



DURAFLY RARE BEAR 680MM RENO RACER



ASSEMBLY MANUAL

Please read this manual carefully before operating this plane.



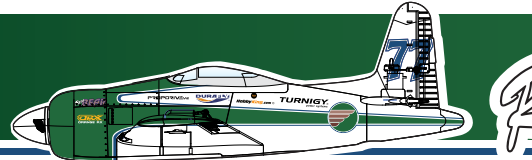
WARNING

Please read this instruction manual fully so as to become completely familiar with the features of this product before operating. Failure to operate this product correctly could result in damage to the product, personal property, and cause serious injury. This is a sophisticated hobby product and is NOT a toy. It must always be operated with caution, common sense and some basic mechanical ability. This manual provides instructions as to the assembly, safe operation, and maintenance of this hobby product. It is highly recommended that you follow and read fully the instructions and warnings stated in this manual. This includes the safety, assembly, set up, and flying guidelines in order to operate this product correctly and to avoid damage or serious injury.

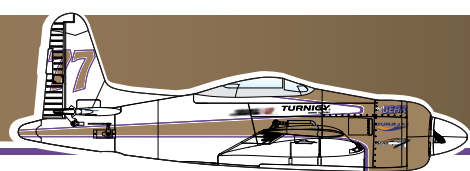
SAFETY PRECAUTIONS

As the user of this product you, and you alone are responsible for operating it in a manner that does not endanger yourself and others. You must also ensure that as a result of using this product you do not cause damage to the property of others. This product is operated via a radio controlled system that in some cases can be subject to interference from sources outside of your control. Interference may result in a momentary loss of control, so it is always recommended that this product be used in a suitable open outdoor area.

- This is a radio-controlled flying model and as such must always be flown with caution and care. This is not a toy.
- This model is designed for intermediate to advanced pilots.
- Always be cautious when using the recommended battery to power this product. For full safety notes and operating procedures, please see the information provided by your battery supplier.
- Take great care when connecting/disconnecting the battery. Follow the instructions provided by your battery for full safety procedures.
- Never power up the model in confined spaces, and always keep the propeller clear of obstructions and loose clothing.
- This product is not a toy. Children must always be accompanied by an adult if operating this product.
- Only fly this model in an open area away from crowds, people, buildings, trees, power lines, and obstructions.
- Always put safety first when operating this model and consider the above-mentioned warnings.
- The supplier/manufacturer accepts no responsibility for damage or injury caused through the use of the product. Not suitable for children under the age of 14. THIS IS NOT A TOY.



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INTRODUCTION

Thank you for purchasing the great-looking Rare Bear Reno Racer from Duraflly. It is supplied as a Plug-N-Fly model with a minimal parts count, so it can be assembled and made ready for flying very quickly. Just one screw holds the tail components in place, and 1 screw for the wing, the motor, dummy engine, prop, and spinner are already assembled for you.

The full-size Rare Bear is a highly modified Grumman F8F Bearcat that saw major successes at the Reno Air Races over many decades. With a top recorded speed of 528mph, it is the fastest piston engine-powered plane ever. Duraflly has captured this amazing turn of speed with their Rare Bear, on the stock 4S setup with the supplied 8x5 propeller, speeds of around 110mph are easily achievable. The motor and ESC are also capable of handling a 6S setup, in tests with a 6x4.5 propeller we recorded an extra speed of around 15mph, so that is quick, and the verticals are incredible. However, with more speed and power comes even more responsibility on the pilot. Extra consideration must be made on balancing the prop, spinner, and checking the tightness of the prop nut, plus the overall security of the model and control surfaces, etc.

But, the Rare Bear is not all about speed, slow it down, and it handles beautifully with a very predictable stall. When flying at speed, it gives that locked-in feel while performing aerobatics, and long, smooth knife-edge flight is a breeze.

