OHIO MODEL PRODUCTS

ProYak V3 PROFILE

Specifications:

Wingspan: 47"
Wing Area: 705 sq in
Length: 50.7"
Approx. Weight: 4.25 lbs.
Engine: .46 to .55 two-strk,
.52 to .82 four-strk

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Version 3.0, Jan 2007

Thank you for purchasing the OMP ProYak V3. In our continuing effort to bring the best in performance to our customers, we have improved on the previous OMP Yak 54 in construction, features, and performance. The New Version 3 Profile Yak incorporates the latest in OMP innovative design and construction. Included is a fiberglass tube reinforced fuselage for maximum durability, a two-piece wing for optional and easy assembly and disassembly at the field, and the latest in precision laser cut parts. The ProYak V3D is designed to be the perfect intermediate to advanced 3D profile in the 40-50 size class. Featuring a thinner wing, longer tail, and larger tail control surfaces, the new ProYak will open a whole new level of 3D performance including elevators, harriers, waterfalls, knife edge spins, positive and inverted flat spins, rolling harriers, and of course rock solid hovers and torque rolls.

The ProYak V3D can be flown with many of the popular 50 class engines and servos ranging from standard class and up. Now you can perform the hottest 3D aerobatics at a very reasonable cost using standard radio equipment and readily available .46 to .72 size sport motors. I hope you will enjoy the ProYak V3D as much as we have – *Mike Pilkenton and John Drake.*

A QUICK WORD ABOUT SAFETY AND RADIO CONTROL FLYING MODELS

With radio control aircraft, like any hobby or sport, there are certain risks. The operator of these models are responsible for these risks. If misused or abused, you may cause serious bodily injury and/or damage to property. With this in mind, you will want to be certain that you build your model carefully and correctly. If you are not an experienced flier, have your work checked and ask for help in learning to fly safely. This model aircraft is not a toy and must be operated and flown in a safe manner at all times. Always perform a pre-flight check of the model including all control surfaces, proper function of the radio gear, structure, radio range, and any other area relating to the safe operation of this aircraft.

Models are not insurable but operators are. You can obtain coverage through membership in the Academy of Model Aeronautics (AMA). For an AMA information package call 1-800-435-9262, ext. 292 or visit the AMA website at "www.modelaircraft.org".

OHIO MODEL PLANES GUARANTEE AND CUSTOMER SERVICE

Ohio Model Planes guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This does not cover any parts damaged by use, misuse or modification. In no case shall OMP's liability exceed the original cost of this kit. Because OMP has no control over the final assembly or equipment/components used in the final assembly, no liability shall be assumed for any damage resulting from the use of the this model by the user. By the act of using the final assembled model, the user accepts all resulting liability. If you should find any missing or damaged parts, or have any questions about this product, please contact us at **omp@ohiomodelplanes.com** or call OMP at (937) 372-0603.

ENGINES, PROPELLERS AND MUFFLERS

The recommended engine range for the ProYak Profile is a .46 to .55 2-stroke engine or a .52 to .82 4-stroke engine. There are a tremendous variety of engines available and each type has its own advantages and disadvantages. The 2-stroke engines can be lighter and more powerful for their weight while the 4-stroke engines may be heavier but are quieter and usually have better torque transition. Additionally, the 4-strokers can turn a larger diameter prop that can deliver more airflow over the control surfaces. The choice is purely pilot preference. Selecting the proper size of propeller for your particular engine is a very important part of the whole set up. The ProYak, as all 3d profiles, was designed to use low pitch props. What you need is air flow and vertical performance, not straight-line speed. We recommend using the lowest pitch, highest diameter propeller you can find for your particular engine. The use of high pitch props can cause air "cavitation" around the prop blades during hovering or slow vertical maneuvers. Air cavitation may sound neat but it's not what you want because the prop is no longer biting into "clean air" and you may loose altitude very quickly; so be wise when selecting your prop. Also, please be aware that the power available in today's engines, while tremendously advantageous for 3d flying, can quickly lead to over speeding the plane. Manage your throttle wisely to prevent over speeding and stressing the airframe.

Note: As with all ARFs, it's a good idea to read all the instructions and study the parts before you begin construction. The assembly pictures are from both the 47" Edge V3 and 47" Yak V3 however the assembly is the same. Make sure you have a flat and sturdy workbench and follow all safety advice for the tools and adhesives you plan to use.

COVERING:

1. OMP recommends lightly going over all the covering with a covering iron set at medium temperatures. With all ARFs, varying temperatures and storage delays can cause covering material to loosen over time and transportation.
2. Carefully cut the covering away from the various openings on both sides of the fuselage. Servo openings should be cut from corner to corner and the covering ironed down on the inside. Only cut the throttle servo opening on the right side of the fuselage. Other holes can be cut out using either a sharp hobby knife or the tip of a hot soldering iron. The latter technique acts to seal the covering edges as you cut away.
3. Be sure to seal any exposed wood with a thin coating of epoxy to prevent engine oil from soaking in. This is especially important around the engine compartment and servo openings with exposed areas.

