OHIO MODEL PRODUCTS

# 80” EDGE PROFILE


**Specifications:**

**Wingspan: 80 5.8"**
**Wing Area: 1632 sq in**
**Length: 74"**
**Approx. Weight: 11.25 lbs.**
**Engine: 1.40 to 2.10 glow,**
**30-40 cc gas**

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Thank you for purchasing the Giant 80” OMP Edge 540 Profile. The original Giant Edge 540 was designed one year after the release of the popular 47” Edge profile back in 2002 and was designed to satisfy the giant scaler wanting a top level 3D performance plane at a fraction of the cost of a big gas plane. Using a variety of popular glow engines such as the O.S. 1.60 or YS 1.40, and medium torque metal gear servos, one can achieve that big “in your face” show-time performance without risking your next house payment! The large wing area of the Edge, thick aspect ratio, and tail design allow this aircraft to perform anything you can imagine: elevators, harriers, super fast waterfalls, knife edge spins, positive and inverted flat spins, and of course rock solid hovers and torque rolls. Having a super light wing loading, the giant Edge actually makes an ideal 3D trainer as you can learn 3D aerobatics in slow motion. The airplane literally floats in the air and gives the pilot plenty of time to react and learn those all so critical stick movements.

In our continuing effort to bring the best in performance to our customers, we have improved on this model in construction, features, and performance. The all new 80” Edge Profile incorporates the latest in OMP innovative design and construction. Improved wider engine mount beams (3/4” wide) allow builders to widen the stock motor mount for larger engines without risk of structural problems. A carbon fiber wing tube is now standard in this ARF as well as extra reinforcements in the fuselage. The model is complete with quality Oracover covering for a long lasting finish. We hope you will enjoy the Giant Edge 540 Profile as much as we have – *Mike Pilkenton.*

## 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 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 80" Edge 540 Profile is a 1.40 to 2.10 two or four stroke glow engine, or a 30-40 cc gas engine. There are a variety of engines available and each type has its own advantages and disadvantages. Popular engine choices include the O.S. 1.60, YS 1.40, Saito 1.80, and Moki 1.80 or 2.10. If a gas engine is chosen, one that is designed for beam mounting like the glow engines is recommended. 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 Edge 540, 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.

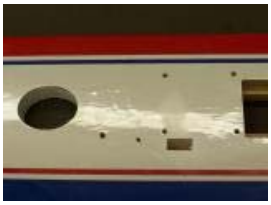
**Note: As with all kits, it's a good idea to read all the instructions and study the parts before you begin construction. Make sure you have a flat and sturdy workbench and follow all safety advice for the tools and adhesives you plan to use.**

## 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. You should choose servos with a torque rating of at least 100 in-oz or better. For top performance OMP recommends servos with a torque of 150 in-oz and metal gears only. 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. Trial fit the vertical stabilizer and when satisfied with the fit, glue in place using thick CA. Make sure the fin is fully seated, centered on the top of the fuselage and straight up and down.




2. Mount the main wheels to the main gear using the two shorter socket head bolts, washers, two hex nuts, and two nylon-insert lock nuts. First insert the bolt into the wheel, install the hex nut on the opposite side (tighten just enough to allow the wheel to spin freely), insert into the main gear and secure with a nylon-insert lock nut on the other side.




3. Two guide holes are provided in the ply fuselage doublers for mounting the main landing gear which match the main landing gear. Mount the main landing gear to the fuselage using the two longer socket head bolts, four washers, and two nylon-insert lock nuts.


4. Assemble the tail wheel per the picture below and mount to the hardwood support plate at the rear of the fuselage. To assure proper operation make sure the pivot point of the tail wheel is aligned over the hinge line of the rudder. Use locktight on the metal grubscrews to prevent them from coming loose and attach to the fuselage with three small wood screws provided. Hint: harden the screw holes with thin CA before final mounting.