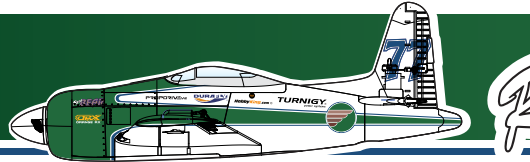
The build quality is typical Duraflly, it is just fantastic. It is a hand-launched model and belly lander, underneath, the fuselage and the wingtips are reinforced with tough plastic to take the knocks and bangs. Additionally, glass fibre reinforcements are on all the control surfaces, which really stiffens them up to stop any flutter at high speeds. The fuselage is also reinforced inside with glass fibre rods running along the length of each side. It has a solid plastic firewall, stiff pushrods with ball link connectors for positive control, and the scale moldings include a dummy exhaust and radiator intake. Both of the available color schemes of Rare Bear racing number 77 are actual schemes that it wore during its racing life. The main colors and decals are applied at the factory, the sponsorship decals are supplied on a separate sheet for you to apply as you wish.

This Plug-N-Fly model is supplied with a pre-installed 3536-1700kv brushless motor, a 60A Aerostar LITE brushless ESC, 4 x metal-gear 9g servos, and an 8x5 propeller. Once it is assembled, all you require is a 4ch or more transmitter and receiver, and a 4S (14.8V) 1800~2200mAh 40C minimum LiPo battery.

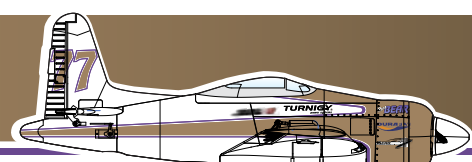
We at Duraflly hope you enjoy assembling and flying your very fast Rare Bear.. Please check out HobbyKing.com for more models in the incredible Duraflly range. In the event of an unfortunate coming together with the ground, we do stock a range of spare parts, please see the list at the end of this manual.

SPECIFICATIONS

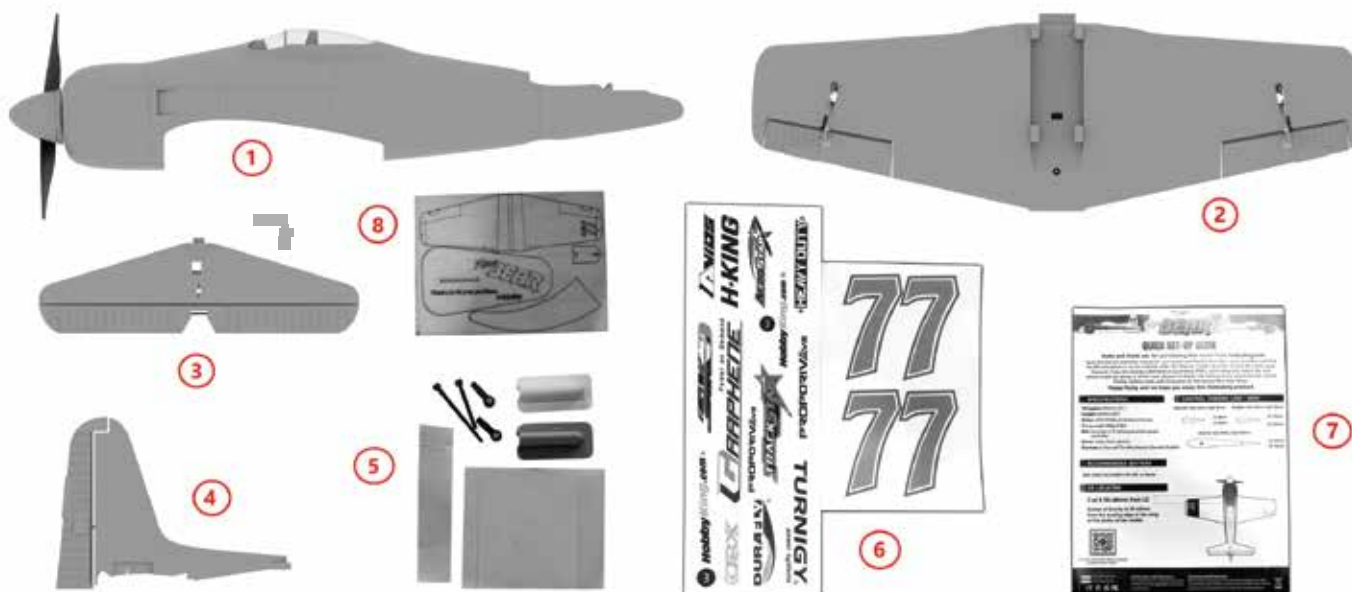
- Wingspan: 680mm (27")
- Length: 660mm (26")
- Weight (with battery): Approx 830g (1.8lb) depending on battery used
- Motor: 3536-1700kv brushless outrunner (Pre-installed)
- ESC: Aerostar 60A LITE brushless (pre-installed)
- Prop: 8x5E (included)
- Servos: 4 x 9g metal-gear
- Controls: 4 Channel (Throttle, Ailerons, Elevator, Rudder)
- Recommended battery: 4S (14.8V) 1800~2200mAh 40C or higher LiPo (not supplied)
- **Optional:**
 - 6S 1000~1200mAh 65C or higher LiPo battery pack
 - Duraflly RB 6x4.5 propeller (We only recommend this optional prop for a 6S set up, please do not use other makes or types).



