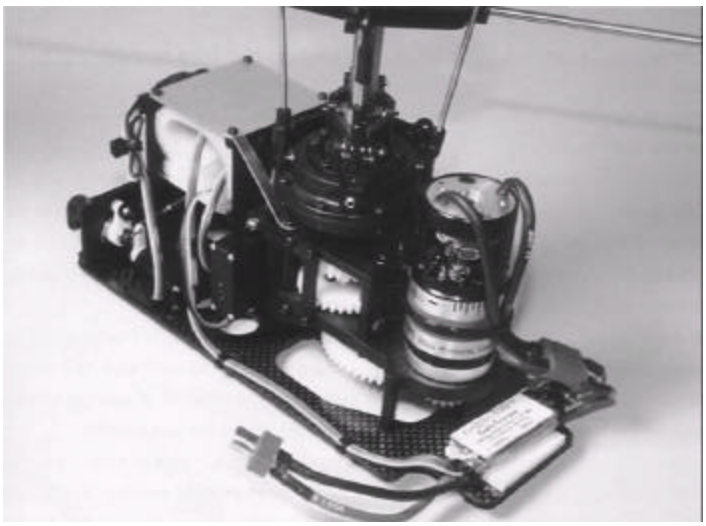
AirScoot

4-channel ARF

I remember when I first saw a Hirobo tandem rotor model, I was mesmerized. If there was anything in the world I had to do, it was to get my hands on one, and of course, I did. It was that same fascination of the tandem rotor that also lured me to the AirScoot counter-rotating helicopter. Though it wasn't a nitro-powered helicopter, like I would prefer, the appeal was there strictly from the standpoint that it was a counter-rotation helicopter.

There is no tail rotor system on these types of helicopters. Since one rotor turns clockwise and another turns counter-clockwise, the torque of one main rotor offsets the Torque of The other, so for the most part, other than for steering reasons. The helicopter really requires no tail rotor blades to counter-act torque. On some of the more sophisticated counter-rotating models, they actually change the pitch on upper and lower main rotor systems to essentially create torque, which in turn causes the model to yaw

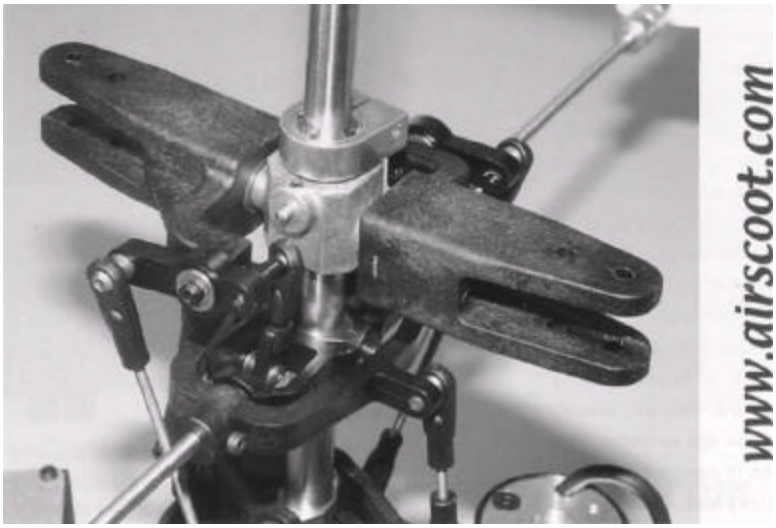


about its axis. On AirScoot, since it's fixed pitch, they use the downwash of the rotors to essentially steer the yaw of the model. The tail surfaces are mounted on two short carbon fiber tail booms, which pivot to change yaw direction with the tail rotor channel on the transmitter. On AirScoot, this provides a simple way to control yaw without the complexity of achieving it mechanically.

For the most, while AirScoot has a dual rotor system, only one of the rotor systems (the lower one) actually steers the helicopter. Through a combination of Bell and Hiller inputs, AirScoot steers much like our conventional RC models. As I mentioned, AirScoot is fixed pitch. Both the upper and lower main rotor heads use zero degree

Above: Shot shows the high quality construction of AirScoot. The entire mechanics are mounted on a Carbon fiber baseplate. Motor gear train, servos, gyro. Speed control, and other items are factory installed.

Right: AirScoot's lower rotor head which is used to steer the model. A combination of both Bell *&* Hiller inputs are used.



