

Flyzone's



AIRCore Modular Power System



A 1980s technology gets perfected for modern day micro models!

By Larry Kruse

PHOTOGRAPHY: LARRY KRUSE

I've had fun over the past year reviewing several of the new offerings from Flyzone for this magazine. Without exception, the *Calypso*, the *Tidewater*, the Nieuport 17, the *Tiger Moth*, and the *Mini Switch* all proved to be soundly engineered, well-designed, and very capable additions to any modeler's stable of electric powered planes.

This month's opportunity, Flyzone's "AirCore Power Core", embodies an updated concept that initially appeared in the company's Uberlite offerings a year or so ago. As such, the "Power Core" series of models was of particular interest to me as review subjects, since the Uberlite series was not quite

as integrated and used actuators instead of servos for surface controls.

The power module

It should be noted that the idea of a power module that can easily be moved from one airplane to another is not a new one. It can be found in modeling publications and designs that go back to the early years of powered freeflight models, and was promoted in the 1950s with several published controlline designs. Most recently, in addition to the Uberlites mentioned above, the idea was developed commercially into a series of .40 size glow-powered radio control planes marketed under a very similar name in the '80s and '90s.

What's different about the new Flyzone product is the miniaturization of an electric power source which includes the motor, battery, ESC, receiver, servos and pushrod connections—all in one compact unit and easily moved from one plane to another. Using a plastic/carbon fiber elongated chassis to mount everything, the "AirCore Power Core" module (front to back) consists of a 2181 K_v brushless motor, a 4-channel micro Tactic SLT receiver, a 6-amp ESC, three digital ultra-micro servos with four magnetic ended pushrods, and a 7.4 V 250 mAh Li-Po battery hook-and-loop mounted to the top of the receiver. This entire unit has a combination of tabs and magnets that can be slid

AT A GLANCE

AirCore Power System

Motor: 2181 K_V brushless motor
Receiver: 4-channel micro Tactic SLT
ESC 6-amp
Servos 3 digital ultra-micro
 4 pushrods with magnet ends

Battery: 2S 250 mAh Li-Po

Principle

Type: RTF micro electric R/C
Construction: foam and plastic
Wing span: 22 inches
Airfoil: flat bottom
Length: 17.8 inches
Weight: 3.4 ounce
Power: AirCore Power Core Module
Radio: 4-channel Tactic TTX403

Mustang

RTF micro electric R/C
 foam and plastic
 22 inches
 semi-symmetrical
 19 inches
 4.1 ounces
 AirCore Power Core Module
 4-channel Tactic TTX403

Manufacturer: Flyzone, distributed by Hobbico, P.O. Box 9021, Champaign, IL 61826, 217-398-3630, www.flyzoneplanes.com



The AirCore models are nicely packaged (above left) and are available in a large selection, including a trainer and several WWII fighters. The *Principle* trainer and "Candy II" *Mustang* were selected for this review. The AirCore Power Core module and batteries are purchased separately and fit all of the planes in

into a cradle retainer pre-mounted in each model where it snaps in place, yet can be easily removed.

The array of models developed for this power module is impressive. The advertising brochure lists and illustrates a total of six different models: the *Principle* trainer; a Focke-Wulf 190; a P-51 *Mustang* in two different versions; a Supermarine *Spitfire*; a Mitsubishi *Zero* in two different versions; and a Messerschmitt Me-109. Each of these models is a complete airframe, lacking only

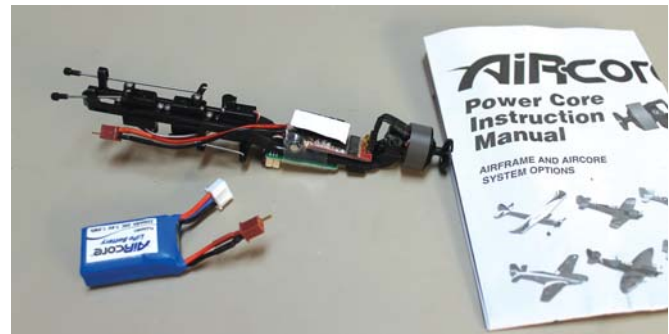
the Power Core, a transmitter, and a 2S 7.4 250 mAh 20C battery to get it in the air. Conveniently, Flyzone offers just such a battery (FLZA6401) with a single prong connecting plug intended for the power module.

Like its other recent offerings, this "AirCore" system binds directly to any one of several Tactic radio transmitters (TTX403, TTX404, TTX600, or TTX650) or to almost any other SLT 2.4 GHz transmitter using the "AnyLink 2.4GHz Radio Adapter". You

can check any radio in question by typing www.tx-ready.com/anylink-chart.html into Google to check on its compatibility.