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- | | |
|--------------------------|---|
| 1. Fuselage | 5. Accessory Pack |
| 2. Wing | 6. Decal Sheet |
| 3. Horizontal Stabilizer | 7. Quick Setup Guide |
| 4. Vertical Stabilizer | 8. Laser Cut Desktop Profile Model of the Rare Bear |

REQUIRED TO COMPLETE MODEL

In its Plug-N-Fly format the MFX will require some additional components to be ready for flight. Durafly recommends the products below for optimum performance and great value. All are available at hobbyking.com



Turnigy/FrSky TWIN
X14 ACCESS
2.4GHz Transmitter
SKU: 9236720209



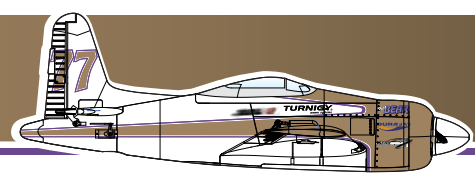
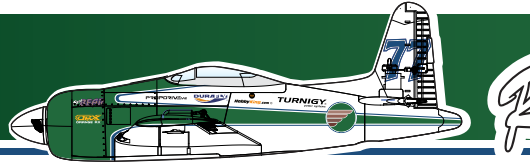
FrSky TW R6 Dual
2.4GHz 6ch TW
Protocol Receiver
SKU: 9236720013



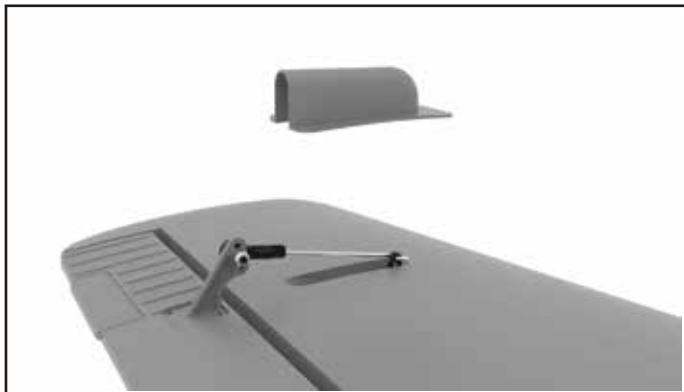
Turnigy 2200mAh 4S
40C LiPo Pack
SKU: T2200.4S.40



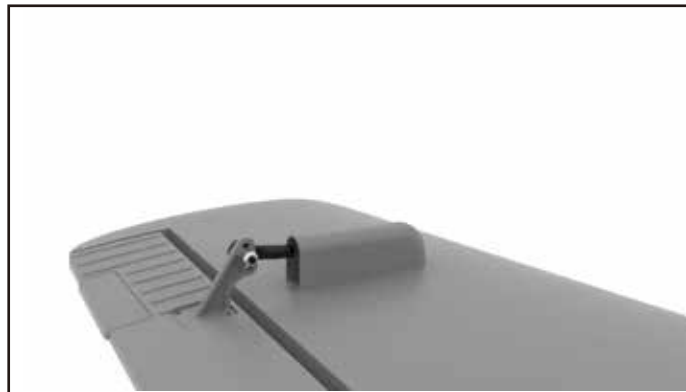
Turnigy Graphene
Panther 2200mAh
4S 75C LiPo Pack
SKU: 9067000372-0