4. Some modelers prefer to seal the hinge gaps using strips of appropriate covering or clear trim tape. We have found this to be helpful with models intended for higher speed flight or models with unusually large hinge gaps. OMP profiles utilize a very tight double beveled hinge line and do not normally require this step. Sealing the hinge gaps is therefore left as an option for the modeler.



ASSEMBLY and RADIO INSTALLATION:

You will require at least a 4-channel radio system with 5 standard size servos. The Edge V3 can use servos ranging from standards up to high speed digitals. The use of higher speed more powerful servos will allow the pilot to fly the Edge much more aggressively for advanced aerobatics and 3D performance. To take full advantage of the flight performance, a radio system with mixing capabilities is best. This will greatly enhance the maneuverability of your model. A good example would be coupling the elevators to the flaps. This can be done in both directions. For example you can mix up flaps with down elevator (and vise versa) for really tight turns or loops. This is commonly referred to as "flaperons" and requires the aileron servos to be plugged into separate channels, usually 1 and 6. You can also mix up flaps with up elevators for quick descent elevators; this is referred to as "spoilerons".

1. The first step is to glue the vertical stabilizer (fin) to the rear of the fuselage. There is a slot in the rear of the fuselage for the fin post. Carefully trim away the covering from the slot and fin post as well as the bottom of the fin and fuselage where the fin will glue on. When satisfied with the fit, glue in place using CA. Make sure the fin is fully seated and straight up and down.



2. Two guide holes are provided in the ply fuselage doublers for mounting the main landing gear. Drill these all the way through to accept a 6-32 bolt. Match drill the gear provided and secure to the fuselage using 6-32 x 1.5" socket head bolts and nylon insert lock nuts. Mount 2" - 2.5" wheels by installing a 6-32 x 1.25" socket head bolt into the wheel, installing a 6-32 nut on the bolt (tighten just enough to allow the wheel to spin freely), inserting into the gear and securing with a 6-32 nylon insert lock nut on the inside. Mount a suitable tail wheel assembly or wire skid to the hardwood mount in the rear of the fuselage. Hint: harden the screw holes with thin CA before final mounting.



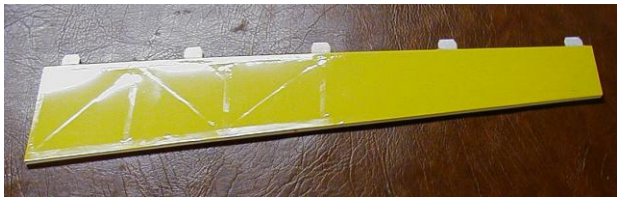
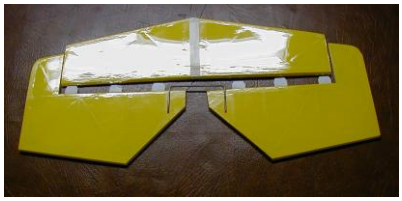


3. Now glue in place the 1/4" hardwood dowel into the fuselage for the wing anti-rotation pin. The hole is located near the trailing edge. Position so that the dowels extends equally on both sides of the fuse and glue in place with thin CA. Glue the fiberglass wing tubes into the right wing (the wing without the hatch) so that the tubes extend through the second rib just slightly. **It is critical that the wing tubes be securely glued to the root and second ribs.**

4. Test fit the wings by sliding the right wing onto the fuse first and then the left wing. Reach through the wing hatch to help guide the wing tubes into their sockets. If the wing tubes are not glued in place, make sure they are glued into the wing panel opposite the hatch. The wings should be secured to the fuselage using the supplied nylon wing bolt inserted through the left wing and the wing nut tightened through the access hatch. It helps to round off the ends of the wing tubes with sandpaper prior to installation.



5. Trial fit the ailerons, elevators, and rudder into each respective location using CA hinges and when satisfied, tack glue each hinge only into the control surface side and set aside for later. Note the following pictures are not necessarily from this version kit.

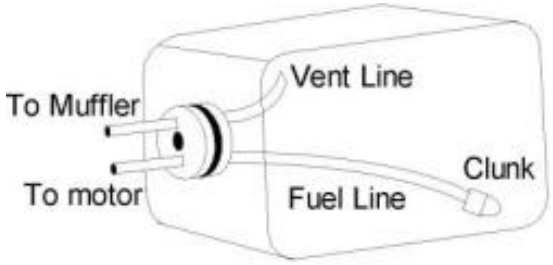

6. Now permanently glue in the ailerons and rudder surfaces making sure the hinge gaps are as tight as possible while still retaining maximum throw. Make sure the elevator counterbalances clear the stabilizer before securing the hinges with glue. DO not glue in the elevator until after the next step.

7. If the stab is covered all the way, be sure to cut away the covering (1/2" wide) in the center for the glue to adhere properly. **Be extremely careful not to cut any of the wood or you will weaken the stabilizer and cause possible failure!** Temporarily install the wings, insert the elevators through the stab slot and position in the rear of the opening and then fit the stabilizer into position (**Don't forget this step!**). Use string to measure from the stab corners to a common point near the front of the fuselage or the wing tips. A carpenter's square can also be used to align the stab TE to the fuselage side. Also make sure the stab is parallel to the wings and centered side to side. Sand or file as necessary. When satisfied with the fit, glue in place by wicking thin CA into the joints making sure the stab is correctly positioned as described above. You can add a small filet of glue at the fuselage/stabilizer joint using thick CA or your favorite adhesive.





