

**Preliminary edition rev. 1.0 Sept. 2007  
please report errors to [info@wildharerc.com](mailto:info@wildharerc.com)**

**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 R/C, division of 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	8.5-9 lbs .
Recommended engine	1.20 2 stroke glow, 26cc gas

Additional equipment required

Computer Radio with at least 4 channels

2 Elevator servos minimum 70 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.

pushrods, carbon fiber reinforced suggested, 4-40 minimum size

Fuel tank and line with filler system.

3" spinner

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;

**Hardware kit.** The hardware kit includes all the things you need to assemble the Edge except for engine, spinner, glue, prop, and electronics. Specifically it contains

pushrod materials to make pushrods as explained in this manual.

Pull-pull fittings for rudder

3" Dubro wheels and 5/32" axles. (upgrade to parts supplied in kit)

16 oz. gas tank, either Dubro or Great Planes, plus silicon line, tee, and fuel dot

Many miscellaneous small parts such as nuts, washers, horns, springs, etc.

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

**Switch.** The Edge has holes laser cut in the fuse sides to accept the Maxx products charge-jack switch, a very nice way to switch your radio on and off.

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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.***



## 25% Edge 540 and Extra 260 Assembly Manual

### Step 1. Open and inspect everything

In the box you should have a fuselage with hatch, wings packed in wing bags, 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. 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.

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.

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.

**We recommend that you replace the supplied pushrods, clevises and axles.** These are very light duty items supplied by the builder and we do not feel they are suitable for a high performance aircraft. Pushrods should be at least 4-40 in size, clevises should be steel and axles should be 5/32" diameter.

**This plane is built very light!** As such, even though it is a fairly large plane it is not recommended for large gas engines. Engine size should be limited to 26cc and engine weight complete with ignition and battery should not exceed 3 pounds. We also do not recommend 4 stroke engines above 1.25 CI displacement because of the vibration involved.



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### Step 2. 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.**

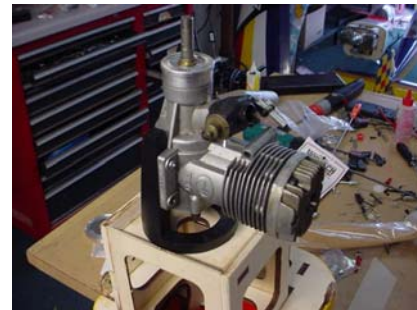
Note that the firewall already has a proper amount of right thrust built in, do not use any other offsets. If you shim the engine out from the firewall use shims of equal thickness on all 4 corners so that you do not introduce any other thrust angles.

*This plane is designed around an engine of 2 pounds. If you use a significantly lighter or heavier engine you may need to shift some components around to get a proper CG.*

Install the cowl with 4 mounting screws. The cowl is not pre-mounted, you should tape it in place with the rear edge overlapping the F1 former slightly, using that former as a guide to proper alignment. Inspect the cowl from all angles to be sure it looks right, then use 4 small wood screws to hold the cowl in place.

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. 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. Mount the engine on the supplied mount (or 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. Remove the cowl.

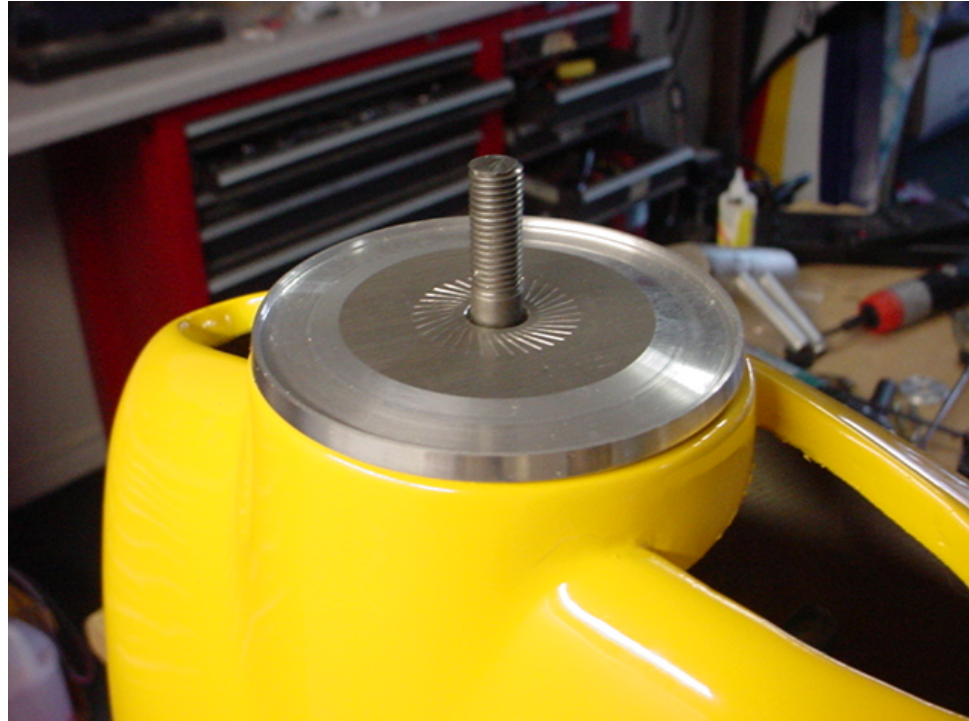


Set the engine/mount assembly on the motor mount firewall so the crankshaft is pointing up at the ceiling.

Now remount the cowl using the supplied screws and washers. 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.

To make things easier I removed the carburetor from the engine during the alignment process.

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

on the firewall, marking the mounting holes. Drill two mounting holes with a 1/16" drill (opposite corners) and attach the assembly with 2 #4 sheet metal screws as a final check before drilling for and installing blind nuts. Recheck cowl alignment, then drill the remaining two holes with a 3/16" bit and install 10-32 blind nuts. 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.

**In the case where you chose to use either a large 4 stroke or gas engine;** This plane is built extremely light. Excessive vibration could possibly damage the structure. **We have not tested the plane in a high vibration environment, so if you choose to do this be very careful.** You should never stand in front of a running engine nor in the plane of the spinning prop. Stay clear of the spinning prop.

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



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### Step 3. Hinging the control surfaces

Hinging is a very simple matter. We recommend that you hinge all the control surfaces in two steps allowing the glue to dry between steps.

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.



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### Step 4. 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.

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 5. 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 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 6. 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 7. 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.

Do this last, after everything else is done and the plane is otherwise ready to fly.

Balance the plane and determine if weight is needed in the tail. If tail weight is required, mount one or two servos in the tail below the elevator servos in the same manner as the elevator servos. If tail weight is not needed, I suggest that you mount a single powerful digital servo such as a Hitec 5645 in the servo tray and use pull-pull cables to actuate the rudder

### **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.



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### Step 8. 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 12. 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 13 and 14. 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.**