The models

For the purposes of this review, I received the *Principle* and the "Cathy II" *Mustang*, in addition to the power core module and the Tactic TTX403 4-Channel SLT 2.4GHz Mini Transmitter. Both planes are of foam construction and require no tools for assembly, although the *Mustang* does require needle-



the series. The power module (above right) includes a 2181 K_V motor, a Tactic SLT receiver, a 6-amp ESC, three micro servos, and four pushrods with magnetic ends. The AirCore 250 mAh battery has a special one prong connector to the ESC.



The Tactic SLT receiver built into the power module binds with all Tactic transmitters, including the TTX403 transmitter (above left). Additionally, the receiver can be bound to an AnyLink module fitted to many other transmitter brands. See text for details. The brushless motor is hardwired to a three plug

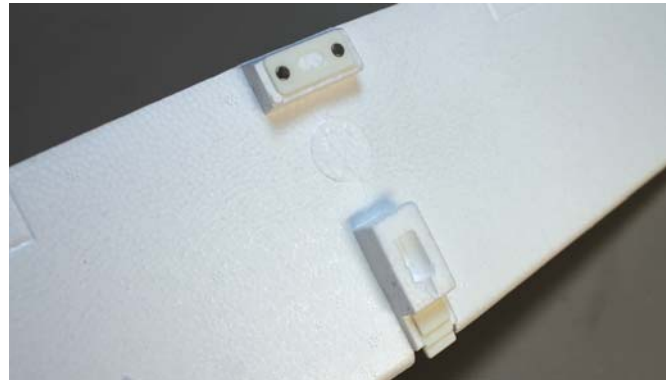


connector on the power module chassis. The prop (above right) connects to the motor by way of a snap-on fitting that allows easy prop changes for each airplane using the module. The fitting also protects the prop, allowing it to pop off rather than break in the event of contact with the ground.

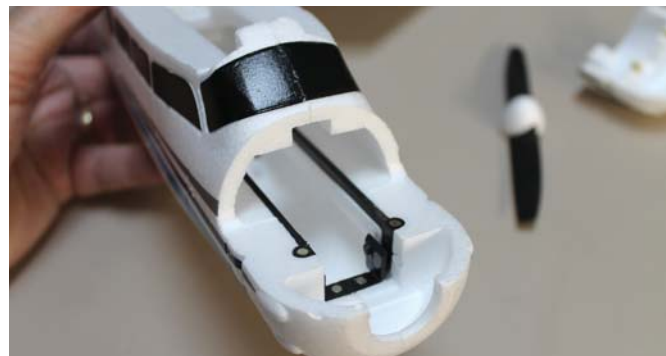
AirCore Modular Power System



The *Principle* is a three-channel high wing trainer configuration with very few parts (**above left**). All the control surfaces are pre-hinged, with all horns, clevises, and pushrods already installed and flight-ready. The wing and power module are held to the fuselage with magnets. The front of the *Principle's* wing is held to the fuselage with a hard plastic tab (**above right**) and the rear is held in place with two small magnets. All AirCore planes feature separately installed pinned nylon hinges (**below left**) mounted flush with the surfaces, an unusual



feature in planes of this type. Throw adjustments are handled using U-shaped bends in the pushrods. The tail wheel does not roll, but rather functions as a skid. As do all of the planes in the series, the *Principle* has a pre-mounted cradle (**below right**) installed the full length of the fuselage to accept the power module. Magnets at the rear of the cradle and tabs and magnets at the front of the cradle keep the module in place, while at the same time allowing it to be easily removed.



nose pliers to seat the two magnet-tipped pushrods into guide brackets. The wings and the battery hatches are held in place using a combination of magnets and tabs.

All control surfaces are already connected and required no adjustments to make the planes flight-ready. Finally, plastic slide cradles run the length of the fuselage in both planes to accept the power core module. After the module is slid into position, there's little to do other than snap a propeller in place, check the balance point, and check the control surfaces for correct movement.

The first time I slid the power module into position in each of the planes, I found it a little "fussy" to get all mounting magnets, tabs, module pushrod magnets, and fuselage pushrod magnets aligned at the same time. However, by repetition of the process and poking around a little with needle-nose pliers and a small screw driver to help get everything in place, it was no longer a problem.

The *Principle* is definitively a three-channel trainer with elevator, rudder and motor control. As the photos show, it is a "sorta-kind-a-maybe" Cessna 195 look-alike with its high wing configuration and its rounded cowl, including rocker arm "cowl bumps". The "Cathy II" *Mustang*, is a decidedly scale four-channel version of the classic WWII ship, complete with full ailerons, a clear canopy, excellent detailing and already applied decals.

Both planes could be configured with and without landing gear. I chose the former because I really like the way a plane looks

when taking off from the ground. To me, simply tossing a model into the air subtracts significantly from its scale presence, not to mention dinging up the bottom of the fuselage when landing. However, those who like the looks of a *Mustang* with its gear retracted will opt not to install the slide-in wheel assemblies, and those who fly over grass surfaces may find it easier to land the *Principle* in the grass without its wire gear.

