

Willy Nillies'
Super Simple Series

GLH 250

(Goes Like Heck!)



LESS THAN 250 Grams!

NO FAA REGISTRATION REQUIRED!

Specifications:

Wingspan: 23.25 inches
Wing Chord: 4.325 inches
Wing Area: 100.55 square inches
Wing Loading: 10.02 oz/sq.ft
Wing Cube Loading: 12
Length: 20.5 inches
Weight: 6.5 to 7 ounces
Motor: 1806 - 2280kv Brushless
OR: Cox TD .020



WARRANTY

Willy Nillies guarantees this kit to be free from any defects in both material and workmanship at the time of purchase. This warranty does not cover ANY components or parts damaged by use or modification. In no case shall Willy Nillies' liability exceed the original cost of the purchased kit. Willy Nillies reserves the right to modify or change this warranty without notice.

LIABILITY RELEASE

In that Willy Nillies has no control over the final assembly or material used for final assembly, no liability shall be assumed or accepted for any damage resulting from the use by the user of the final user assembled product. By the act of using the user-assembled product, the user accepts all resulting liability. If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return the kit immediately in new and unused condition.

PRODUCT SUPPORT

This product has been designed to function properly and perform as advertised with the SUGGESTED power system, speed control, and servos, as described in advertisements and in this manual. For the proper electronics to complete this model, replacement parts, and product assembly questions, please contact us online at www.WillyNillies.com

Our aircraft are built from self-jigging interlocking laser cut balsa and plywood parts. It's like a 3D jigsaw puzzle with instructions. Full size plans are NOT included or needed to assemble our kits. If the instructions are read beforehand and followed during the build, our kits can be built up and ready to fly in only 2 to 4 evenings.

We think you'll like the super simple construction and flying qualities of our kits and look forward to any feedback you might have.

Sincerely,
Douglas Hart
Willy Nillies
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Marietta, IL 61459
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Before You Begin

Check to make sure that all of your parts are there and in good shape.

Bundled Parts

- 1 Laser Cut Parts (See wood inventory sheet)
- 2 These instructions of course!

Metal and Misc. (on the back of the wood bundle)

- 2 @ 0.047" x 12" Wire
- 2 @ 0.047" x 3" Wire

Bagged Parts

- 4 #2 x1/4" Motor mount screws, washers and nuts.
- 1 @ 1/8" x 1/2" dowel for bolt on wings
- 4 laser cut control horns

Building Materials and Tools You Will Need

- Smooth and FLAT work surface
- Wax paper or clear plastic wrap to protect the work surface
- Thin Cyanoacrylate (CA) glue
- Medium Cyanoacrylate (CA) glue
- Hobby knife with #11 blades
- Wire bender or pliers/cutters for bending pushrod wires
- Screwdrivers
- Sanding block, 320 to 400 grit sandpaper
- Covering Iron

Finishing Materials You Will Need

- Covering material, light to medium weight (minimum size of 36" x 25")

Recommended Electronics

- 3 channel radio minimum with 4 channel mini receiver
- 3 (or 4) ea. 3.7 or 5 gram servos for ailerons and elevator. Rudder optional.
- 1806 - 2280kv brushless motor
- 4.75x 4.75, 5x3 or 6x4 propeller
- 12 amp ESC
- 3 cell 500 mah lipo battery - minimum 30c

General Building Tips

READ THE INSTRUCTIONS all the way through **BEFORE** starting any work on the model.

Balsa is a lightweight and fragile wood, so you do need to be careful with it; however, you will also need to use a little bit of force to make everything fit properly, so don't be too timid.

Do not remove any pieces from the balsa sheets until they're ready to be used. That way, parts won't get mixed up or disappear.

Do NOT glue anything until told to do so.

Join all of your pieces using thin CA (Cyanoacrylate) glue, unless we tell you otherwise. In general, only a small amount of CA is necessary to glue parts together. Use of a capillary tube is HIGHLY recommended.

Don't over force your pieces together. If they aren't fitting together properly, make sure you have the right pieces and that they are oriented correctly. If needed, you can lightly sand the part to fit after making sure it is the correct part and oriented correctly. On balsa "tabs", you can "pinch" the wood with your fingers to get them to fit in slots. (The tabs might be tighter sometimes, due to tolerances in wood thickness)

If you want to remove the charred edges caused by the laser cutting process, lightly dampen a cloth with bleach and gently rub the affected areas. Removing the char will not increase the strength but will make it look better. It also keeps that dark edge from showing under the lightweight coverings.

Fuselage Construction:

1. **1806 motors:** use appropriate M1 or RM1 motor mount that matches your motors mounting hole pattern and secure to your motor. M1 and RM1 use the 2 common mount spacing. Select the one that fits your motor. Please be sure to use a washer under each screw head and do not overtighten as you will crush/break the mounts. the mounts are designed to be plenty strong for all flight parameters, but break in the event of a crash

Once you have mounted M1 or RM1 to your motor, use Medium CA and glue M2 or RM2 to M1/RM1. Once dry, locate Fuselage former F1, 4 each 2-56 X 1/2" screws, 4 washers and 4 nuts. Mount your motor to the firewall using this hardware.

