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**Wild Hare R/C Edge 540 25%  
And  
Wild Hare R/C Extra 260 25%  
Assembly Manual**

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## Warranty Information

Wild Hare Hobbies, Inc. guarantees this kit to be free of defects in both material and workmanship at the time of purchase. This warranty does not cover any components damaged by use or modification. **In no case shall Wild Hare Hobbies, Inc. liability exceed the original cost of the purchased kit.** Further Wild Hare Hobbies Inc, reserves the right to change or modify this warranty without notice.

In that Wild Hare has no control over final assembly or materials used in final assembly, no liability shall be assumed or accepted for any damage resulting from the use by 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 this kit immediately in new and unused condition to the place of purchase.

While this kit has been flight tested to exceed normal use, if the plane will be used for extremely high stress flying such as racing or extreme aerobatics the modeler is responsible for taking steps to reinforce the high stress points.

**Read through this manual before starting construction. It contains important warnings and instructions concerning the assembly and use of this model.**

**Warning.** This is not a toy. If not properly controlled it can cause injury or death and property damage..

## Specifications

Wingspan	73 inches
Length	62 inches
Wing Area	960 sq. inches
Weight	9-10.5 lbs .
Recommended engine	DLE-30 cc gas engine or 1.20-1.80 glow

Additional equipment required

Computer Radio with at least 4 channels, 7 channels preferred

2 elevator servos minimum 55 oz./in. of torque each.

2 aileron servos, total torque required not less than 70 oz./in. per wing.

rudder servo at least 130 oz./in. (see text)

throttle servo

battery pack at least 1500 mah

Switch for receiver battery

5 12" servo extensions.

fuel tank and line with filler system.

3" spinner

3" wheels

We recommend the DLE-30 engine and a 19-8 "Bunny" prop.

All of these accessories can be purchased from Wild Hare directly.

Please remember, this is a big airplane with high stresses on the controls. You must use high performance servos, pushrods, linkages, horns, etc. **Flexing in linkage can and will cause flutter of the control surfaces which will destroy the airplane in just a few seconds. Metal gear servos are recommended.**

## **Optional Accessories**

Wild Hare R/C makes available several accessories that can enhance the Edge 540T. These are;

**Spinner.** The Edge requires a 3" spinner. Wild Hare normally keeps Dave Brown Vortec spinners in stock.

**DLE-30** engine is the best power plant that we have found for this plane.

**Hitec or HD Power** servos, we have a selection of appropriate servos in all price ranges.

We recommend **A123 Lithium** batteries for long life, simplicity, and because they have all the power you will ever need. Of course Wild Hare sells these.

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***\*\* These Items require user supplied materials and creativity. These steps assume that the user will be installing mounts, retainers, and other assemblies to suit his particular building style. For example no servo mount is supplied for the throttle, we have no way of knowing what type of engine you will use or what is the best location for the throttle servo.***

***If you need advice on any of this, call us or email [support@wildharerc.com](mailto:support@wildharerc.com) and we'll be happy to try to answer your questions.***



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### Step 1. Open and inspect everything

In the box you should have a fuselage with hatch, wings, carbon fiber wing and stab tubes, the elevator/stab assemblies, the rudder, cowl, wheel pants, canopy, landing gear, and a package with the tail wheel assembly and miscellaneous fasteners, axles, control horns, and other hardware. Check everything for shipping damage and/or manufacturing defects. **If there is a problem, report it to us NOW**, not after you start building the plane. Once you have begun cutting, drilling or gluing we cannot accept the return of the plane or any component parts.

Before proceeding to any assembly, now is a good time to go over the whole plane and fix any cosmetic flaws. Some cosmetic flaws are to be expected, this fact is reflected in the price.

### **Known issues and improvements**

There are a few areas where, at this unassembled stage, you can improve the final results of your assembly project. There are many items that cannot be addressed on the assembly line due to cost and possibly because not every improvement would be welcomed by every builder. Here are the items that we have found so far.

**Go over the covering with a heat gun or iron.** The covering tends to get loose over time and with changes in temperature and humidity. It may have come out of the box with wrinkles, I can assure you it did not go into the box that way. Please be careful not to overshrink the covering. Be very careful not to use too much heat especially near an edge or seam, too much heat will cause the covering to pull away and wrinkle badly.



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### Step 2. Preparation work

Before you start actually assembling the plane there are quite a few things that can be done in preparation that will make assembly easier.