Below: Components of our ARF kit even included the radio control system, battery, and 12Volt fast charger.

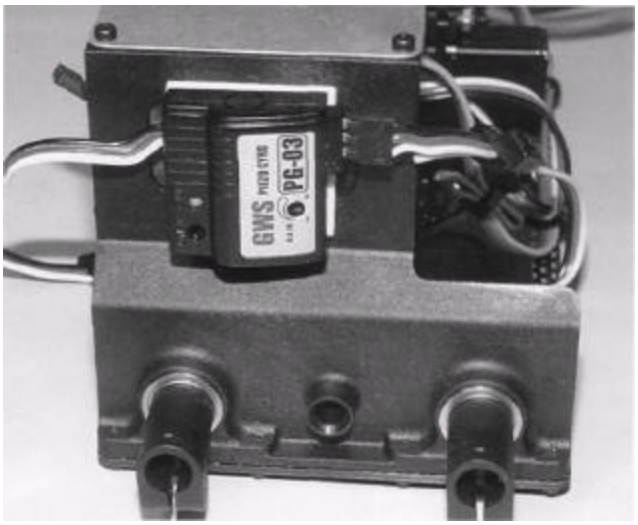
pitch angles on the blade holders. The main rotor blades, which are a fiber reinforced plastic, have approximately 15 degrees pitch on the inboard or root portion, and through the use of a "washout' design, the pitch is reduced to around 10 degrees on the tip. The blade also has taper, which reduces the chord about 50% from root to tip. The flybar on AirScoot is pretty much conventional in design. There are three collar weights on the flybar that may be relocated in or out, to adjust the control to your liking.

Let's Talk a little bit about how AirScoot is packaged. My kit came complete with a Hitec radio, Piezo gyro, motor, battery, and charger. For the most part, AirScoot was practically built. Yes, I did say Piezo gyro. While AirScoot does not have a tail rotor, the gyro actually stabilizes the yaw by moving the tail surfaces, just if it were hooked to a tail

rotor. The mechanics, which are based on a carbon fiber mounting plate, also houses the entire control system, motor, and rotor assembly. Everything is installed and ready to go. All I had to do to complete the assembly was, install the receiver, mount the tail surfaces, skid set, and install the completed blades.

AirScoot comes with a wide training type landing gear. AirScoot can be ordered in a few different configurations, mine came complete with a Hitec Laser *4G* FM radio system with HS-81 micro servos and a micro 555 dual conversion receiver and charger. In addition, the following components were already supplied or installed; a 7 Turn *#20* AWG Colbalt motor with male connector, Piero gyro, 55-amp continuous electric speed control, 10 celt - 2400-ma rapid charge battery (with connectors), and a HiTec CS-340 12volt peak charge r.

As I mentioned, everything is factory-assembled, adjusted, and installed. All you need to do is mount the blades and landing gear, and install the receiver. The kit includes a two-piece Lexan body (that can be painted) and Delran fins with decals. All plastic components are glass-reinforced nylon.



Pie 10 gyro and the two servo controlled boom supports, which rotate the tail surfaces to provide yaw control for AirScoot.

FLYING THE AIRSCOOT

As a precautionary measure, you will always want to use extreme care when it comes to electric helicopters. There are certain procedures that must be followed to prevent the rotors from accidentally engaging. Always make sure the transmitter is **ON** and the throttle and trim are in the full **LOW** position whenever connecting or disconnecting the airborne battery. On your first attempt to hook up the radio system, make absolutely sure you remove the main rotor blades to verify that the reversing switch is set in the correct position to prevent un-expected engagement of the rotors.

When you're ready to take to the air, there are a few adjustments which might, or might not, be needed. Essentially, the machine must first be adjusted so as the rotors spool up to speed, there is minimal yaw. The yaw is corrected by changing the pitch on the lower rotor. To eliminate counter-clockwise spin, you will lengthen both the linkage rods equally. To eliminate clockwise spin, you will shorten the rods equally. The instruction manual mentioned that the best way to achieve this adjustment was to remove the tail surfaces. I elected not to, as a matter of fact. mine took just a bit of yaw trim to hold it from spinning.

With regard to the way AirScoot flies, it's difficult to compare it to a conventional helicopter since it's a totally different type of machine. While AirScoot feels very stable, it has the unmistakable feel of a fixed pitch helicopter. In other words, when a gust hits the machine, causing it to climb, you have to quickly lower the throttle, which lowers the blade speed to compensate for it. For this reason, I would recommend avoiding windy conditions on your first flights.