ASSEMBLY (PNF)



1. Affix some double sided tape to the underside of the one of the covers for the aileron pushrods..



2. Attach to the wing as shown, repeat for the other side.



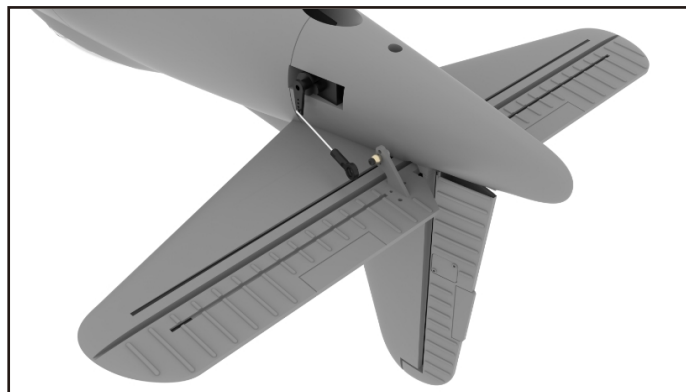
3. Position the horizontal stabilizer onto the mounting at the rear of the fuselage.



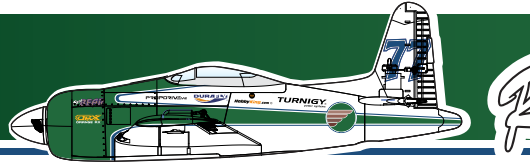
4. Locate the vertical stabilizer into its position on the horizontal stabilizer as shown..



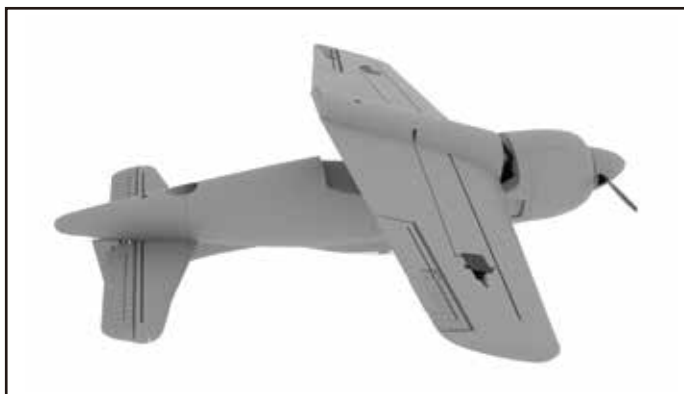
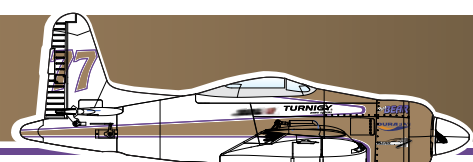
5. Secure the horizontal and vertical stabilizers into position using the supplied M3x30mm screw.



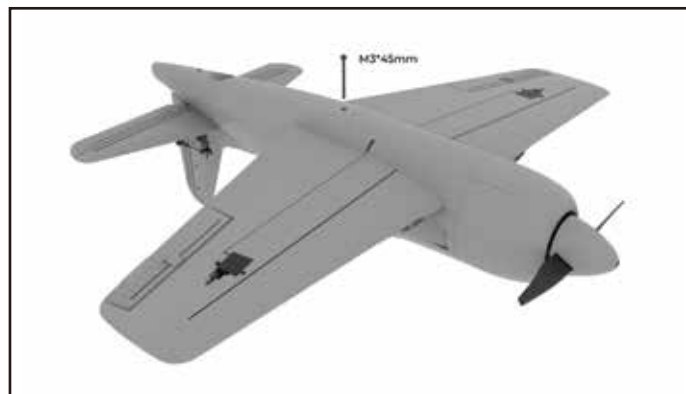
6. Connect the elevator pushrod as shown above.



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7. Locate the main wing onto the fuselage wing seat.



