

YAK-54 Research / Training UAV



You asked for it, now it's here....

Introducing the first ever, UAV specifically designed for training and the UAV researcher. Viking Aerospace is now delivering our autonomous YAK-54 UAV to unmanned aircraft and robotics laboratories with the following features:

- **Low Cost** — Not just acquisition cost... individual airframe components are available such as wings, fuselage, and horizontal tails separately and at low cost to our customers! Yes, the FCS is the majority of the acquisition cost. This is why we place the high quality IMU, GPS, and flight computer in a rugged custom machined aluminum housing. For research, the R/C pilot can enable/disable the autopilot with a switch on the R/C transmitter.
- **Want to implement your own “high level autonomous control algorithms”?** — We provide a serial port on the flight computer for your high level commands (airspeed, vertical velocity, and turn rate (actually course rate). This architecture is perfect for testing obstacle avoidance, terrain following, automatic landing, et cetera technologies without the need for the researcher to re-develop the inner-loop controllers! This system comes standard with its own aerospace-grade waypoint tracking and easy-to-use command, control, and data collecting ground-station software.
- **Robust Control based on H-infinity methods** — What does this mean? Stability is maintained through a much broader range of parameter uncertainties. This means we won't be doing “gain tuning exercises” every time a new payload is introduced! This robustness also allows us to have an expanded flight envelope even under very high wind conditions.
- **Hardware-In-the-Loop-Simulation** — We provide an environment that allows the user to simulate UAV operations without ever leaving the lab. This can greatly enhance the productivity of actual flight testing.

Viking Aerospace, LLC.

P.O. Box 459
Independence, OR 97351

For more information and pricing, contact:

Viking Aerospace, LLC
Phone: 503-410-6390
E-mail: contact@vikingaero.com

www.vikingaero.com

Available in two scales:

	Small	Large
Wingspan:	94 in.	122 in.
Engine:	80 cc	170 cc
Empty Weight:	25 lbs	40 lbs

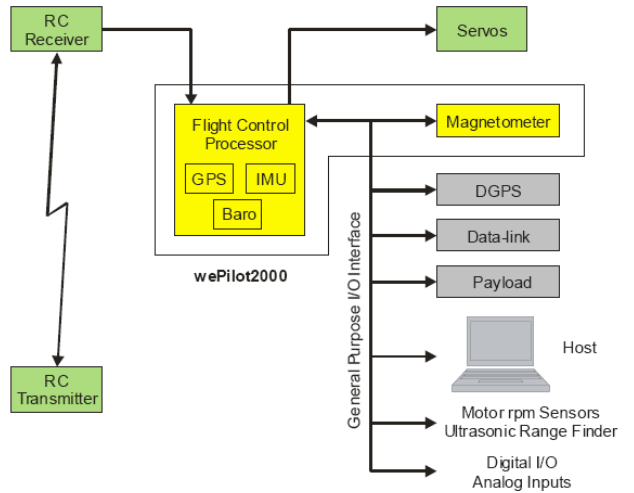
Performance - 94 in. wingspan model

Operational Radius: 7 mi. standard
Endurance: 40 min. cruise standard
Operating Speed: 50 mph - 80 mph
Dash Speed: 80 mph

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For more information on the wePilot2000 for fixed wing UAVs, visit www.vikingaero.com



Included with the purchase of a YAK-54 UAV:

- Completely assembled and flight tested aircraft with high torque metal geared digital actuators and 80 or 170 cc gasoline aircraft engine (depending on model).
- Completely integrated, calibrated, and flight tested wePilot2000 automatic flight control system
 - 900 MHz or 2.4 GHz transceiver set
 - Honeywell magnetometer
 - Pitot tube & dynamic pressure sensing hardware
 - 6 DOF IMU, GPS, and extended Kalman filter algorithms
 - H-infinity Robust control algorithms specifically designed and synthesized around the YAK-54 flight dynamics
 - Ground based command, control and monitoring software (runs on Windows PCs)

Sample flight data and video are available upon request.

Required (for autonomous flight) separately:

- Laptop computer (MS Windows XP with at least one USB or Serial port)

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