5. The Giant Edge does not have hinge slots precut per the request of many customers as many prefer to use their own brands of hinges. If you use the CA hinges provided, cut hinge slots in all the surfaces and fixed parts using an Xacto knife. Use 5 hinges on the rudder, 4 hinges per elevator half, and 8 hinges per aileron. Make sure you cut each slot centered on the hinge lines. Alternatively, if you use hinge points, drill matching holes as required. Trial fit the ailerons, elevators, and rudder into each respective location and when satisfied, tack glue each CA hinge only into the control surface side and set aside for later. If you use nylon hinge points or otherwise, go ahead and permanently glue them into the control surfaces now.


6. Locate the horizontal stabilizer and temporarily install into the fuselage. Center the stab and square it to the fuselage. Mark the covering on both sides and top and bottom. Now remove the stab and carefully cut away the covering inside the markings. **Be extremely careful not to cut any of the wood or you will weaken the stabilizer and cause possible failure!** Temporarily install the wings and then fit the stabilizer into position. Spread epoxy over the center section and slide all the way through the fuselage so that the center section is now exposed on the opposite side. Spread epoxy again on this side top and bottom and slide the stab back into the center of the fuselage. This method assures a complete glue joint. Again, make sure the stab is centered and square to the fuselage using a carpenter's square. Also make

sure the stab is parallel to the wings and secure with tape running over the top of the vertical stabilizer. Clean up excess epoxy using rubbing alcohol and paper towels.








7. Now permanently glue in each control surface making sure the hinge gaps are as tight as possible while still retaining maximum throw. Make sure the elevator and rudder counterbalances have enough clearance before securing the hinges with glue. After gluing the rudder on secure the tail wheel steering arm using a small wood screw. Harden the hole with thin CA prior to final installation of the screw .

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. Most servos have a rubber grommet on the bottom side of the servo case. To install the servos into the tail openings, use a dremel and roto-zip bit to cut slots for each of your servo wire grommets. The rudder and left elevator servos face left in the bottom double servo mount and the right elevator faces right in the upper servo mount. Trial fit your servos and trim away material as required to fit the servos without any wire pinching. When satisfied with the fit, install your servos permanently using the proper length servo wire extensions to reach the center of the wing area. OMP recommends taping your connections together using thin packing tape or heat shrink tubing. Strings are provided in the fuselage to aid in pulling your wires through. A long nylon pushrod or similar semi-flexible wire can also be useful for installing the servo wires.




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. 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. At this time you should also install the aileron servos in the wings using appropriate servo wire extensions.

11. The 80" Edge ARF includes high quality aluminum control horns and threaded couplers for each surface. Position each control horn on the surface so that the pushrod geometry is correct and the coupler pivot point is as close to over the hinge line as possible. The correct position for the aileron control horn is 20" from the root on the hinge line of the wing (not the aileron). Drill a 1/8" hole, harden the hole with thin CA, and then permanently install each control horn. Use a small drop of lock-tight on the metal screw and do not over tighten or you may strip out the aluminum threads. Attach the pushrod clevises to each coupler and bend a "z-bend" at the servo end for proper length. Or you may install a second clevis or ball link on the servo end. A 1 to 1.25 inch servo arm is recommended for maximum control surface throw.



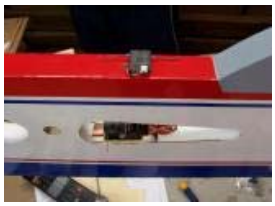


12. Trial fit your engine and mark the location for each mounting hole. The location can be moved forward or aft depending on balance requirements. Drill the holes and mount your engine using bolts and blind nuts or nylon-lock nuts. Use thin CA on the inside of the holes to harden them up. You should 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 front hatch or 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 front hatch or the top sheeting of the left wing if your battery is mounted there. 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. The pictures below show a typical receiver installation for a JR Spektrum brand receiver and remote.







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 7.0 – 7.5 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 80" Edge 540 Profile. If you have any comments or questions about this manual or the aircraft please email "omp@ohiomodelplanes.com".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