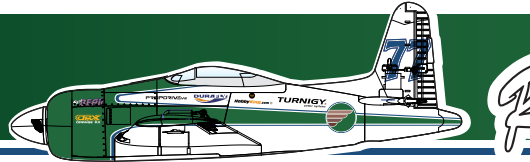
8. Secure the wing using the supplied M3x45mm screw.



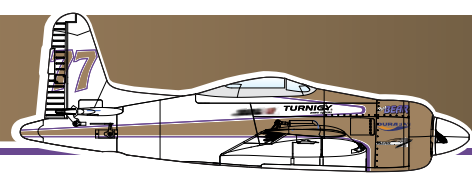
The basic assembly of the Duraflly Rare Bear is now complete. Please perform a final check on all screws and components ensuring they are secure and firmly in place.

SETTING THE CONTROL THROWS OF YOUR RARE BEAR:

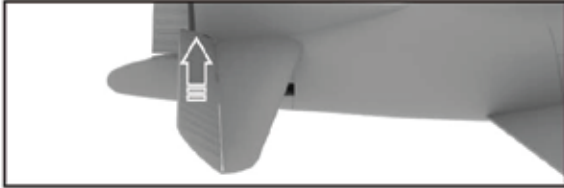
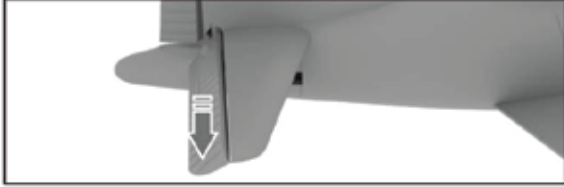
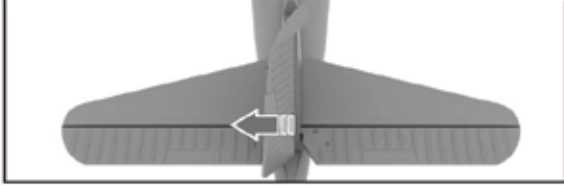
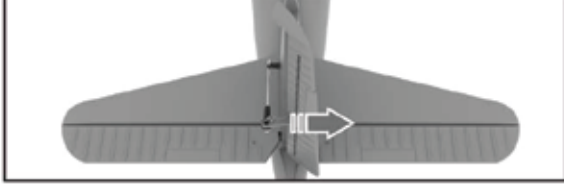
Before getting started on the set up, if you haven't already done so then bind your receiver to your transmitter. Please refer to your Transmitters manual for the operation procedures. Make sure all the control sticks are in neutral position, (Rudder, elevator and ailerons), also ensure the throttle is in the OFF position. Turn on the transmitter and make sure all the trims and the sub trims (for a computerized TX) are in the neutral position, then power up the ESC and servos. For safety reasons, it's advised that this is done with the propeller removed.



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Now check that all the control surfaces are neutral (if not adjust the pushrods as necessary), and that they move in the correct direction with the correct stick input (see below).

	Roll left		Aileron (Roll)
	Roll right		
	Pitch up		Elevator (Pitch)
	Pitch down		
	Yaw left		Rudder (Yaw)
	Yaw right		

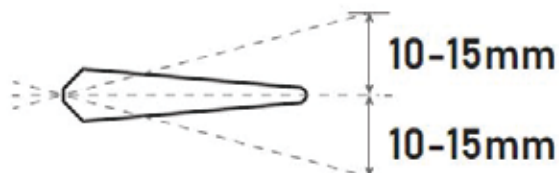
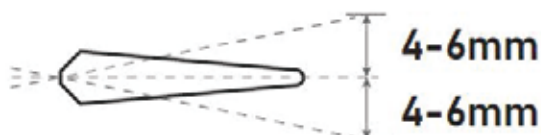


The Rare Bear handles very well but it does need setting up correctly beforehand. Please follow the recommended control throws below for a good all round performance.