One surprising feature of both planes was the hinging of the control surfaces. Usually,

with models at this price point, you would expect to see molded hinges set in place during the molding process. As the photos show, these planes have nylon pin hinges installed individually and flush mounted to their respective control surfaces. That is a real plus in terms of initial quality and longevity of the planes. Flyzone engineers did that very well.

The flight tests

Because these planes are small (22-inch



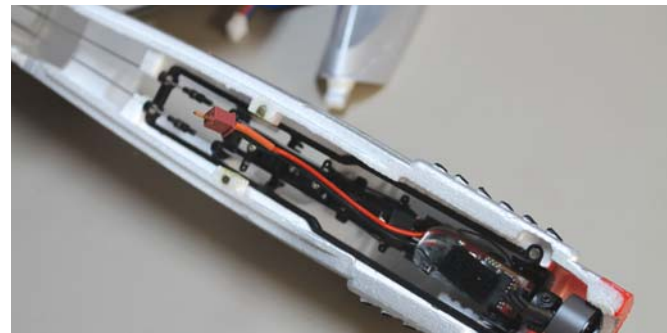
The *Principle* begins its first landing approach with a very stable, nose-down attitude. The high-wing design and flat-bottomed airfoil provide typical trainer-like flight characteristics, even in a model this small.



The AirCore *Mustang* is offered in two versions, the "Miss Cathy II" (above left), and the "Miss America" in a patriotic color scheme. Like all planes in the series, the *Mustang* has very few parts for easy assembly, including plug-in landing gear that can be omitted for hand launching and the appearance of being retracted. The aileron pushrods (above right) have magnetic ends that attach to corresponding magnets in the power module. Nylon control horns provide smooth, non-binding aileron action. The *Mustang* has a surprising amount of scale detail by way of panel lines (shown here) and pre-applied decals. The rudder and elevator pushrods exit the fuselage (below left) through molded slots, and then can be



adjusted by either opening or closing the U-shaped bends in the wire with small pliers. The inset and flush-mounted nylon-pinned elevator hinges are shown in this photo. The hinges are used throughout the plane, as is the case with all other models in the series. Unlike the *Principle* where the power module is inserted into the fuselage from the front, the *Mustang* allows the module to be laid into its cradle (below right) from the top and then slid and clicked into position. The open top bay also allows access to all four pushrods and their magnetic connections to make sure they are connected appropriately. The author found that some nudging and adjustment with needle-nose pliers was necessary, in most cases.



wingspan; 3.4 to 4.1 ounces), flight tests were delayed until winds here in Oklahoma decreased enough to allow them to represent themselves well. After waiting about a week to get a good weather window, both planes were taken to the field at the same time and flown in an acceptable breeze of 5–7 mph.

Since the *Principle* is intended as a three-channel trainer, that seemed to be the place to start. Paul Phillips, my photo-shoot pilot, observed that the little plane had very little control surface range, and we both wondered

if it would be enough. It turned out to be plenty as the little plane took to the air willingly on its second launch attempt. On its first launch attempt we discovered two things—it required up elevator in the taxi/take-off mode, and the propeller came right off with no damage when the nose dug in!

At full throttle, the plane is surprisingly quick, even with its thick, blunt edge airfoil. Between half and three-quarters throttle is plenty to get it to perform as a trainer for the uninitiated. Since maneuvers are limited

when just rudder and elevator are available, the *Principle's* flights consisted of take-offs, cruising in a figure eight pattern, loops and landings. In all, it performed well and landed realistically with some power on into the wind.

The *Mustang*, on the other hand, was a noticeable step up in flight performance. Although it, too, required up elevator to get it airborne initially, its performance with full ailerons was quite typical of a much larger plane. It is fully capable of any scale maneuver you care to throw at it, while at the same time it is a stable flyer at half throttle. About three-quarters throttle seemed to be about right for most of its flight envelope, and when it came time to land, reducing power gradually allowed it to land in a most realistic fashion.

Since all of the test flights were outdoors, I would be reluctant to make a judgment about flying the planes indoors, although in the hands of an experienced pilot and a large enough venue, that should not be a problem.

In all, Flyzone's "AirCore Power Core" system offers an interesting technical advance in park flyer models, allowing the flyer a large selection of models and a very reasonably priced method of adding to his or her stable. Once again, Flyzone has done a remarkable job of providing well-engineered, reliable, and readily adaptable flight performance right out of the box, and, for an added level of excitement, made most of the planes WWII fighters. All the more reason to watch your six—even at the park!



In the air, the *Mustang* has a much larger and much more scale presence than its 22-inch wingspan might suggest. The attention to and inclusion of details helps the effect. The plane is capable of any standard sport maneuver that an experienced pilot could ask of it, while at the same time it is stable enough to be a second or third airplane for anyone who has successfully flown a trainer.