Trim away the covering from these areas using a very sharp exacto knife;

#### **Fuselage**

Wing tube opening, stab tube holes, anti-rotation dowel holes for wings and stabs, the holes for the aileron extensions to pass into the fuse from the wings, and the holes for the wing and stab retention bolts. Also the elevator servo openings and the slots for the rudder pull-pull cables. Open the holes in the covering for the landing gear bolts.

Small holes can be opened up more easily with the tip of a hot soldering iron.

#### **Wings**

Open the servo bays and the slot in the bottom of the aileron for the aileron control horns.

#### **Stabs**

Open the slots for the control horns in the bottom

#### **Rudder**

Open the slots for the control horn in both sides.

Hinge the elevators and ailerons, do not hinge the rudder yet. The CA type hinges are installed in one side of the elevators and ailerons and in the rudder, you will need to join the surfaces and glue in the other side with thin CA. Before gluing flex the surface at least 50 degrees to make sure there is sufficient gap. If you hinge it with no gaps the surface travel may be restricted.



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### Step 3. Engine mounting

The first thing to do, before anything else goes in the fuselage, is to get the engine mounted and aligned with the cowl. Here's how I have done it. **Do this before you hinge the rudder.**

Note that the firewall already has right thrust built in. Simply mount the engine flat to the firewall offset slightly to the left so that the prop shaft ends up centered in the cowl's spinner ring.

*This plane is designed around a DLE-30 engine of 2-2.5 pounds. If you use a significantly lighter or heavier engine you may need to shift some components around to get a proper CG. Use this procedure to mount a DLE-30.*

**The idea is to have the engine align with the cowl. A slight misalignment (1/8" or less) will not affect the way it flies, but your model will look much better if everything lines up properly.**

**Using the DLE\_30**— The DLE-30 will bolt directly to the firewall and the spacing should be correct. Using the template that came with the plane, align the large hole in the template with the large hole in the center of the engine mounting firewall and drill 13/64 holes where indicated.

**Not using DLE-30**—Draw two lines on the firewall to locate the thrust centerline. One vertical line is 2 5/8" from the left outer edge of the motorbox. One horizontal line is 2 1/8" up from the inside edge of the bottom sheeting of the motor box.

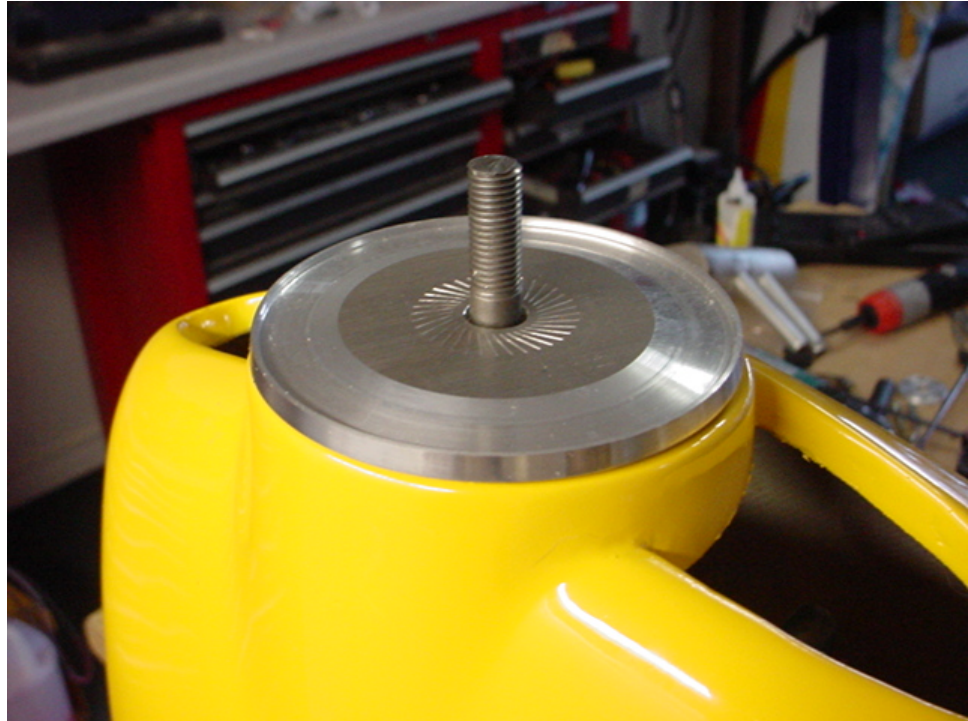
Lay an engine/mount template to match up with the crosshair marks that you made on the fuselage



An alternate method goes like this. With no hatch on the fuse find a place in your workshop where you can stand the fuselage up on its tail so that the nose is pointing at the ceiling. (This is why we did not want you to hinge the rudder yet). Secure the fuse so it stands like that and won't fall over. I wrap masking tape around it and tape it to the side of the workbench.

