AREA:** 698 sq. in.
- WEIGHT:** 5 lb. 4 oz.
- WING LOADING:** 17.33 oz./sq. ft.
- LENGTH:** 41.25 in.
- RADIO:** 4-channel required; flown with a Hitec Zebra 4 FM transmitter, Hitec Zebra 106SF 6-channel receiver, 4 Multiplex Mini HD standard servos
- POWER SYSTEM:** Permax 680G brushed motor with 3:1 gearbox (included), APC 12x8e prop, Multiplex 32A speed control, Multiplex 8-cell 1900mAh NiMH
- FULL-THROTTLE POWER:** 33.4 amps, 278.2 watts, 3.31 watts/oz., 53 watts/lb.
- DURATION:** 10+ min, depending on conditions
- MINIMUM FLYING AREA:** Large field
- PRICE:** \$103.99, ARF; \$299.99, RTF
- COMPONENTS NEEDED TO COMPLETE:** 6 AA batteries for the Magister RTF. The ARF version requires a 4 channel radio and a 275 +-watt electric motor, or a .25 to .40 glow-power system of your choice.

power for learning how to fly and even general sport flying. Be sure to give it a try in this configuration before you commit to adding ailerons. You might be pleasantly surprised.

The arm and actuation of the optional steerable tailwheel is also used for the water rudder. If you are thinking about trying the floats at some point, I recommend that you install this assembly during the initial assembly. Fitting it after you've installed the stab and fin on the fuselage is a challenge.

With the fixed water rudder, the handling on water was a bit squirrely. Full-scale technique dictates that you retract the water rudder before you start your takeoff run—and for good reason. Aggressive inputs at speed can cause the water rudder to grab and slew your model sideways. Despite the manual's admonitions, I removed the water rudder after my first few flights off water. No question, this compromised slow-speed handling, and the reduction in the aft area makes the model a bit more twitchy in the air; but at transitional speeds on the water during takeoffs and landings, the handling is much improved. I think the best solution would be to alter the water rudder's shape so that it's clear of the water once up on step. Raising the lower edge an

inch should be enough, and adding that removed area to the back of the rudder will help to maintain yaw stability. Removing the water rudder is easy, so it's easy to try a couple of different shapes. Another option for the calmer conditions this model prefers would be to add a sub-fin that's equal in area to the water rudder and then to depend on the air rudder for steering. You might be pleasantly surprised.

CONCLUSION

Whether you're looking for the simplicity of an economical, durable, 3-channel trainer or an everyday full-house sport flyer on wheels or floats, the compact, easy to transport MiniMag deserves your close attention. Its resilient airframe and smooth, predictable performance will quickly make the MiniMag your "go-to" model for your first steps into RC or for a daily flying session to relax at lunch or on the way home from work. With options for brushed or brushless power, 3 or 4

channels, hand launch, wheels, or floats, you can customize your MiniMag to suit your preferences and upgrade it as your skills progress. This is one model that will keep your interest for quite a while. ☺

Links

Himax Motors, distributed by Maxx Products Intl., www.maxxprod.com (847) 438-2233

Hitec RCD USA, www.hitecrcd.com (858) 748-6948

Multiplex, www.multiplexusa.com (858) 748-6948

For more information, please see our source guide on page 209.