1A. **Cox Engines:** use the UNDRILLED F1 former and mount your engine.

2. Lay out a fuselage side F1 on a flat surface. Locate Fuselage former F2 and F3 and fit into place. DO NOT GLUE AT THIS TIME.

3. Locate battery tray floor BT2 and fit into place. DO NOT GLUE AT THIS TIME.

4. Take the other fuselage side FS1 and install onto F1, F2 and BT2. DO NOT GLUE AT THIS TIME.

5. Carefully lift assembly from work table and inspect that everything is square and formers and battery tray are fully seated in their slots.

6. Once satisfied everything is seated and square/aligned, run a bead of thin CA glue along F2, F3 and BT2.

7. Locate battery tray floor BT1 and your previously assembled F1. Dry fit into place gently squeezing the fuselage sides to seat against BT1. Once satisfied the fuselage is still square and true, run a bead of thin CA glue along BT2 where it contacts the fuselage sides and former F2.

8. Once dry, dry fit F1 into place. Double check that it is fully seated in slots and run a bead of thin CA where it contacts both fuselage sides.. Once set, use a heavy bead of medium CA glue to reinforce these joints.

9. Now locate FB1 and dry fit into place. Once satisfied all is aligned, wick thin CA glue into the joints all around FB1.

10. Locate FT3 , FB2 and F4. Dry fit in place. Carefully check alignment. Once satisfied aft fuselage is straight and true, wick thin CA glue along each joint.

11. Locate FT11 and glue into place along firewall and both fuselage sides.

12. Locate FT1 and FT1a. Ensure FT1 is centered on fuselage before gluing F1a to hatch. NOTE: FT1a will stick out forward of FT1 about 1/4" and act as a tongue to hold the hatch down.

13. Locate and fit FSWM and install supplied 2-56 blind nut. Once blind nut is installed, dry fit into place. Once satisfied with placement and fit, glue in place with medium CA glue.

14. Locate 2 triangular gussets and glue in place to support FSWM.

16. Locate BT3 and fit in place. Glue in place using thin CA.

17 Carefully sand the fuselage and prep for covering.

Horizontal Stabilizer and Elevator:

1. Carefully remove the horizontal stabilizer and elevator from balsa sheet. Lightly sand to prep for covering. No other actions required prior to covering.

2. We recommend using a covering film hinge on all flight controls. Now is the time to sand a 45 degree bevel into the leading edge of the elevator. Lightly surface sand and prep for covering.

Vertical Fin and Rudder:

1. Carefully remove vertical fin and rudder from balsa sheet.

2. If you wish to have rudder control, sand a 45 degree bevel into the leading edge of the rudder.

3. If you do not wish to have rudder control, align rudder with vertical stabilizer and glue together.

4. Lightly surface sand and prep for covering.

Covering:

1. We recommend using the lightest weight plastic covering you can find. Use the manufacturer's instructions to complete.

Horizontal Stab and Vertical Fin Installation:

1. Ensure that covering material has been removed from horizontal and vertical stabilizers where they make contact.
2. Carefully align to ensure they are square and true. When satisfied with fit, glue in place using Medium CA glue.

Pushrod installation:

1. Elevator pushrod: Locate one of the 12" long .047 music wires. Locate one of the laser cut control horns. Thread elevator pushrod from the aft end of fuselage, be sure to put pushrod through guide small guide hole in F4. Once pushrod is in place, install control horn onto z-bend. Using medium CA glue, glue control horn into pre-cut elevator slot.
2. Rudder (if used). Duplicate elevator pushrod and control horn installation

Servo Installation:

1. Install z-bend onto elevator/rudder pushrods. Ensure servo is centered and install servo onto pushrod. Glue servo to fuselage side while ensuring control surface is centered.

Control Throws:

1. Control throws are VERY sensitive on a very fast aircraft. It is imperative that you DO NOT EXCEED our recommended control throws on your first flight!!!!
Elevator: .25" up and down, measured at the trailing edge immediately aft of the control horn.
Rudder: .35" right and left, measured at the trailing edge immediately aft of the control horn.
Ailerons: .125" up and down, measured immediately aft of the control horn on the trailing edge.

Center of Gravity:

1. The best all-around C of G is at 1.75 inches aft of the leading edge measured AT THE FUSELAGE. Adjust your battery forward or aft to achieve this placement for your first flights.

First Flights:

1. The GLH is a very fast and locked-on rails type aircraft. It goes and does EXACTLY what you tell it to do. That said, don't be afraid of this little beast. If you have followed our instructions and have set control throws accordingly, you will be rewarded with a thrill most have never experienced before.

Words of Caution:

1. This is a SMALL plane. It is a FAST plane. KEEP IT CLOSE.
2. DO NOT LAUNCH AT FULL THROTTLE! The torque from the motor will roll the aircraft quickly!
3. Half throttle and a firm forward throw is all you need to get going.
4. It is highly recommended that you use highly contrasting colors in your finish. Visibility and keeping orientation are very important.
5. That all said, if you manage your throttle at 50% or slightly less, it is a very agile aerobatic performer and a blast to fly.

Enjoy!
Doug

John 3:16