In addition, there is a different feel on the tail rotor control. The yaw is not crisp as compared to a conventional tail rotor system. There is a slight delay, since it uses the downwash of the main rotors to essentially steer the model for yaw control.

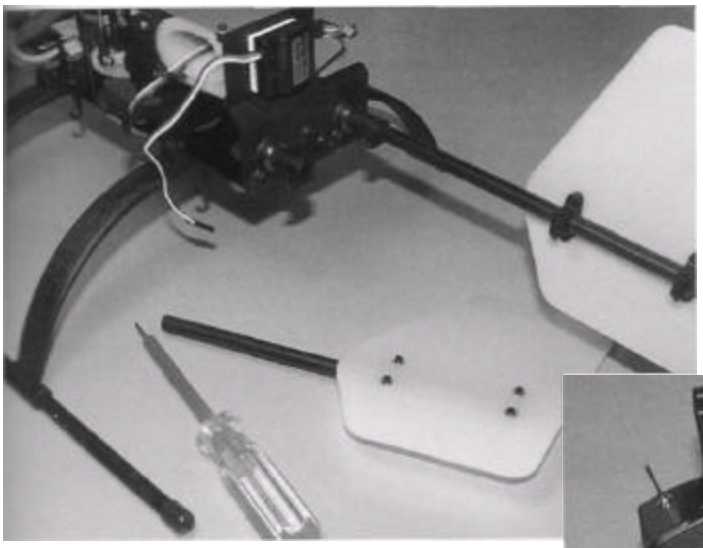
When compared to a conventional model, AirScoot handles like a trainer. I found that the machine has considerable pendulum stability due to its very high mast and top rotor. I felt something else that is different, which is hard to put my finger on; perhaps, it's the fact that only the lower rotor is controlling the model.

While I would not recommend AirScoot as your- "primary" helicopter to learn rotary flight and aerobatics, it could substitute as an indoor trainer, to be used in conjunction with a simulator for developing your rotary skills.

Like most current electric helicopters. I feel the potential user of AirScoot would be someone who wants to test the waters with a coaxial machine. Even though electrics have made giant leaps in performance in the past 5 years, most of us get an electric helicopter not as a primary machine, but as a novelty, so we can expand our knowledge in a not so conventional R/C helicopter.

AirScoot is on the pricey side. If you order the complete ARF kit (part #0999), as was our model, the price is $995. While this is expensive for a trainer model, one has to keep in mind that the kit comes completely built with quality components. In addition to the heli, also included are, the radio control system with servos, speed control, Piezo gyro, battery, and fast charger. So as you can see, when you start adding all those components, the price accelerates as well.

For More Information:
www.airscoot.com



AirScoot Coaxial

Above: Installation of the vertical surfaces.

Right: Supplied Hitec radio system, CS-340 12 volt fast charger, and 10 cell ni-cad battery pack.

MODEL SPECS

Main Rotor Diameter *2* bladed dual (coax) 28 in. [711 mm)
Main Rotor Control Type: 'Beller', Cyclic Only, lower rotor
Main Rotor Blade Adjustment: Adjustable pitch links to balance torque
Main Rotor Blade Type: Flexible, twisted, tapered, two high-lift airfoils
Main Rotor Blade Suspension: Teetering, fully dampened
Main Rotor Maximum Speed: 1540 rpm
Yaw Control: Dual coupled vertical fins
Yaw Gyro: Piezo gyro
Servos: 3 AS-12M6 [metal geared)
Speed control: 55 Amps continuous, no break
Transmission: *2* Stage, Spur gears, Delrin pinion, bulls, all ball bearing
Motor/Main Rotor Speed Ratio: 10.24: 1
Clutch Type: 1-way needle, second stage
Total Model Bearings; 30 ball bearings plus needle clutch
Motor Type; Cobalt / Motor Size: 05 Motor Power: 340 watts
Motor Bearing Type: Dual Ball Bearings
Motor Brushes: Silver Graphite, Replaceable
Battery / Cells: 10
Stabilizer Bar Diameter: 18.00 in. (457 mm)
Width Of Landing Sear: 12,42 in. (315 mm)
Weight, with Sub-C Cells; 64 oz. approx.
duration: [hover) 5 minutes

RM

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