Measure from the center of the firewall to the face of the cowl. Add about 3/16" to this measurement. With a glow engine mount the engine on the mount of your choosing so the

total length from the rear of the mount to the face of the prop drive washer equals the firewall to cowl plus 3/16" distance, and attach the engine to the mount. If you are using some other type of gas engine attach the engine standoffs to the engine and set the engine on the firewall pointing up, in the general vicinity of the center.



Now remount the cowl you should use the two mounting screws to secure the cowl so that it is in the correct location and not angled. It may be necessary to cut out the cowling to clear the cylinder head or carburetor in order to mount the cowl. Cut a little bit at a time rechecking clearance until the cowl will fit over and mount on the cowl.

Place your spinner back plate over the prop bolt so that it is centered. You can now just move the engine around by hand to get the spinner back plate centered on the cowl face.

Once the spinner back plate and engine are in the right position, carefully remove the cowl without moving the engine and using a sharp pencil draw an outline of the mount or of the 4 standoffs on the firewall, marking the center point of the mounting holes. Drill two mounting holes with a 1/16" drill (opposite corners) and attach the assembly with 2 5 mm. as a final check before drilling. Recheck cowl alignment, then drill the remaining two holes with a 13/64" bit. Reinstall mount/engine assembly and reinstall the cowl. Assuming it's all still in alignment, remove the sheet metal screws and drill with 3/16" bit and install the other two blind nuts. You're done.

I find that if you are careful and patient and wait until you have checked and rechecked you can get a perfect alignment of the cowl and spinner which really makes the plane look great.

**If you choose to overpower over weight this plane we do not warranty any structural failures.**



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### Step 4. **Hinging the control surfaces**

Hinging is a very simple matter with CA hinges.

Before you start gluing anything, test fit each control surface. Aileron to wing, elevator to stabilizer, rudder to fin/fuse, with the hinges in place. Make sure the hinges go in the pre-cut slots smoothly and that there is ample room for the hinge so there is no large gap between surfaces. With a very sharp razor knife, trim some of the covering back from the slot so the CA can wick into the slot without being diverted by the covering.

Once you are certain that they all go together smoothly, take each surface and glue the hinges into the mating surfaces. If you have never used CA hinges, do just one for practice. Drip thin CA onto the hinge line, it will be absorbed into the balsa and the fuzzy part of the hinge making a secure hinge. You will need to do both sides.

Be careful about drips, thin CA wants to go everywhere. You should have some CA debonder handy to clean up drips.

Be sure to flex the surface to its most extreme throw before using the CA glue. If you do not do this you may have limited travel.



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### Step 5. Mounting the hatch and canopy

The hatch mounts to the fuselage by tabs on each side that are attached at the rear of the hatch. The tabs are already drilled and a 4-40 blind nut is installed. You should be able to install the hatch with two 4-40 screws through the fuse side.

The canopy is pre-trimmed to fit the hatch. Attach the canopy with whatever is your favorite method. Some people use tape, some glue the canopy down, some use small screws. This is up to you. If you use small screws add some hard wood such as 1/16" ply to back up the balsa wood of the hatch.



**It's a very good idea to attach the canopy while the hatch is securely mounted to the fuse, this way everything will be sure to line up when you are done.**



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### Step 6. Install horizontal stabilizer

This step is easy.

Trim the covering around the holes in the fuse for the stab spar tube and the retaining bolt hole on each side. You should also cut away the covering over the holes for the elevator servos, but don't cut out the rudder servo covering yet.

Slide the spar through the fuse, and slide the stabilizers onto the tube from each side.

Retain the stab to the fuse with one 4-40 bolt, washer and lock washer. I advise you to use washers and lock washers and/or a little red RTV silicone on the threads. Don't use a lot, and don't use red loctite, or you won't be able to get the screws out without tearing out the blind nut.

The assembled h-stab with controls is shown below.