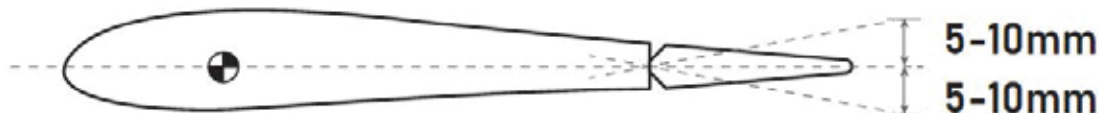
CONTROL THROWS LOW - HIGH

Elevator low 4mm, high 6mm

Rudder low 10mm high 15mm



Aileron low 5mm, high 10mm

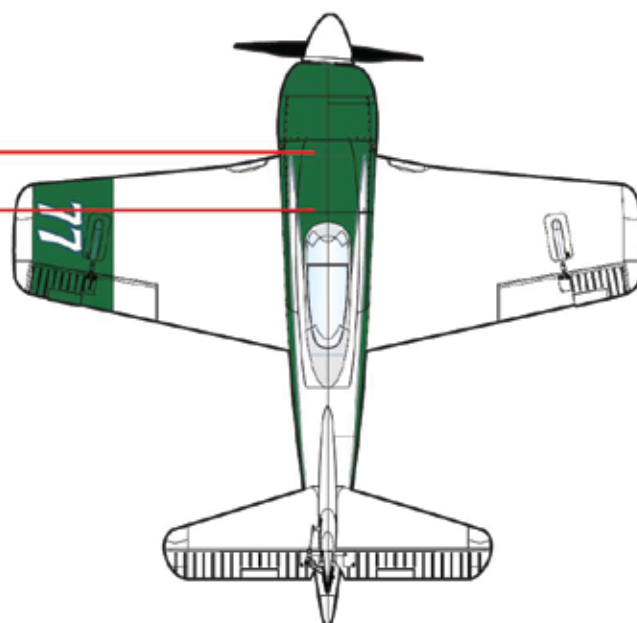


CG LOCATION

It is very important to have the C of G (Center of Gravity) correct before you fly. The model must balance in a slightly nose-down attitude between the dimensions shown below. We recommend for initial flights that you aim for the forward 55mm mark, then as you get used to the flying characteristics you can move it back if you wish.

C of G 55-60mm from LE

Center of Gravity is 55-60mm from the leading edge of the wing at the center of the model.



With assembly and set-up now complete your Duraflly Rare Bear should be ready for flight. However we recommend you read and follow the advice given in the following stages of this manual before flying your model.



DO'S AND DONT'S BEFORE FLYING:

- Select your flying area very carefully. Always choose an open space that is unobstructed from trees and buildings, and away from crowded areas. Avoid flying in areas with roads, electric/telephone poles, wires and water nearby, or within close proximity to full size air traffic.
- Do not fly this model in poor weather. High winds, low visibility, inclement weather including rain and storms are to be avoided.
- Never attempt to catch this model whilst in flight. Even a slow moving model can cause harm to yourself and others, and risks damage to the model.
- This model is not recommended for children under 14 years of age. All children, no matter what age, should always be supervised by a capable and responsible adult when operating this model.
- Always unplug your model battery when not in use. Never leave the battery installed in the model.
- Please remember to keep clear of the propeller at all times when your flight battery is connected.
- Before flying, always turn on your transmitter first, then plug your flight battery into the ESC of the model.
- After flying, always unplug your battery first, then turn off your radio transmitter.
- Exercise caution when charging your batteries, and follow in full your battery manufacturers safety guideline when doing so.

THINGS TO DO BEFORE FLYING ON 6S:

- With more speed and power comes even more responsibility on the pilot. Extra consideration must be made on balancing the prop, spinner, and checking the tightness of the prop nut, plus the overall security of the model and control surfaces, etc.
- The dummy engine must be removed to allow more cooling to the motor and ESC when flying on a 6S pack, please see below how to remove the dummy engine.
- We only recommend the use of the Durafly RB 6x4.5 optional propeller when flying on a 6S LiPo battery pack.
- Under no circumstances attempt to fly it with the standard 8x5 propeller, you will burn out the motor and ESC.