8. Assemble the fuel tank and mount it on the left side of the fuselage centered behind the engine mount. Place the tank in position use two zip ties to secure to the fuselage. Be sure to use a piece of foam between the tank and fuselage to reduce foaming.




9. Install all the nylon control horns to the appropriate control surface.

10. The throttle servo opening is sized for a mini servo such as the Hitec HS 85 or equivalent. Some servos may require the builder to enlarge the opening of add standoff blocks under the servo mounts to prevent the servo from extending all the way through the fuselage. After test fitting your servo and deciding what option best suits your needs, install the throttle servo into the opening in the right hand side of the fuselage. Feed the wire through the tunnel provided in the fuselage and into the receiver hatch area. Use an extension if required and pull it through the tunnel using a string or nylon pushrod taped to the servo lead.



11. Install the aileron servos in the wings. Finish the control linkage setup using the supplied pushrods and clevises.



12. Install the tail servos into their respective sockets on the left side of the fuselage. Feed the wires through the tunnel by taping the ends to a piece of long nylon pushrod or similar semi-flexible wire and inserting through a small cutout in the side of the fuselage. OMP recommends putting tape or string around servo wire connections to prevent accidental detachment. Mount the servos to their respective sockets and complete the controls using the supplied pushrods and clevises.




13. Trial fit your engine and mark the location for each mounting hole. The location can be moved forward or aft depending on balance requirements. Drill the holes and mount your engine using bolts and blind nuts or nylon-lock nuts. Use thin CA on the inside of the holes to harden them up. You should use a couple of wedge plates or washers under the front of the engine to induce about 2 degrees of right thrust. Finish the throttle linkage setup using the supplied pushrod and clevis. Make sure you have the proper throws set for idle and full.

14. Now is a good time to check your cg and decide where you want to mount the receiver and battery. The preferred location for the receiver is in the wing panel under the hatch. The preferred battery location is in the left wing. Be sure to secure the battery thoroughly so that it won't move around during flight. The best place for the switch is in the top sheeting of the left wing. If you plan on taking your plane apart regularly, a "Y-harness" can be used from the output of the switch to both the aileron servo and the

aileron servo channel of the receiver. This technique is widely popular for large profiles and maintains only one connection between the wing and fuselage.



15. This aircraft is very aerobatic yet perfectly suited to be an inexpensive 3D trainer. If you are not used to flying an extremely responsive aircraft you should set the initial throws to under 30 degrees of movement for the elevator and rudder and about 20 degrees for the ailerons. This is a good setting for 3D beginners. More experienced pilots will want to set the throws to as much as 45 degrees or more for high rates on the tail surfaces and 35-40 degrees on the ailerons. The use of dual rates and exponential is preferred for most pilots. For flying certain 3D maneuvers, it is important to have the proper amount of throws for each type of maneuver as well as any special mixing as described above. Many experienced pilots will set different mode switches or rate switches accordingly. For example there may be a mode just for doing snaps while another mode may be used for performing rolling maneuvers or harriers. We have found that the following settings provide a good initial setup for most pilots. The low settings can be used for sport or beginner 3D pilots while getting used to the aircraft. High rates are reserved for 3D only. Always check the functions, range, and proper directions of your radio setup prior to flying.

	Low Rate	High Rate
Elevator	20 degrees	45-50 degrees
Rudder	25 degrees	45 degrees
Ailerons	25 degrees	35-40 degrees

BALANCING:

Most state of the art aerobatic aircraft allow for a wide margin for balancing depending on what level of precision or freestyle the pilot prefers. To perform properly without being too squirrelly, you must not go too aft on the CG. **OMP recommends an initial CG setting of 4.75 – 5.5 inches behind the leading edge of the wing at the root.** More experienced pilots may want to set the CG further aft. Varying weights of engines and radio gear will dictate how you should install each. The engine can be moved forward or aft on the engine mount to shift weight. Also the battery and receiver can be located in either of the two hatch locations in the fuselage. The battery could also be mounted in the left wing along with the switch and a "Y-harness" to the left aileron servo. These options should allow you to balance the model without adding any weight.

Note: The best way to check your balance is to trim for level flight at about 1/2 to 3/4 throttle and then roll inverted. The aircraft should maintain level flight with very little to no down elevator. If the aircraft climbs when inverted then you've probably got your CG too far aft. If the nose drops more than slightly, then you are most likely nose heavy.

Always thoroughly pre-flight your aircraft before flight and make sure the airframe is structurally sound, all control linkages are solid, and a complete radio range check is performed. When assembling the wings at the field, make sure your wing bolt is secure and will not vibrate loose during flight. This would be a very bad thing! Again, thank you for purchasing the OMP ProYak V3 Profile. If you have any comments or questions about this manual or the aircraft please email "omp@ohiomodelplanes.com".

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