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### Step 7. Install control horns on all surfaces

This plane is supplied with phenolic control horns which are very durable and easy to install. **Be very careful, once these horns are installed there is no way to correct an error.**

On the bottom of each aileron and elevator, and at the bottom of the rudder, is a slot near the root of the surface. Cut the covering away from this slot, on the rudder cut it away on both sides. Tape the surfaces so that they do not flex at the hinge line. Test fit each control horn into the slot, be sure it goes all the way to the bottom of the slot so the hole farthest from the surface is approximately in-line with the hinge line.

When you are satisfied that everything fits well, working one surface at a time, coat the sides of the slot and the sides of the horn with 30 minute epoxy and insert the horn into the slot. Check the alignment now, you will not be able to change it later.

On the rudder horn slide it to one side, coat the surface, then slide it through to the other side and coat that surface, this will draw epoxy into the slot. Be sure the horn is centered before the epoxy sets.



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## Step 8. Installing the servos

### 1. Elevator servos.

Trim away the covering from the rear sides of the fuselage to expose the two servo trays. Attach a servo extension to the servo cord long enough to reach the receiver, and tie this servo connector together with servo extension retainers as supplied in the Wild Hare hardware kit or using heat-shrink tubing (not supplied) or tape.

Slide the extension through the servo hole and fish the end through the fuse with a piece of wire with a hook or whatever you want to use. Servos should be secured with all screws.

### 2. Aileron servos.

There is a servo wire tunnel through the wing that touches the servo tray. You can use a piece of wire with a hook to fish through the hole and pull the servo pigtail through. Be sure the extension is long enough to reach the receiver. Also be sure the servo extension is securely attached to the servo lead. If you bought our hardware kit there are small plastic retainer clips included for this purpose.

### 3. Rudder servo.

Install a single digital servo such as a Hitec 5485 in the servo tray and use pull-pull cables to actuate the rudder. Cables, fittings, cable crimp sleeves and clevises are supplied with the kit. I have flight tested the plane using these components and they worked fine.

### Throttle servo installation.

It is impossible for us to anticipate every potential throttle layout for every engine, so no provision is made for a throttle servo. However on the DLE-30 I found that it is necessary to rotate the carb 180 degrees in order to get satisfactory geometry for the throttle servo linkage. I installed the servo in the hole to the right of the fuel tank, then ran the pushrod alongside the motor box.



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### Step 9. Install the landing gear

There should be drilled holes in the landing gear plate under the covering, these should match up with the holes in the landing gear.

To mount the wheel pants you simply drill through the back of the landing gear and through the wheel pant. Install a 4-40 blind nut in that wood backing piece.

The tail wheel bracket attaches to the hardwood plate at the bottom of the tail using two wood screws. Use the supplied arm to attach it to the rudder, or I have found that it is perfectly OK to just leave the tailwheel free floating and to steer with the rudder. I have tested this several times and it gives plenty of steering authority when taxiing.



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### Step 10. Mounting the wings

Push the CF tube spar through the tube in the fuselage until it protrudes an equal distance on both sides. Carefully push each wing onto the tube until the anti-rotation dowels engage the holes in the fuselage side. As the wing approaches the fuselage guide the aileron extension through the access hole.

The wings mount to the fuselage with one 1/4-20 thumb screw on each wing through the fuselage side.



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Steps 11. Balance the plane and adjust control throws

**The first flight should be done with the plane balanced at the center of the wing tube or slightly forward, not behind the center line. This will be safe for the first flight.** After the first flight you may adjust the CG to your flying style, but make changes a little at a time.

If your plane is tail heavy, consider moving batteries as far forward as possible, remove anything from the tail that might be adding weight, get a lighter tailwheel, Remember that the farther weight is from the CG the less of it you will need. A small weight on a long arm makes a big difference. A heavy spinner has more effect than a bigger battery because it is farther from the CG. Using lighter mini-servos is another option.

We set the control throws as follows on planes in test. Please keep in mind the high rates specified here are for 3d, not for just faster response. The elevator in particular at these rates will cause instant stalling, tumbling, and all sorts of other things that can only be done at low speeds. **Do not use the 3d settings until you are thoroughly familiar with the plane on low rates and then do your initial tests at high altitude, be prepared to go to low rates if necessary.**

	High rate (3D)	Low rate
Ailerons	23 deg	<b>15 deg</b>
Elevators	40+ deg.	<b>12 deg.</b>
Rudder	45 deg.	<b>25 deg.</b>

**Fly the plane on low rates at first. At high 3d rates it is very difficult to fly. The 3d rates are intended only for extreme aerobatics.**