PRE - FLIGHT CHECKS:

1. Always range check your model before any flight (especially when flying a new model for the first time). Follow your radio manufacturers guidelines for performing this check.
2. Check that all screws/bolts and mounting points are firmly secured, including control horns and clevises.
3. Only fly with fully charged batteries (both in your radio and model). Failure to do so could result in loss of control, damage to the model and/or persons / property around you. Check your batteries are fully charged.
4. With the model powered up (transmitter on first, then receiver / model) check that all control surfaces are free from damage / obstructions, moving in the correct direction, and move freely with stick input.
5. Inspect the model and prop for any damage that may have occurred during transit, and listen for any unusual sounds from the servos when powered up and moving. If in doubt, do not fly.
6. With the model held securely, and the prop free of obstructions, increase the throttle just slightly to confirm the rotation of the prop is correct. The model should want to pull straight forward with throttle.
7. If this is your first flight with the model double check that the C of G is in the correct position. If not adjust the battery position inside the model accordingly.
8. If you are an inexperienced model pilot on this type, then seek the help and assistance of an experienced pilot to perform these final checks, and to test fly the model for you.





FLYING THE RARE BEAR RENO RACER:

Duraflly's Rare Bear Reno Racers deliver stunning scale looks and performance in a neat, compact package, and go far beyond all expectations for an EPO model of this size and class, especially when in the air.

Out of the box the Rare Bear has an incredible turn of speed, but it is also very stable and gives the pilot that locked-in feel. Also its slow speed handling is excellent, and very reassuring, making it perfect for both intermediate and experienced pilots alike.

Getting airborne with the Rare Bear takes very little effort, your Rare Bear will zoom away from a simple yet firm underarm hand launch. When launching, power-up the motor to 2/3rds throttle and launch whilst holding in a touch up elevator and left aileron. As soon as you release the Rare Bear and it is climbing away, advance the throttle to full power and maintain a small amount of up elevator. Very soon after launching you will see just how rock solid the Rare Bear is in flight, but keep in mind the Rare Bear is not a large model. Very quickly when at full throttle it will become extremely small and can soon be out of sight, so please be careful!

The Rare Bear Reno Racers are built for speed and nothing is more impressive than a full throttle dive right down the center of the take-off area, followed by a pull up and full power rolling climb-out. Equally impressive is the Rare Bears aerobatic capability thanks to the powerful elevator, ailerons and rudder. BIG loops, fast rolls, snaps and spins look great and are a lot of fun. However one of the most impressive aerobatic maneuvers for the Rare Bear is in the knife edge. You will be amazed just how well the Rare Bear performs in a knife edge, so try it for yourself! Your Rare Bear model is also incredibly strong and handles with ease high-G maneuvers such as high speed pylon turns, rolls and snaps.

A true testament of the Rare Bears design is its slow flying capability, and how well it handles even without power in the glide, this is very noticeable when coming in to land. Though the Rare Bear does have a relatively high glide rate, it benefits from a very low stall speed, so you can comfortably increase the elevator input at slow speeds without the risk of a stall or a wing drop. Flight times are typically 4+ minutes with mixed throttle use on a 4S 2200mAh LiPo battery.

Your Rare Bear Reno Racer will perform and deliver time and time again, the only thing better than flying a Rare Bear Reno Racer on your own is flying with other Rare Bears. So get your flying buddies to buy one as well and get out there and have some fun.



Rare Bear Reno Racer tips:

1. For optimum flight performance and component longevity it is highly recommended that you always fly with a balanced prop. This is especially true with your Rare Bear Reno Racer due to the high performance nature of the model and fast speeds at which it operates. The supplied propeller should be balanced out of the box, but it is always good to check first.
2. Flight packs of a 40C constant discharge rate or higher are recommended. Not only will a higher rated pack give better performance, but it will also result in cooling running components and increased run times.
3. Because of the high current demands of the Rare Bear, if you choose to fly your entire flight at full throttle, it is recommended that you allow time in between flights for the motor and ESC to cool down.
4. Keep all leads within the fuselage area as tidy as possible. Tidy wires not only look better, but also allow for easier access to all the internal components, better battery installation, increased airflow and a reduction in potential signal interference (noise).
5. Inspect the propeller and all mounting nut/bolts frequently, especially if you have suffered a hard landing or the prop has been knocked. If the prop is in any way damaged it must be replaced, and any loose fixings must be tightened or sorted before your next flight.
6. To reduce wear/surface damage to the painted areas on the Rare Bear, it is suggested that a clear acrylic, foam safe spray can type varnish/lacquer be applied to the model. Be sure to test on a scrap piece of EPO first though to ensure there is no bad reactions. Do not spray with the can too close either, you need to allow for the carrier in the varnish/lacquer to atomize before the actual lacquer reaches the surface.

