



# AIR SHOW

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## The Ultimate 1/3 scale Super Cub

GRAEME MEARS ■ TORONTO, ONT., CANADA

by Tom Atwood

**G**raeme Mears' 1/3 scale Piper Super Cub is a scale replica of the PA-18 that was manufactured in the last run of Piper Super Cubs at their Vero Beach factory between '85 and '95. There were about 25 of them made. This version of the Cub was distinguished from earlier Super Cubs by the addition of metal-covered ailerons and flaps, and larger, 21-inch diameter wheels.

Graeme's Super Cub has won numerous awards, more than we can list here, based upon its completely scale construction and solid scale performance. It took top static in Team Scale and Overall at Top Gun 2005, and also won the Charlie Chambers Best Craftsmanship memorial award. At Top Gun 2004, it took 1st in Team Scale for both pilot and builder, and earned the highest Team Static and Most Realistic Flight. This airplane was awarded Best of Show and Best Finish - Paint at the 2003 WRAM show in Westchester, NY, and at Top Gun



### SPECS

**PLANE:** Piper PA-18 Super Cub  
**WINGSPAN:** 141 in.  
**WING AREA:** 3,000 sq. in.  
**WEIGHT:** 48 pounds, dry  
**WING LOADING:** 37 oz./sq. ft.  
**LENGTH:** 96 in.  
**RADIO:** Futaba 9ZAP transmitter, Futaba 9-channel PCM receiver, 13 Futaba servos,

**ENGINE:** Moki 3.6 ci inline twin

**PROPELLER/SPINNER:** Modified Zinger 26x8, 4-in. custom spinner

**TOP RPM:** 6,100

**FUEL:** Cool Power

PHOTOS BY TOM ATWOOD, MIKE MAYES, PALMER JOHNSON AND GRAEME MEARS



2003 it garnered Critics' Choice, Best Flight and 1st in Team, among other accolades. Here are just a few of the highlights of this 33% Super Cub, as you could write a book on this aircraft!

### SCALE CONSTRUCTION

The frame is all stainless-steel tubing that matches the diameter and wall thickness of the original's steel frame, scaled down. Everywhere that there is metal on the original there is metal on this airplane, with minute exceptions only.

All the controls work—the stick, pedals and throttles, even the cabin vent, which is operable from the knob on the

instrument panel, just like in the original. Graeme notes: "If you could get in there, you could pretty well fly it."

Graeme meticulously covered the Super Cub with all-Stits fabric provided by F&M products. The covering materials include Stits polyester fabric and scale pinking tape. The fabric was "poly-brushed" and "poy-sprayed," then sprayed with a white base coat. The finish is a single coat of Aerothane, which is an aircraft paint similar to those used in full scale. No clear coat was used.

The stitching on the wing ribs was all done prototypically. "After the covering was put on, a reinforcing tape was





applied over the ribs, and the stitching was sewn completely around the ribs, and then the surface tape (the pinking tape), was applied over the stitching." Graeme notes that, except for the bowl at the front of the nose, the entire cowl is aluminum, and the panels can come off in the same manner as on the full-scale plane.

The horizontal stab angle of incidence is adjustable from the cockpit. The adjustable stab mechanics are scale. Graeme used

the full-size drawings to make a perfect scale replica of the original jackscrew mechanism. The mechanism rotates slightly through an arc as it adjusts the leading edge of the stabilizer to prevent jackscrew pinch.



To hide the 16-ounce fuel tanks, they were built into the wings, just as in the original. It's a closed-loop system with a header tank inside the instrument panel area, and it is pressurized by crankcase pressure. Fuel is controlled by a Klein fuel regulator. Of course, the operating disc brakes are pneumatic and have scale rotors and calipers.

The full-size airplane includes a chart reading light from Aircraft Spruce and Specialty, and he made an exact replica.





**ONBOARD POWER**  
The Super Cub is powered by a Moki 3.6 twin glow engine with onboard starter. The propeller is a Zinger 26x8 that has been partially reshaped. It turns around 6,000 rpm at static full power.

The Super Cub has four battery systems. "We use a small receiver battery and a separate 6-volt battery for the servos with an I-4-C isolator. This spreads the load, and you always have power to your receiver even if your servos are drawing a lot of current or are stalled. Also, a single D-cell is used for the onboard glow driver, and a 12-volt system for the lights and onboard remote starter."

**HOW DOES IT FLY?**

Dave Patrick, Graeme's pilot in scale competition, notes: "It's a Cub, so you have the lightly loaded, high-wing planform. There is a lot of coupling. It is a classic tail dragger, so it can be challenging if there is a cross wind. If it is turbulent, it's tougher to handle, and even tougher if you are flying off of pavement (the case at this year's Top Gun).

"I fly this aircraft with a notched throttle at 1/3 and 2/3. At 1/3 stick I have just the right power for a nice long approach. The second notch at 2/3 is perfect for cruising. We adjust rpm with a throttle curve. You put the flaps down, and the nose pitches up, of course. To prevent that, I just hold the elevator down. So in a slow fly-by, I have about 1/4 to 1/3 stick down elevator. The Futaba 9Z transmitter is programmed to slow the servo flaps down.

**YOU CAN BUILD YOUR OWN**

Want one of these beauties in your hangar? He sold his at the end



of Top Gun, so you just may have to build your own. Graeme sells plans that detail every step in the model's construction and supports his customers with his library of more than 1300 Piper factory plans. He offers laser-cut wing kits, fiberglass and carbon fiber parts (cowl bowl, spinner, wing LE), vacu-formed parts (corrugated

surfaces, blisters, nav lights), and an assortment of laser-cut metal components and cast scale parts (cockpit switches, circuit breakers, instruments, etc.). Contact Graeme at [wacokiwi@aol.com](mailto:wacokiwi@aol.com) for more information, and send *Fly RC* pictures of your progress! ☺

**Links**

**F&M Enterprises**, [www.stits.com/index.html](http://www.stits.com/index.html), (817) 279-8045

**Futaba**, distributed exclusively by Great Planes Model Distributors, [www.futaba-rc.com](http://www.futaba-rc.com), (800) 682-8948

**i4c Products**, [www.i4cproducts.com](http://www.i4cproducts.com), (918) 492-9435

**Moki Engines**, distributed by Horizon Hobby Distributors, [www.horizonhobby.com](http://www.horizonhobby.com), (877) 504-0233

**Vel-Tye LLC**, [www.veltye.com](http://www.veltye.com), (757) 318-7240

For more information, please see our source guide on pg. \_\_\_\_.