



60" Yak-55M Electric Aerobatic Aircraft



Specifications:

Wing Span: 60 inches
Length: 60 inches
Power: Hacker A50-14S
(or equivalent)
Battery: 3800 6-cell LiPo
ESC: 80 amp
Flying Weight: 5.25 - 5.75 lbs

OHIO MODEL PRODUCTS
199 Stratford Lane
Xenia, Ohio 45385
(937) 372-0603
www.ohiomodelplanes.com
email: omp@ohiomodelplanes.com

All contents copyright 2015, Ohio Model Products
Version 2.0, January 2015

Dear OMP Customer,

Thank you for purchasing the new OMP/EG electric aerobatic aircraft. This manual covers the Yak-55M electric aircraft. Ohio Model Products is known worldwide for the best profile aircraft designs around and many innovative construction techniques. We've taken this expertise and teamed up with EG Aircraft to bring this new model to the radio control enthusiasts. The new 60" Electric Yak-55M is a state of the art all out 3D machine for the most ardent 3D flyers. With a Hacker A50-14S or equivalent motor and a 6 Cell Lipo and supplied side force generators, the Yak can do any 3D maneuver you can think of plus some. The OMP Yak comes with carbon fiber main and tail wheel landing gear assemblies, wing tube, battery tray and plastic spinner. The plane is also covered in Ultracote in two different color schemes.

Sincerely,

John Drake and Bradley Petty

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 is 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".

By the act of using the final assembled model, the purchaser/operator accepts all resulting liability.

OHIO MODEL PRODUCTS WARRANTY AND RETURN POLICY

Ohio Model Planes guarantees this product 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 OMP within 30 days of the purchase in order to be covered by our warranty. You may contact OMP at omp@ohiomodelplanes.com or call OMP at (937) 372-0603. If you wish to return this product you must first contact OMP and a 15% restocking fee will be assessed. Only unused products may be returned. The customer is responsible for all shipping charges both ways and any damage as a result shipping.

Check out these Features:

- Carbon Fiber Wing Tube
- Carbon Fiber Main Landing Gear
- Carbon Fiber Tail Wheel Assembly
- Carbon Fiber Reinforced Fuselage
- Carbon Fiber Battery Tray
- Side Force Generators
- Plastic Spinner
- Advanced Ball Links and Pushrods
- Extra Ultracote Covering for Repairs
- Complete Hardware Package

Note: As with all kits, it's a good idea to read all the instructions and study the parts before you begin construction. Handle the parts of this kit with care so you do not damage any of the structure or covering. Inspect all the parts for any shipping damage and report any issues to OMP as soon as you can. Make sure you have a flat and sturdy workbench and follow all safety advice for the tools and adhesives you plan to use.

AIRCRAFT COVERING:

1. With all ARFs, varying temperatures and storage delays can cause covering material to loosen over time and transportation. OMP recommends lightly going over all the covering with a covering iron set at medium temperatures. Be sure to use a soft cover over your iron so you do not scratch the covering surface. Be sure you go over all seams and edges of the covering to assure it is secure to the airframe and other covering. Be careful not to apply too much heat or you may cause bubbles or damage to the covering. A heat gun may also be used along with a soft cotton cloth to shrink and adhere the covering. Again, be extremely careful when using a heat gun.
2. 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 aircraft 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.

RUDDER INSTALLATION:

1. The rudder servo is located in the tail of the plane. There are 4 servo openings, 2 on each side of fuselage. The back opening on both sides is for the rudder servo and the front ones are for the elevator servo or servos. Locate the carbon fiber rudder control horn, ball links, and associated bolts and nylon-insert lock nuts. Use some fine sandpaper to roughen up the area of the control horn so that the glue adheres better. Using a sharp hobby knife cut the covering away from the slot in the rudder on the same side as the rudder servo and trial fit the control horn.
2. Mix up some 30 minute epoxy and coat the inside of the slot and the control horn. Hint: a scrap piece of 1/16" ply, tooth pick, or old hobby blade can be used to coat the inside of the rudder slot. Slide the control horn in place and make sure it is centered perfectly on the hinge line. Wipe any excess glue off with isopropyl alcohol and paper towels. Set aside until cured. See picture below for the placement of rudder servo, horn and linkage. Do not install rudder at this time.



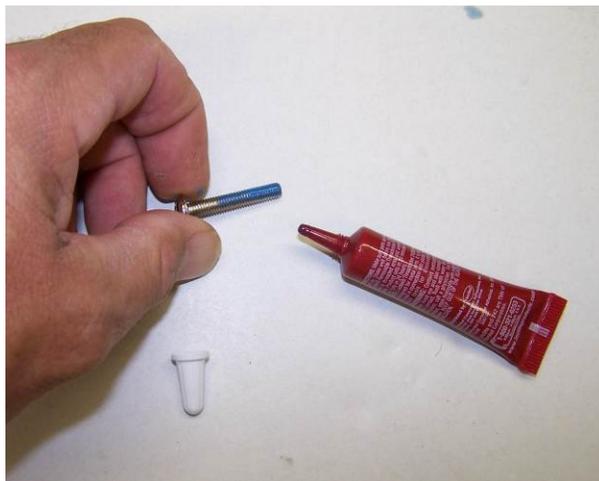
LANDING GEAR ASSEMBLY:

Note: Some of the pictures are of similar models however the build process is the same.

1. Locate the supplied main and tail wheel landing gear parts and sort them out on your workbench. See picture below for the items needed to install main landing gear.



2. Bolt the main gear to the bottom of the fuselage using the supplied bolts. Use a small drop of thread-lock to secure the bolts in place.





3. Once the main landing gear has been installed, install the cover over the main landing gear.

4. Install the main wheel axles to the composite landing gear and tighten the nylon-insert nut securely. Use the two wheel collars to space the main wheel so it is centered in the wheel pant. The picture below shows the axle installed.

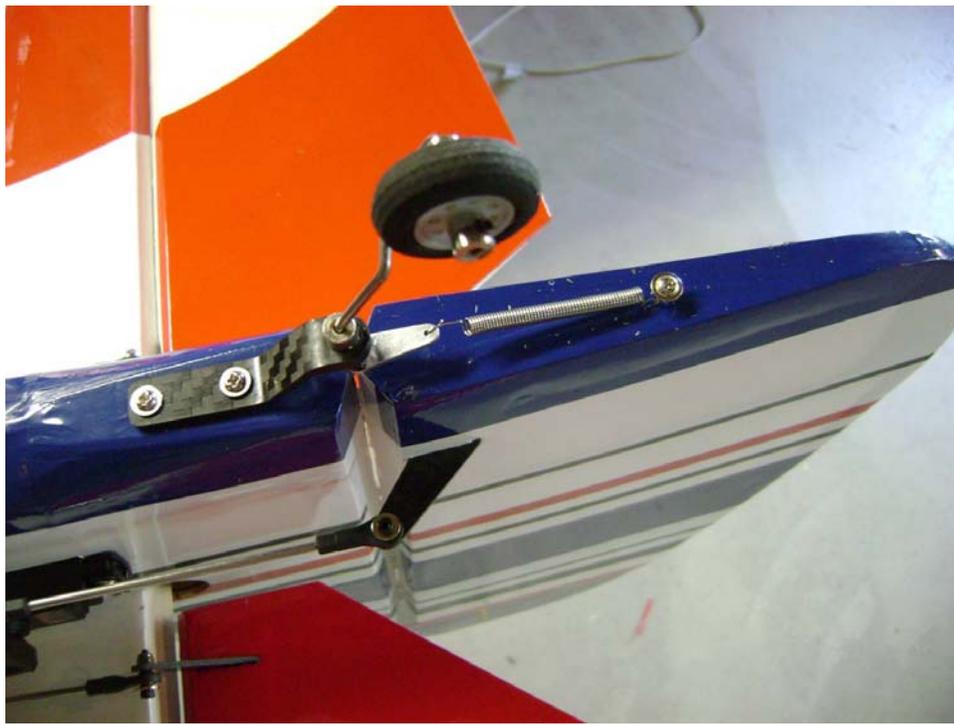


5. Fit the wheel pant in place and install using the two supplied socket head screws. Repeat the above steps for the other main gear.

6. Begin the tail wheel assembly by installing the shaft through the hole at the rear of the tail wheel bracket. Note there is a wheel collar above and below the tail wheel bracket hole. Install the tail wheel using two supplied wheel collars. Again, the use of thread-lock on any metal to metal screw is advised.



7. Center the tail wheel bracket on the rear of the fuselage. Screw the tail wheel assembly in place using the two supplied wood screws. Remove the screws and harden the holes with a drop of thin CA. Allow the CA to cure and then permanently install the tail wheel bracket. Install the rudder at this time using 4 CA hinges. Once the rudder is installed and the hinges have dried, use the third wood screw to attach the tail wheel spring as shown in the picture below.



ENGINE INSTALLATION:

1. Depending on which motor you choice to use, you may need to use some of the engine stand offs provided to get the required cowl clearance. If you use the Hacker A50-14S or equivalent you will need about 3/16" spacing. If you use the Dualsky motor that OMP sells in the combo package, you will need to make 5/8" stand offs. See picture below that has the standoff options to use. I prefer the ply stacked pieces with the CF facing for my standoff. You can also use the heavy plastic tubing also.



2. Place the cowling in place on the fuselage and measure the distance from the firewall to about 1/4" in front of the cowling. This figure represents the back of the spinner and will help you determine if you need to space your engine out from the firewall using washers or additional wood dowel offsets. Mount your engine securely using bolts, washers, and locknuts. There are blind nuts installed in the back of the firewall for the bolts supplied. I use nylon lock nuts behind the firewall to provide a very secure mounting that will not come loss.



COWLING INSTALLATION:

1. Locate the four wood screws that are used to install the cowling to the fuselage. Glue the black engine baffle in the front of the cowling using Zap-Goo or something similar to it. Once dry, open up the center of the baffle to fit the engine you are using. The holes that are in the cowling sides are used to mount the cowling. Align the color scheme on the cowling with the fuselage and get the spinner clearance desired, about ¼ inch should be adequate. Mark the holes on the fuselage and drill holes. I put a piece of balsa wood inside the fuselage to give some strength to the mounting holes and glued a piece of plastic tube in the hole for the wood mounting screws thread into.
2. Install the propeller and supplied spinner. Use a sharp Exacto knife to cut out the spinner to fit the prop that you are using. Follow the manufacturer's instructions and make sure your props are well balanced, properly drilled, and display no cracks or chips.

HORIZONTAL STABILIZER AND ELEVATOR CONTROLS ASSEMBLY:

1. Locate the horizontal stabilizer and trial fit into the fuselage opening. Temporarily install the wings and center the stab on the fuselage. Make sure the stab is level with the wings. Now make sure the stab is even for and aft with respect to the wings by measuring from the wing trailing edge at the tip to the leading edge of the stab at the tip. Make sure both sides are the same. You may have to trim the fuselage some to get a straight fit of the stab. Take out the stab from fuselage and remove the covering in the middle of the stab on both top and bottom. Be careful not to remove too much covering. Glue the stab in place using 30 minute epoxy. The slow drying time will give you the time to make the alignment measurements again and get the stab on straight.
2. Locate the elevator halves, elevator connector piece, CF horns and CA hinges. Now you have to make a decision on how many elevator servos to use. I use 2 elevator servos positioned in the front holes on each side of the fuselage. The weight of the extra servo is not a problem with the balance of the plane. If you are going to use 1 elevator servo proceed as follows. Starting with the elevator half that will be on the elevator servo side, locate the control horn opening and remove covering and glue in carbon fiber servo horn with CA. Now trial fit the CA hinges into the slots in the elevator half and stab there are 3 on each elevator half. Center the CA hinges and glue into the elevator half. Remove some of the covering on the elevator connector piece to get a good glue joint and glue in place. Trial fit the CA hinges into the stab and position the elevator half, don't glue hinges into stab just yet. Glue CA hinges into remaining elevator half. Trial fit the CA hinges into the stab and align the elevators to the stab. Once satisfied with the fit, glue hinges into the stab with thin CA. Also, glue the other elevator half into the connector piece. This completes the installation of the stab and elevators. If you are going to use 2 elevator servos, put one on each side of the fuselage in the forward holes. To get servo clearance inside the fuselage, use one of the servo mounting plates on one side of the fuselage. The plates are not needed for the other 2 servos. Install the other elevator horn. Don't use the attachment piece to join the elevators.
3. Use your radio to set the servo center position and install the control horn onto the servo. Assemble the control rod and ball links and adjust the control linkage for proper geometry. When satisfied, screw the ball link to the servo horn in the elevator and servo arm on servo. The servo arm should be as close to perpendicular to the control rod as possible while the elevator is at neutral. Double check all screws, bolts and nuts to assure proper installation and operation without binding.

WING AND AILERON CONTROLS ASSEMBLY:

1. Locate both wing panels and ailerons, CF servo horns and CA hinges. Trial fit the CA hinges into the aileron and wing and put together for fit. Once satisfied, remove aileron and center and glue the CA hinges with thin CA into the aileron. Once the hinges are dry, then glue aileron to wing. Repeat with other wing panel. If you want to use the supplied Side Force Generators, then locate the holes in the tip of the wing and remove covering. Use the offset block for side force generators to get the proper spacing from the wing and install with the supplied nylon bolts.
2. Locate and cut the covering from the aileron servo horn opening slots. Cut from corner to corner and iron down inside the openings. Feed the servo wires into the wing and out the root. Install the servos and screw firmly in place. Locate the hole in the wing for the CF servo horn and remove the covering. Glue the servo horn into the wing with thin CA.
3. Use your radio to set the centers of each servo and then assemble and adjust the length of each control rod. The servo arm should be as close to perpendicular to the control rod as possible while the aileron is at neutral. Double check all screws, bolts and nuts to assure proper installation and operation without binding.
4. Check the final radio operation of the ailerons and make sure there is no binding or servo fighting of each other. Also check to make sure all linkage bolts and nuts are secure.

FINAL RADIO SYSTEM INSTALLATION:

1. Proper radio installation and care is vital to the safe and reliable operation of your aircraft. Follow the manufacturer's instruction for installation guidance of receiver and battery paying attention to factors such as adequate cooling, and clearances.
2. Mount your receiver securely in the location provided behind the wing tube which provides a clean and maintenance free solution to your setup. All servo wires should be neatly routed and secured in place so they will not come loose or flop around during flight.
3. The fuselage ply sides provide space to mount your switches just below the canopy. Mount your switches according to the manufacturer's instructions and route your wires safely and securely as above.
4. Battery can be mounted on the battery tray depending on your balance needs. Use double sided velcro to hold the battery from sliding around and then use velcro straps to secure the battery tightly in place.
5. Servo and battery leads are the life blood of your aircraft. Make sure all wires are top quality and connectors are tight and display no loose pins or frayed wires. Servo clips are provided in the kit for your convenience. These servo clips can even be glued to the wood structure using CA if desired.
6. Check all radio programming and control surface operations thoroughly before your initial flight. Check your radio range according to the radio manufacturer's instructions both with the engine off and running.

BALANCING and PRE-FLIGHT:

1. 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 pitch sensitive, you must not go too aft on the CG. **OMP recommends the initial CG setting of the leading edge of the wing tube. Once you have flown the plane several times, then move the battery back and forth to achieve the CG that best suits you flying style.** More experienced pilots may want to set the CG further aft for more 3D capability. Varying weights of engines and radio gear will dictate how you should install each. Servo cutouts are provided in the rear of the fuselage for the rudder servo if needed to help with balance of the plane. 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 input. 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.

Recommended control surface deflections:

	Low Rate	High Rate
Elevator	12 degrees	45-50 degrees
Rudder	25 degrees	40 - 45 degrees
Ailerons	20 degrees	35-40 degrees

FINAL ASSEMBLY AND PRE-FLIGHT INSPECTIONS:

1. Before arriving at your flying field, be sure all your battery is properly charged and all radio systems are in proper working order.
2. Install the wings onto the fuselage being careful to align the wing tube with the wings and not force it. The wing tube may be initially tight but will loosen some with use. Guide your servo wires into the fuselage openings and connect to the proper aileron channels. Servo clips are recommended. Once you have the wings fully seated in the fuselage tighten the wing bolts inside the fuselage.
3. Position the canopy in place and check it is tight.
4. Check all control surfaces for secure hinges by performing a slight tug on the control surfaces and observing if there is any give in the hinges. Check all control rods, ball links, servo screws, etc. for proper operation and installation.
5. Check your batteries and perform a proper range check once again with the engine off and running. Be sure all surfaces are moving in the correct direction and the proper amount for your flying setup.
6. You are now ready for your maiden flight! Good luck and enjoy your new aircraft! If you have any comments or questions about this manual or the aircraft please email "omp@ohiomodelplanes.com".



OHIO MODEL PRODUCTS
199 Stratford Lane
Xenia, Ohio 45385
(937) 372-0603
www.ohiomodelplanes.com