Thank you for purchasing the Duraflly Rare Bear Reno Racer. We hope you'll have many adrenaline filled days flying and we look forward to bringing you more Duraflly models in the future. Don't forget, spare parts are available for this model, please see the next page for details.



SPARE PARTS LISTING:



Fuselage (Gold/
White)
SKU: 1021790020



Fuselage (Green/
White)
SKU: 1021790021



Main Wing (Gold/
White)
SKU: 1021790022



Main Wing (Green/
White)
SKU: 1021790023



Horizontal Stabilizer
SKU: 1021790024



Vertical Stabilizer
SKU: 1021790025



Canopy/Battery Hatch
(Gold/White)
SKU: 1021790026



Canopy/Battery Hatch
(Green/White)
SKU: 1021790027



Spinner
SKU: 1021790028



3536-1700KV Motor w/
Mount & Prop Adapter
SKU: 1021790029



X-Motor Mount
SKU: 1021790030



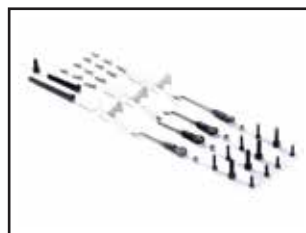
Prop Adapter
SKU: 1021790031



8x5 Prop (for 4S)
SKU: 1021790032



Aerostar 60A LITE ESC
SKU: 1021790033



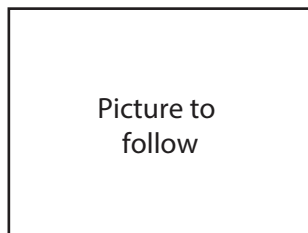
Accessory Pack
SKU: 1021790034



Decal Set (Gold/White)
SKU: 1021790035



Decal Set (Green/White)
SKU: 1021790036



**Optional 6x4.5 Prop
(for 6S) 2pcs**
SKU: 1021790037



Trouble Shooting:

Problem	Cause	Solution
Motor does not run.	1. Battery is not fully charged. 2. Transmitter battery low. 3. Motor not connected. 4. The motor is damaged. 5. Receiver is not bound to Tx. 6. ESC in set-up mode.	1. Charge the battery. 2. Install a charged battery. 3. Check the connections between the ESC and motor. 4. Replace motor. 5. Consult Radio manual and go through bind procedure again. 6. Hold model and move throttle to full position then back down to idle.
Model moves backwards.	1. Prop installed backwards 2. Motor running in reverse	1. Turn prop around. 2. Swap any 2 motor/ESC wires over
Control surfaces not moving with stick input.	1. The servo lead is not connected to Rx correctly. 2. The servo is damaged.	1. Make sure the servo leads are connected properly. 2. Replace servo.
Model does not fly straight.	1. Control surfaces not centered. 2. CG is not in the correct position.	1. Adjust the trims on the transmitter. 2. Re-position LiPo as suggested.
Model does not climb well.	1. The battery is not fully charged. 2. Elevator servo is reversed. 3. CG too far backwards.	1. Charge the battery. 2. Change servo direction via Tx. 3. Move battery forwards.
Limited Radio Range.	1. Transmitter / Receiver batteries are flat.	1. Charge / replace batteries.



Contact:

For more information on this model and the entire range from Durafly please visit us at:

- Durafly.com

Or see our Facebook page at:

- Facebook.com/durafly

And don't forget you can see the product video for this model and the entire Durafly range at:

- youtube.com/hobbykinglive

For your next Durafly purchase be sure to visit:

- hobbyking.com

If you wish to contact us directly please email:

- durafly@hobbyking.com

Notes:

