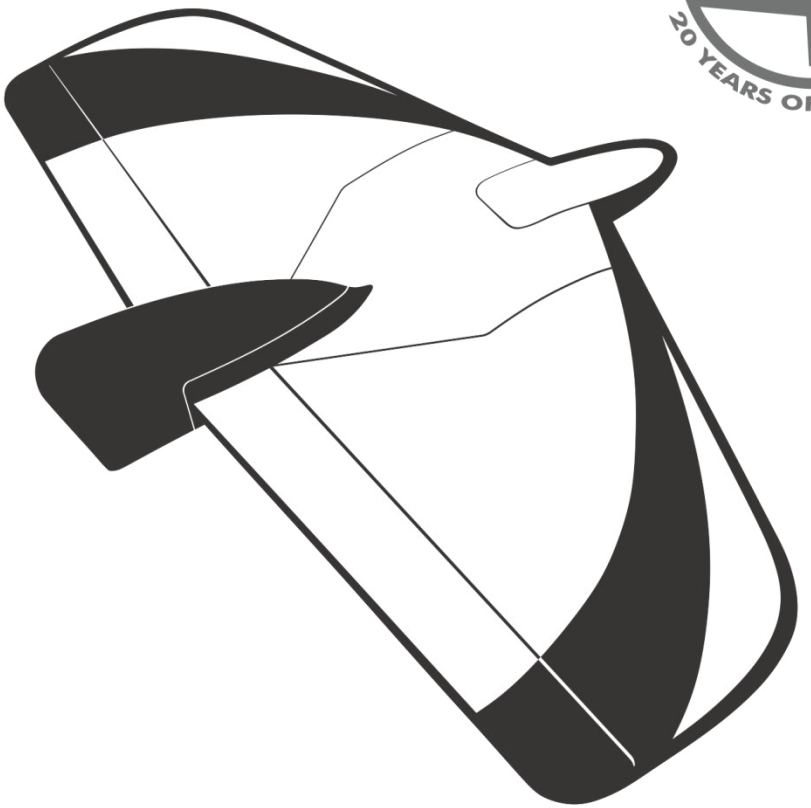
dream-flight®

ANNIVERSARY EDITION
20
20 YEARS OF SLOPE FUN



TREK
weasel™

Flight and Assembly Manual

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20 Years of Refined Slope Performance

Launching your glider off a cliff into the elements is always an adventure- a challenge that should be met with confidence in your airplane. Over the past 20 years, we have heard from pilots all over the world that the Weasel is their go-to first launch slope glider. Whether you fly small beachside dunes, coastal bluffs, or alpine ridges, this funky little glider is ready to carve wind. The Weasel-TREK merges modern aerodynamic and functional refinements with the classic trademark flight character, versatility, agility, and stability that so many pilots have been stoked on over the years. Get ready to experience the thrill and adventure of surfing the invisible waves of slope lift!



Ellwood Mesa - Goleta, California

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Designer's Notes - "Evolution of the Weasel"

"It was back in the mid-1990s that I was approached by a local Santa Barbara RC glider pilot, who asked if I might cut him some one-off foam wing cores based on a flying wing design called the "Little Devil", by British aero modeler Duncan Simey. I was presented with the 1994 issue of *Silent Flight*, which included the build article for this particular model. The tapered, ultra-wide chord of the Little Devil design immediately caught my eye - it looked fun! I was in High School at the time on summer break with plenty of time to spare, so I decided to give it go.

The original build article called for a plywood-sheeted wing, which seemed quite heavy for our light coastal breezes. To reduce weight, I used a packing tape-covered foam wing with balsa sheet control surfaces for simplicity. The foam material was scrounged from a damaged hot tub cover (I still recall the strong smell of chlorine-saturated foam!).

The foam and tape prototype was an immediate success! It flew like nothing else on the slope and outperformed most chevron-style combat wings that were popular at the time. It was nimble, had an extremely wide speed range, could slow down to a kite-like hover in very light wind, and the stout, yet lightweight shape allowed it to take the tumbles. All these attributes allowed me to take more chances, and soon I found myself creating a new style of in-your-face slope soaring. When everybody else was into slope combat at the time destroying servos and airframes left and right, I was enjoying this creative freestyle form of RC soaring; pylon turns around shrubs and small trees, touch and goes off park benches, quick rolls three feet off the deck, grass skimming, hand catches instead of the traditional landing; all became part of the new routine, and my piloting and reflexes improved quickly as a result.

After flying the foam and tape prototype for a couple months, I came to find that the aircraft had character, more so than any other airplane I had flow in the past. It was slow yet fast, extremely quick in the turns, could



40" of adrenalin stirring slope fun from Duncan Simey

little devil

The Weasel's inspiration - a page from Duncan Simey's original "Little Devil" build article in Silent Flight's 1994 June/July issue.



Michael Richter testing an early prototype close-in at Las Positas Park (now Elings Park) in Summer of 1996. The design evolved over the years and went through 7-10 iterations before eventually becoming the current Weasel-TREK now available in 2016.

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recover quickly from mid-air collisions, and it bounced off the ground, trees, logs, and kept on flying. It *weaseled* its way out of some very interesting situations, and hence the name, "The Weasel," was born.

Eventually, the Weasel caught the eye of a few local modelers who wanted to join in on the fun, so in 1996 I started making small batches of hand-cut kits wrapped in brown craft paper, offering them for $45 a pop. With the earnings I was able to further my hobby, and the enjoyment I received by producing and selling a model aircraft opened my eyes to future possibilities. I stopped selling kits when I started college, and it wasn't until the last two years there that I modified the design yet again and started selling kits during summer holiday. Years later, Dream-Flight was born in my parent's garage with the Weasel-pro as the initial cornerstone of the business.



Weasels are most fun in numbers! A group of pilots enjoying some sloping camaraderie at the annual WeaselFest flying event in 2006 at Ellwood Mesa (Goleta, California). Started as an informal gathering of fellow Weasel pilots in 2004, Weaselfest now continues as an annual fun-fly event "organically" organized on RCgroups.com

So that is how the Weasel came to be. Thank you Chuck and Duncan for the initial inspiration that still continues today! The dorky-looking glider that I first flew 20 years ago has since become my favorite slope design. For me, it's the equivalent of a skateboard for the slope. I take it along with me on trips, since it fits easily in the back seat of a car or in a suitcase. I use it frequently to test out new flying spots and to teach people how to fly. It is a versatile glider that simply brings smiles to people's faces, and that is what makes it so fun!"

-Michael Richter, February 2016



Father and son enjoying springtime breezes with their Weasel-evo at Ellwood Mesa during Weaselfest 2012. Photo by Dave Garwood.

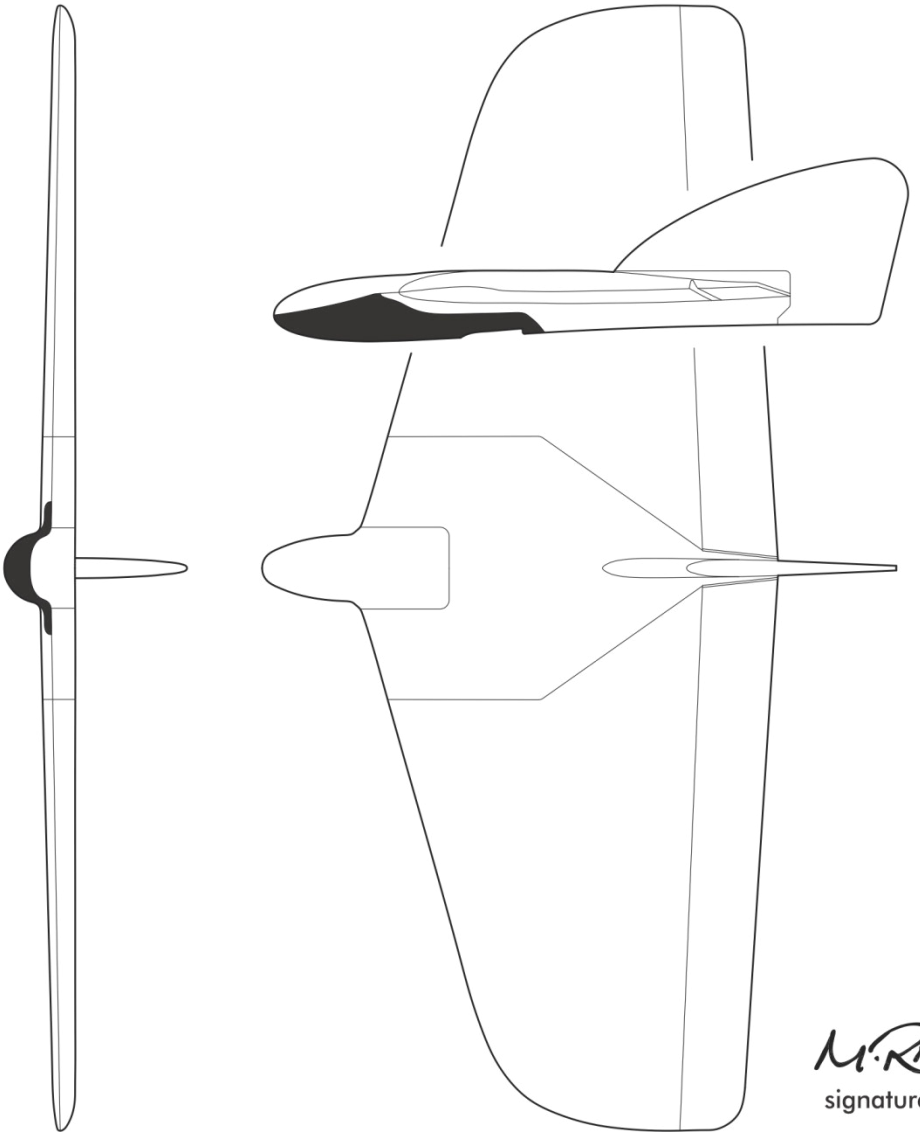
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dream-flight

TREK weasel™

RC slope glider

Wingspan	900 mm (35.4 in)
Wing Area	23.42 dm^2 (363 in^2)
Weight	312-395 gm (11.5-14 oz)
Wing Loading	13.3-16.9 gm/dm^2 (4.6-5.6 oz/ft^2)
Controls	Elevons (2 Channels)
Wind Speed	3-12 m/s (7-25 mph)



M. Richter
signature design

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CAUTION! READ BEFORE PROCEEDING:

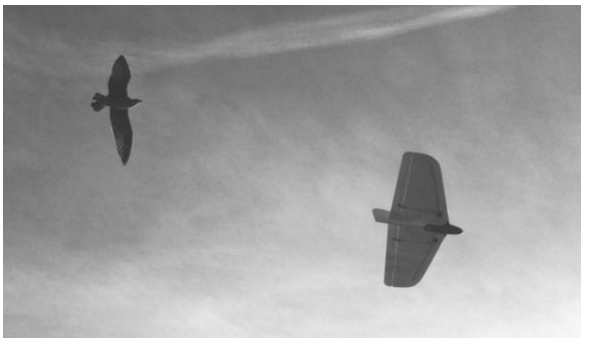
►The Weasel-TREK RC glider is not a toy; a certain amount of experience and practice is required to safely fly this model. We recommend consulting an experienced RC pilot before attempting to fly this glider. With proper instruction, learning to fly RC gliders can be a safe and extremely rewarding activity.

►*ALWAYS* fly model aircraft, such as the Weasel-TREK, in open areas away from overhead power/telephone lines, groups of people, trees, roads, buildings, and airports.

►*BE CONSIDERATE AND RESPECTFUL!* Always be considerate of passersby, spectators, and other pilots by maintaining a safe distance between them and your aircraft during flight. Choosing a designated safe landing zone is good practice and always give larger, heavier flying models the right of way. Treat flying sites with the utmost of respect and care, as future access to them is by no means guaranteed.

► **The Weasel-TREK must be assembled, balanced, and trimmed properly to ensure smooth, efficient flight.** Poor balance and trim WILL lead to poor flight characteristics. This is especially true for small flying wings like the Weasel-TREK that usually require a bit of fine-tuning to achieve the best flight characteristics. Don't be discouraged if it takes you a few flights to get it just right. Additionally, make sure to observe proper control surface deflections that suit your skill level.

►Do not store glider in areas of excessive heat, as this may cause foam parts to warp/deform, thus adversely affecting the flight characteristics. Additionally, never place objects/weight on glider during storage and transport unless foam parts are properly supported to prevent warping.



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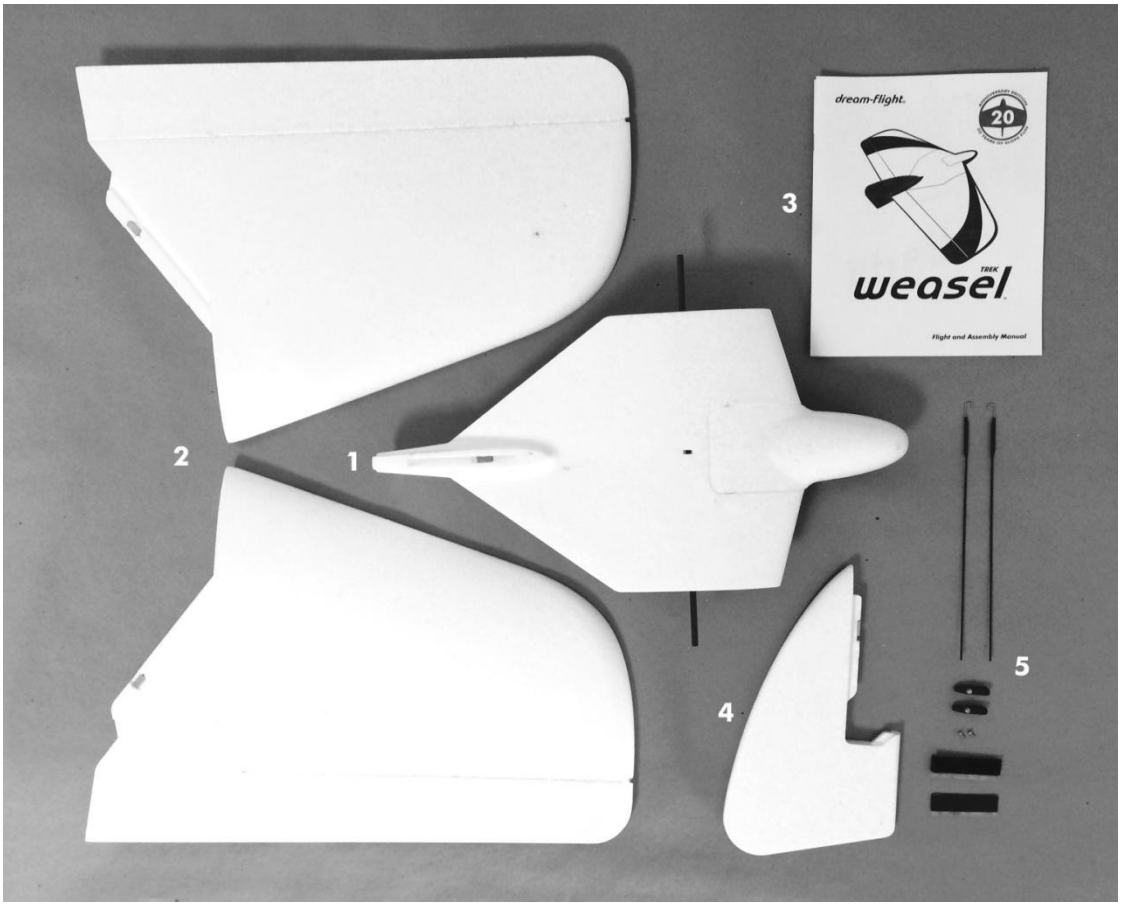
Pg.	*Topic*
1	Kit Contents
2	Items Required for Completion (not included)
3	Radio Gear Setup
5	Fuselage Preparation
7	Wing and Tail Installation
11	Balancing the Weasel-TREK
13	Control Surface Deflections
14	Ballast Option
15	Pre-Flight Check
16	Test Flights: Trimming for Straight and Level Flight
17	Fine-Tuning the Weasel-TREK for Optimum Flight Performance
19	Slope Soaring Background and Technique

To familiarize yourself with the assembly process, we recommend reading over this manual before proceeding with final assembly.

When assembling your Weasel-TREK, make sure to check out the HOT TIPS found throughout this manual.

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KIT CONTENTS



ITEM	DESCRIPTION
1	**Fuselage and Canopy**
2	**L/R Wing Panels**
3	**Flight and Assembly Manual**
4	**Vertical Tail Fin**
5	**Small Hardware Bag Contents:** (2) Elevon pushrods (2) Clevises with screws (2) Wing clamp screws Velcro for battery and receiver installation *Not shown:* Logo sheet and (2) servo mounting decals

Spare Parts
available at
dream-flight.com

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ITEMS REQUIRED FOR COMPLETION (not included)

Radio Gear:

- Programmable 6 channel radio system with Elevon Mixing and Dual Rates *(see suggestion below)*
- Micro receiver, 4-8 gram weight *(see chart below for receiver suggestion)*
- (2) Micro servos *(Part DFFA009 recommended, or purchase our Weasel-TREK Flight Pack, Part DFFA014)*
- Receiver battery: 4.8V 750mAh 5/4AAA NiMH *(Part DFFA012)*
- Battery Extension Wire (Part *DFFA013)*

Tools and Extras:

- Phillips and flat-head screwdrivers
- Sharp hobby knife or razor blade for relieving foam hinges
- Scissors
- Ruler or measuring tape
- Thin marking pen
- Small weights for balancing and ballast. Use our *non-lead* Steel Balance Weights *(Part DFAA002)*

Adhesives and Tape:

- Blenderm Tape (Part 1525-0) for securing wing panels, tail fin, and making small repairs
- 10-25mm wide painter's tape – *we like the green or blue tape made by 3M*

Optional:

- Try our Stick-on Trim Sheets to add easy color and style *(Parts DFFA050-DFFA056)*
- Packing tape and strapping tape for wing leading edge reinforcement and airframe repair
- Acrylic paints - we like Tamiya "TS" series spray paints, or Liquitex "Professional" spray paints. Make sure to clean the foam with denatured alcohol prior to painting and always remove any masking film or tape 5-10 minutes after painting.

Suggested Transmitter and Receiver:

Manufacturer	Transmitter Models	Receivers
FUTABA	***T6K**, T6J, T8J	***R2106GF, R3006SB**

**We used the new Futaba T6K 2.4GHz transmitter and Futaba R2106GF receiver for our own Weasel-TREK setup. The T6K transmitter features a special built-in antenna for durability, and boasts easy to use, yet very comprehensive programming features. The 6K's minimalist and robust design is great for rugged outdoor slope excursions, since it can be thrown into a knapsack without getting hung up on the conventional 2.4GHz swivel antenna and extraneous switches. Additionally, The R2106GF receiver's extremely short antenna makes installation a breeze, and Futaba's time-tested experience with 2.4GHz technology yields rock-solid signal performance.*

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RADIO GEAR SETUP

►The following setup is based on the use of our sturdy 12.4g DMG (Digital Metal Gear) servos (*Part DFFA009*). We have included the exact measurements needed to recreate our setup if you choose another type of servo; however, don't skimp on servos for your Weasel-TREK! A durable, high quality digital servo with excellent centering will ensure that your Weasel-TREK is a smooth, predictable flyer.

Gather items below:

- Transmitter (battery fully charged)
- Micro receiver
- (2) Servos with servo arms and screws *(Part DFFA009)*
- Battery Extension Wire (*Part DFFA013)*
- 4.8V, 750mAh receiver battery (fully charged) *(Part DFFA012)*



1. Locate servo arms with four holes on each arm. Place small servo screws in a safe place.

2. Plug Battery Extension Wire into receiver (observe proper polarity!). This extension wire replaces a switch and makes it easier to turn on the glider and charge the battery.

3. Turn on transmitter and plug battery into female end of Battery Extension Wire to power up receiver.

4. Activate transmitter's Elevon mixing function (consult your radio manual for details). Elevon mixing may be referred to as "Delta" mixing on some transmitter models.

5. Connect servos to appropriate receiver channels. Confirm system is bound and servos are responding smoothly.

6. Ensure all Trims and Sub-Trims are set to zero, and all End Points and/or Adjustable Throw Volumes (ATV) are set to the default of 100%.



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7. Arrange servos on table and attach a servo arm to each servo. **IMPORTANT: Servo arms must be installed in the orientations shown to ensure proper control function.**

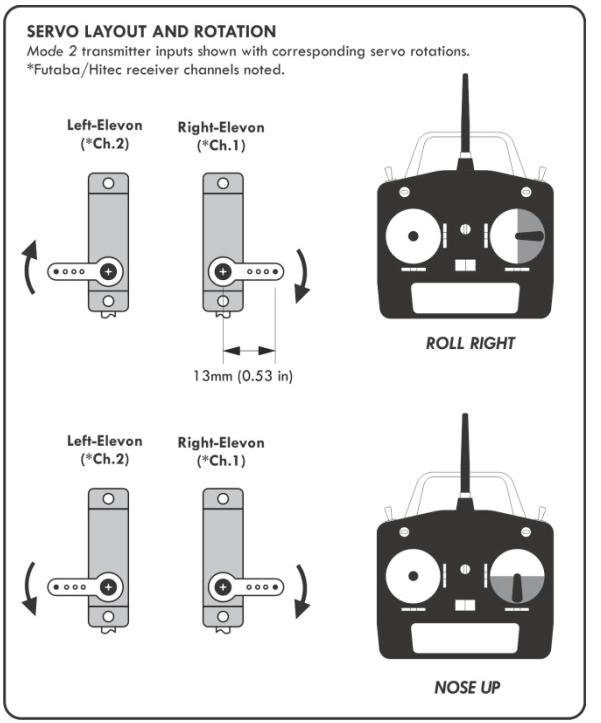
8. Referring to graphic on the right, check for correct servo rotation direction. If needed, reverse servo directions using transmitter. If you cannot achieve the correct rotations using servo reversing alone, you may need to swap the servo plugs at the receiver and return to Step 7 above.

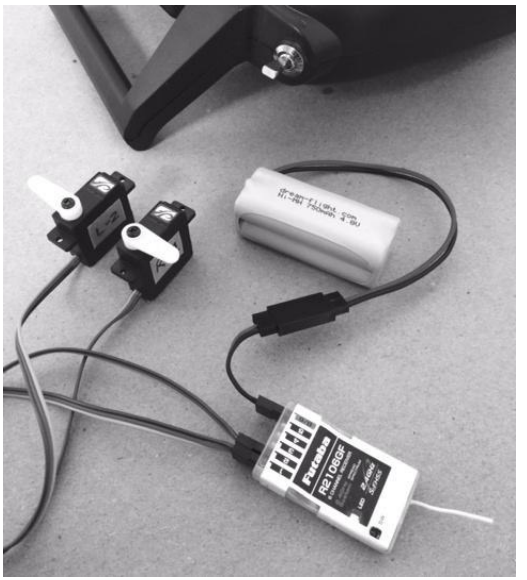
9. If necessary, adjust sub-trims to ensure servo arms are at 90 degrees as shown.

10. With a bit of masking tape, label each servo for future reference during installation (i.e. Right, Left).

11. Install two small servo screws to secure each arm.

12. Power down receiver by unplugging battery from Battery Extension Wire. Now turn off transmitter.



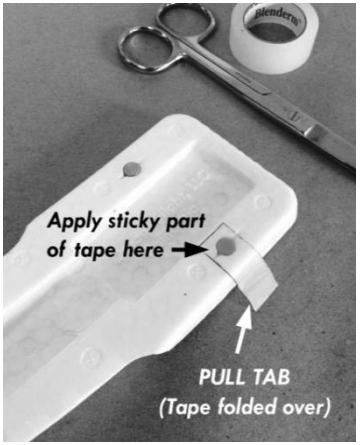


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FUSELAGE PREPARATION

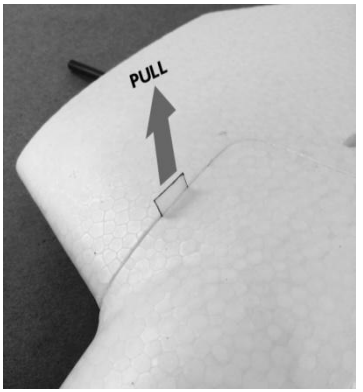
Gather items below:

- Fuselage with canopy
- (2) Elevon servos (*Part DFFA009)*
- Receiver with Battery Extension Wire attached (Part *DFFA013)*
- 4.8V, 750mAh receiver battery *(Part DFFA012)*
- (2) Servo mounting decals (45 x 70mm, Clear)
- (2) Velcro strips



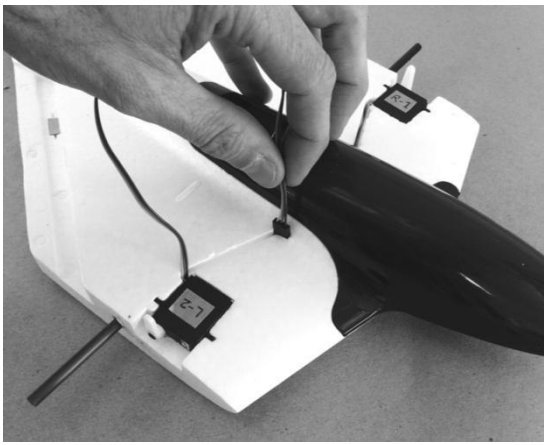
1. Carefully remove canopy by gripping it near wing and raising one side.

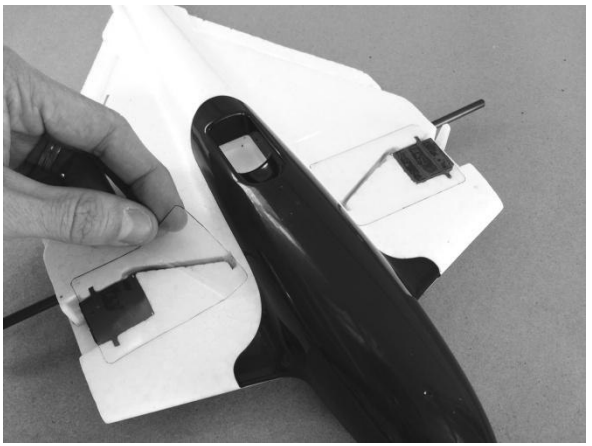
2. The canopy uses three strong magnets for a secure attachment. To minimize damage to the canopy when removing it repeatedly, make a simple pull-tab from a strip of 3M Blenderm tape (or similar). Simply cut a 4cm-long strip of tape and fold one end over on itself to create a non-sticky pull tab. Approximately 2cm of adhesive should remain exposed to be applied to the underside of the canopy as shown.



2. As shown below, press servos into molded pockets and route wire leads through provided cutouts and into receiver compartment. Servo reference labels can be removed at this time.

3. Apply provided servo mounting decals over each servo as shown below. Rub decal firmly in place.





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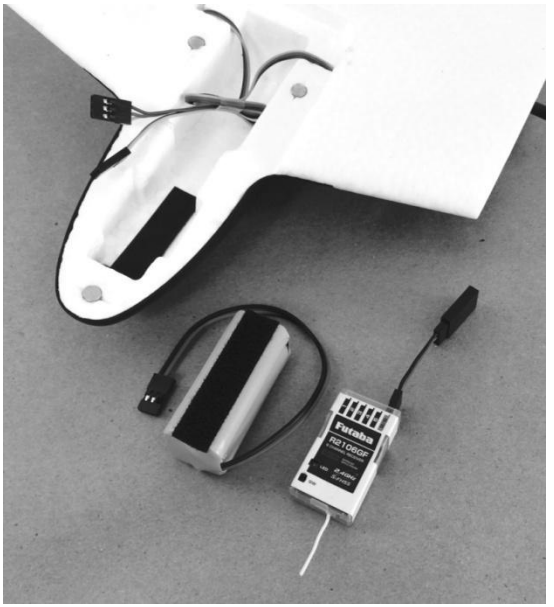
4. Apply 50mm-long x 13mm-wide Velcro strips to battery and inside fuselage battery compartment as shown below. The Velcro allows the battery to be adjusted fore and aft during final balancing. Use the remaining Velcro for mounting receiver or a spare battery.

5. For now, mount battery in the most forward position.

6. Twist the servo wires together for a neater installation and then plug both elevon servo plugs into the proper receiver channel ports (as determined in "Radio Gear Setup").

7. Install receiver as shown. You can use the extra Velcro or a bit of double-sided tape if you like.

8. Replace canopy and check it for proper fit. If necessary, tidy up your wiring so that it does not interfere with fit of canopy.





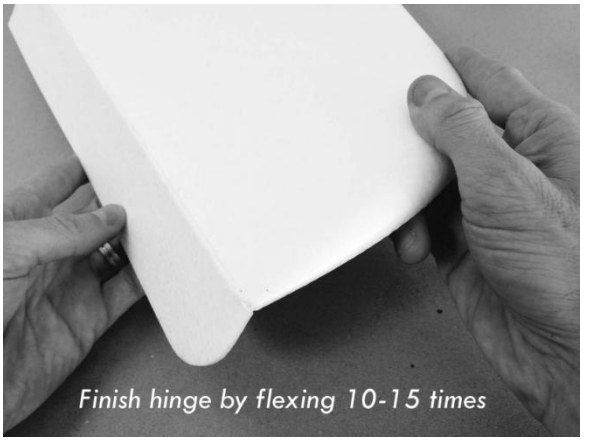
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WING AND TAIL INSTALLATION

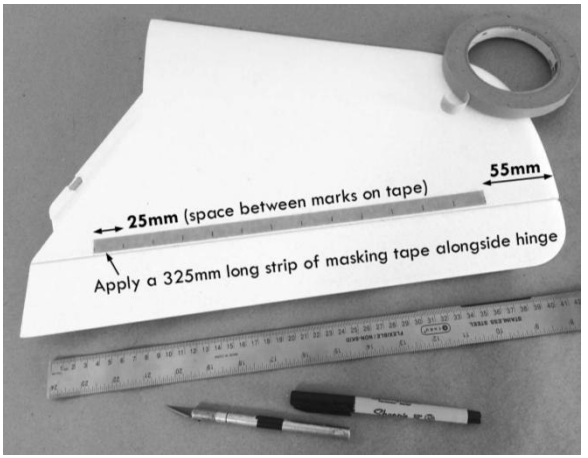
Gather items below:

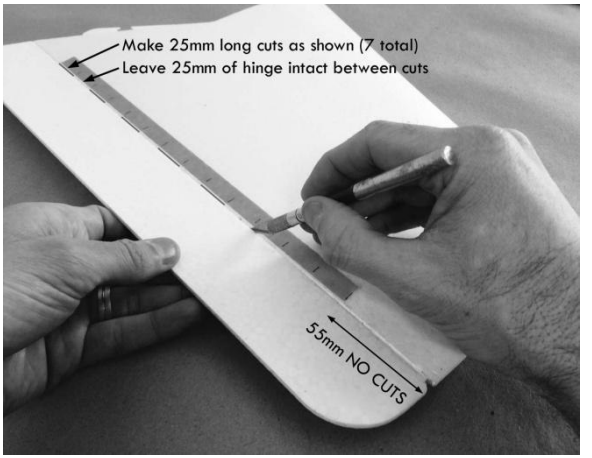
- Wing Panels (Right/Left)
- Completed Fuselage (with servos, battery, and receiver installed)
- (2) Elevon pushrods
- (2) Adjustable clevises with clamping screws
- (2) Wing Clamp Screws (7mm-long x 2mm dia.)
- Tail Fin

1. As shown on the right, flex foam elevons 45 degrees in each direction a few times to loosen hinge action.



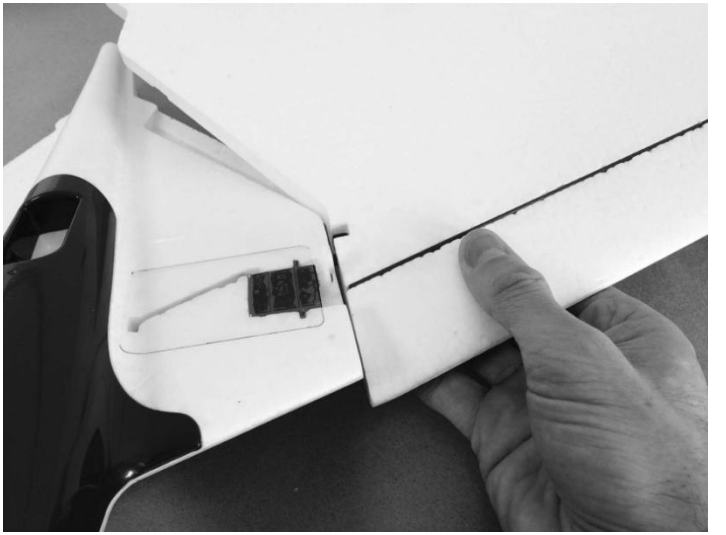
2. If hinges remain rather stiff after flexing, you can enhance control response and reduce servo load by making 25mm-long incisions along foam hinges using a sharp hobby knife. As shown in the two pictures below, use a strip of masking tape as a guide to create even cuts. Alternate, leaving approximately 25mm of intact hinge material between incisions (imagine a dashed line cut pattern as shown below-right). Make sure to leave about 55mm of intact hinge material at each end of control surface.



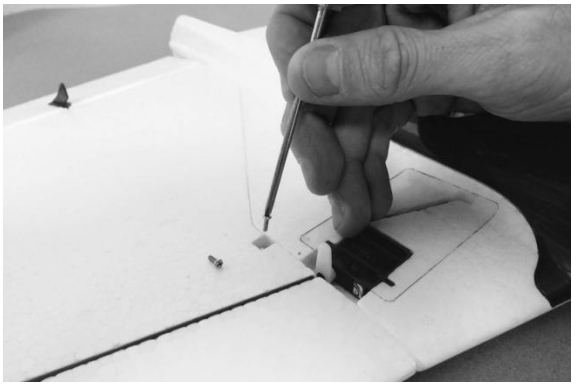


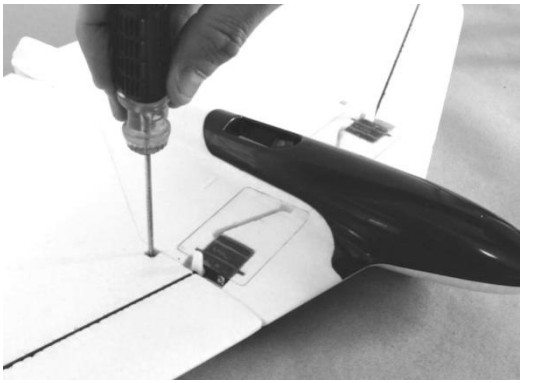
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3. While holding fuselage in hand, slide one wing panel at a time onto carbon-fiber tube, with leading edge of wing angled downward as shown. Once wing panel contacts fuselage, rotate wing panel, allowing magnets to snap into contact.

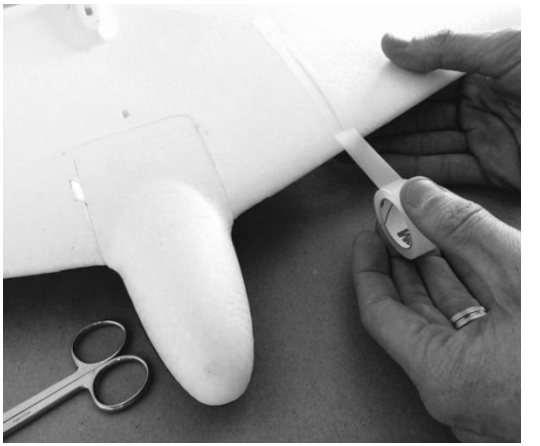


4. Locate and install two wing clamp screws into wing clamps as shown below. Firmly, but not excessively, tighten the wing clamp screw in each panel. The wing clamp screws may be loosened at any point to remove wing panels for travel and storage.



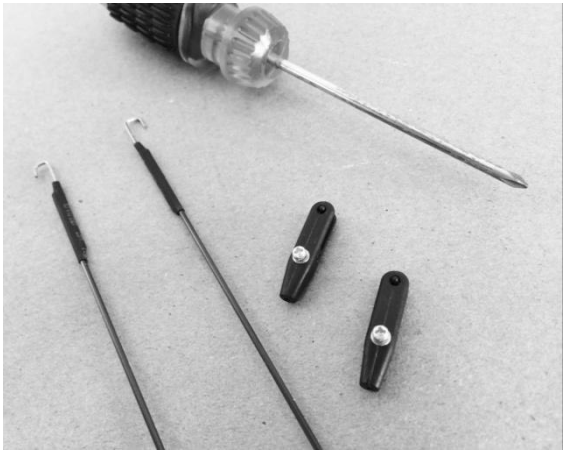


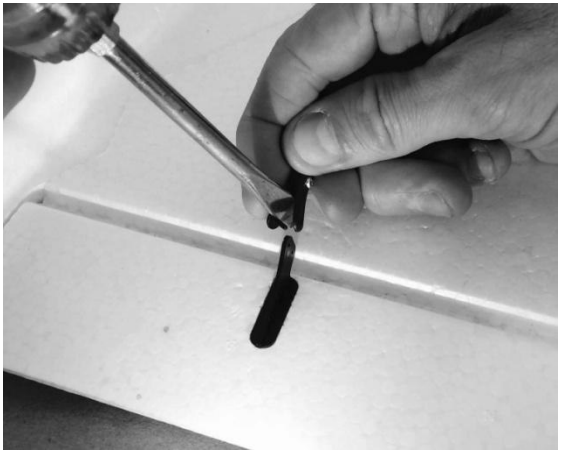
5. ***IMPORTANT:*** For added security, wrap a strip of tape (*Blenderm 1525-0*) around each wing joint at the leading edge as shown. It is possible for the wing clamp to loosen after a hard landing. This can result in the wing separating from the fuselage during landing. Make sure to inspect your wing joints for any signs of loosening or separation between flights.



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6. Locate two pushrods and adjustable clevises. Install a clevis onto each control horn at outermost hole. Make sure to face the clamping screw on each clevis towards the wingtip for easier adjustment. As demonstrated below, you may need to pry the clevis open using a larger flat-head screwdriver.

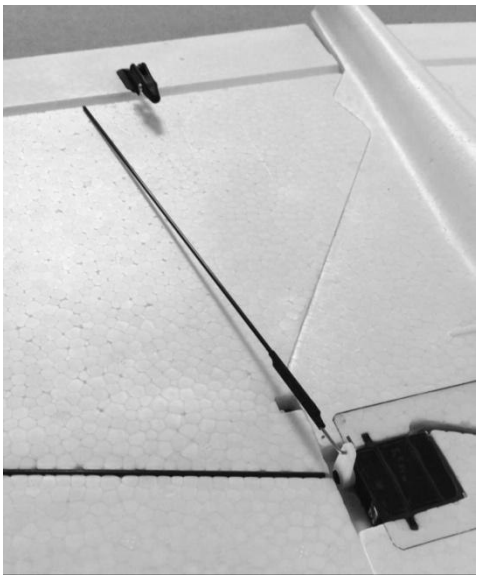


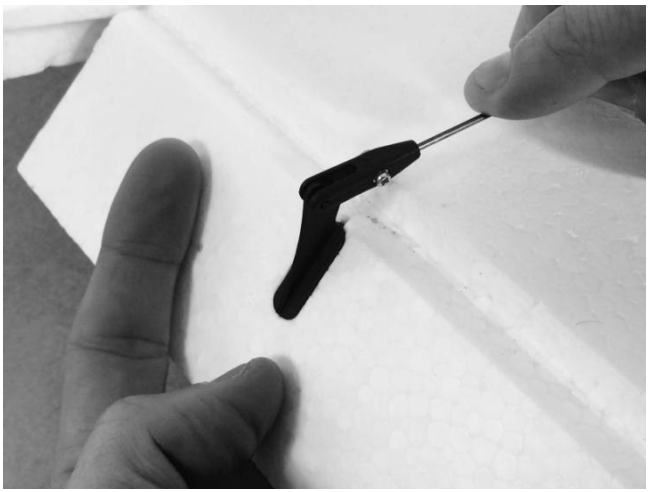


7. Insert wire "U-Bend" side of each pushrod into outermost hole of servo arm as shown below.

8. While deflecting elevon towards top wing surface as shown below, slide pushrod into clevis by rotating elevon back to neutral position. You may have to loosen clamping screw slightly to allow clevis to slide easily onto pushrod.

9. Ensure that both clevises slide freely on each pushrod for the next adjustments. Loosen clevis screw if necessary.

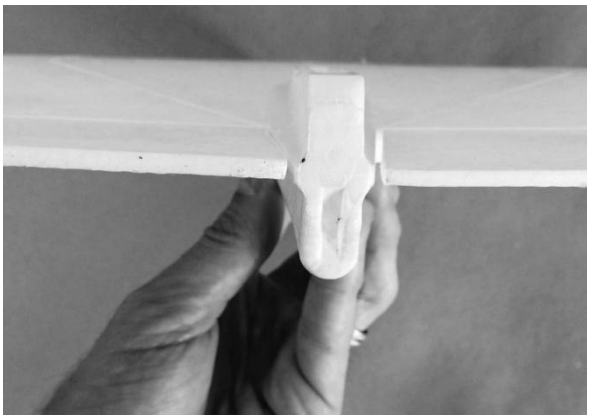




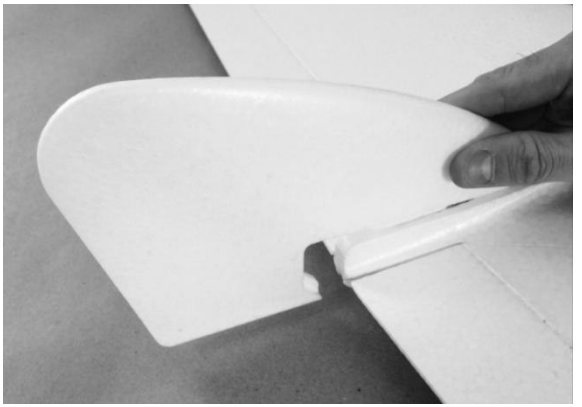
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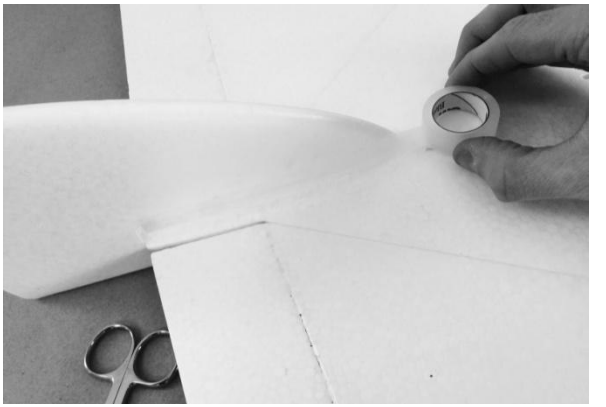
10. Turn on transmitter and plug battery into the Extension Wire to power up servos. Double check that your servo arms are centered and make trim adjustments if necessary.

11. Align elevons with fuselage as shown to the right. Use a bit of painter's tape if necessary to hold elevons in their "neutral position" and firmly tighten clevis screws with elevons in this position. Do not over-tighten clevis screws. Check by hand to make sure clevis is now locked onto pushrod.



12. Install Tail Fin onto glider from rear, allowing tabs to align and slide in place. Apply 2-3 strips of Blenderm tape along joint for a secure hold.





►***HOT TIP:*** **Basic assembly is now complete!** Use our easy to apply *Stick-on Trim Sheets (Parts DFFA050-56)* to add some color. These trim sheets can be gently stretched around light compound curves such as wingtips, without any heat. Simply trace your design on the paper transfer sheet and cut out with a hobby knife. Give yourself about 2-cm of extra material past the edges so that you can grab and stretch the film around the curved wingtips. We like to use a flexible curve ruler and french curves for drawing smooth arcs. Keep in mind that coating the glider with any material will increase the weight of the glider, so keep it light!



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BALANCING THE WEASEL-TREK

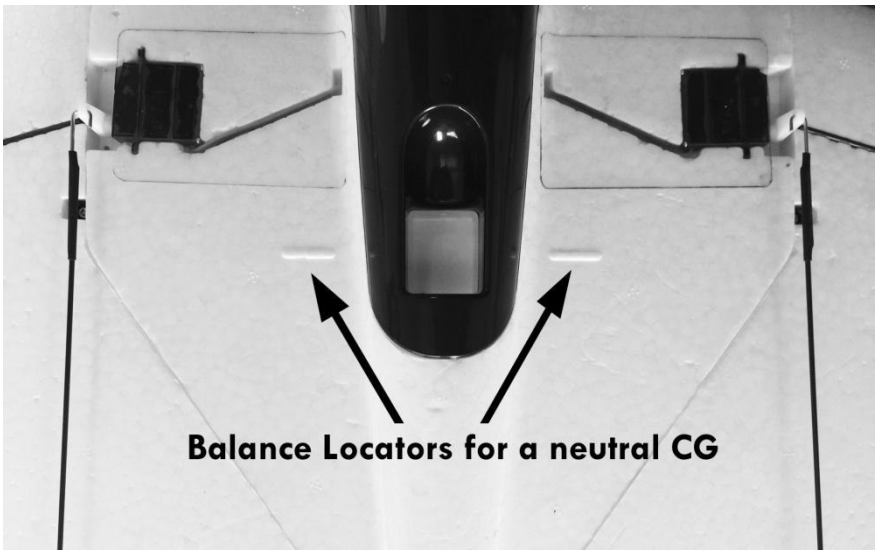
► ***IMPORTANT:*** The Weasel-TREK must be assembled, balanced, and trimmed properly to ensure smooth, efficient flight. Poor balance and trim WILL lead to poor flight characteristics. This is especially true for small flying wings like the Weasel-TREK, which almost always require a bit of fine-tuning to achieve best flight performance. Don't be discouraged if it takes you a few flights to get the balance and trim just right. Additionally, always balance your glider AFTER decorating the airframe with any paint, tape, film, etc.

Gather items below:

- Fully assembled and decorated Weasel-TREK
- Small balance weights (not always necessary). You may only need several small washers or coins to get the balance correct. If you need more weight, try our *non-lead* Steel Balance Weights (*Part DFAA002*).

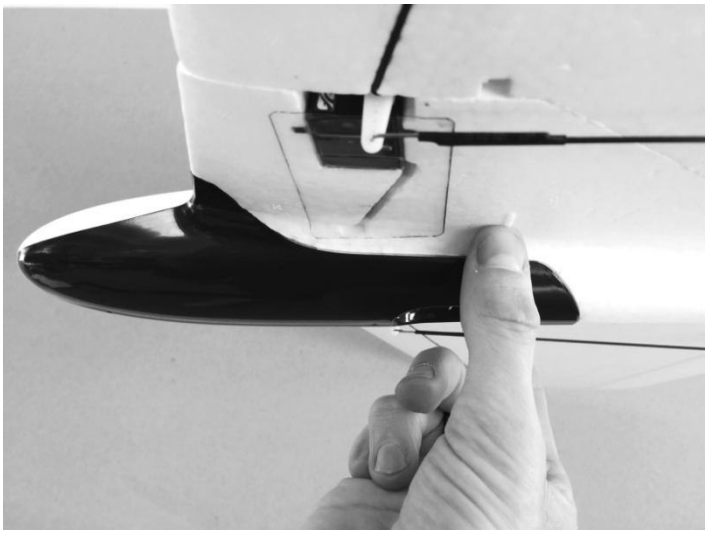
1) Ensure all components of glider are attached and installed. Replace canopy if not already installed.

2) Find the Balance Locators on underside of wing, behind servos. This Center of Gravity (CG) position provides the Weasel-TREK with a neutral flight characteristic. It may be a bit too neutral for some pilots who appreciate a little more hands-off stability, but it is a good place to start nonetheless.



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3) Center your fingertips on the Locators to balance the glider and see how it reacts. If the nose drops quickly, move battery rearward until glider balances level on fingertips. If the tail drops quickly, slide battery forward if possible, or add a small amount of balance weight to the provided recesses alongside battery (you may only need a small coin or two). The Weasel-TREK's short length makes balancing a bit tricky, so take your time and make sure it balances level on your fingertips for at least a moment or two before it starts to fall out of balance. ***Proper balance is crucial for smooth and efficient flight!***





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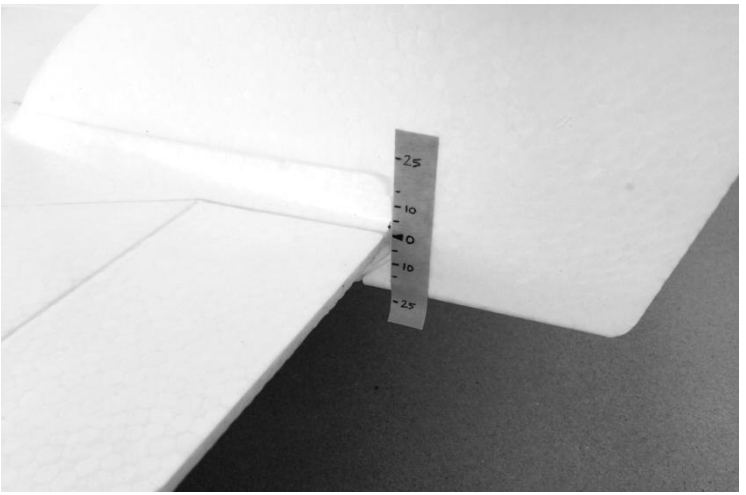
CONTROL SURFACE DEFLECTIONS

The control surface deflections in the table below provide the Weasel-TREK with active response to control inputs. You can program separate Low and High rates using the "Dual Rate" menu and toggle switches on your programmable transmitter. In our opinion, the "High Rate" provides a very fun and aerobatic feel, while the "Low Rate" is good for those pilots just getting the feel for the model and slope soaring. Before proceeding, make sure all End Points and/or Adjustable Throw Volumes (ATV) are set to the default of 100%.
IMPORTANT: Elevon deflections can be adjusted to suit one's own flying style, but make sure to pay particular attention to your elevator deflections... a little goes a long way for a flying wing! Too much elevator deflection will result in inefficient over-controlling, stalling, and poor flight behavior.

►HOT TIP: As shown below, apply a piece of painter's tape to the tail, just behind elevon control surface for setting deflections. Mark desired deflections on tape and adjust transmitter Dual Rates until proper deflections are achieved.

	LOW RATE		***HIGH RATE***	
	Measured Deflection	**Dual Rate / Exponential**	**Measured Deflection**	**Dual Rate / Exponential**
Elevator (Pitch Control)	5mm *UP* 4mm *DOWN*	**D/R: 20%* **EXPO: -20%*	10mm *UP* 9mm *DOWN*	**D/R: 35%* **EXPO: -35%*
Aileron (Roll Control)	13mm *UP* 12mm *DOWN*	**D/R: 50%* **EXPO: -20%*	25mm *UP* 24mm *DOWN*	**D/R: 100%* **EXPO: -35%*

* Provides the approximate Dual Rate (D/R) settings in percent. Use of Exponential (EXPO) is a matter of personal preference. The use of Exponential will soften the feel of the controls for small stick movements. This makes the model feel less "twitchy" and it will react smoother to small control inputs. Some pilots prefer no EXPO, making the control response linear and more active around center.
IMPORTANT: *The use of negative EXPO in the chart above is based on the use of a Futaba transmitter (i.e. -35% Expo). For other transmitter brands, you may find that a positive EXPO value provides the desired result (i.e. less sensitivity to small stick inputs).*



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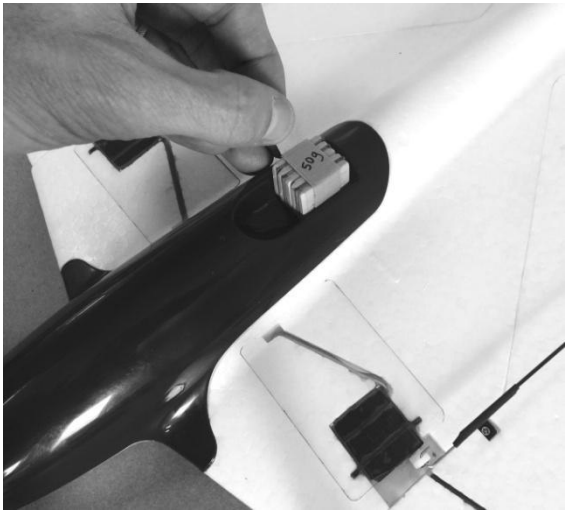
BALLAST OPTION



For higher wind conditions on the slope, you may want to add some ballast weight for better penetration. The Weasel-TREK features a ballast compartment behind the finger launching hole on the glider's underside. This compartment fits up to 10 pieces, or 50 grams of our Steel Balance Weight (*Part DFAA002*).

As shown, stick 10 pieces of 5g steel weight together to create a 50g ballast slug. Wrap the ballast slug with enough painter's tape to create a snug fit, and create a small pull-tab as shown for easy removal. Ballast weight is simply press-fit into place and secured using a strip of tape applied across the ballast compartment opening as shown.

►***HOT TIP:*** We recommend adding ballast only when the wind exceeds speeds of 8 m/s (18 mph).





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PRE-FLIGHT CHECK

1. Ensure transmitter and receiver batteries are fully charged.

2. Check balance of glider and control surface deflections one last time. Make adjustments if necessary. It is always important to do this check before each flight session if possible.

3. Turn on transmitter, then glider.

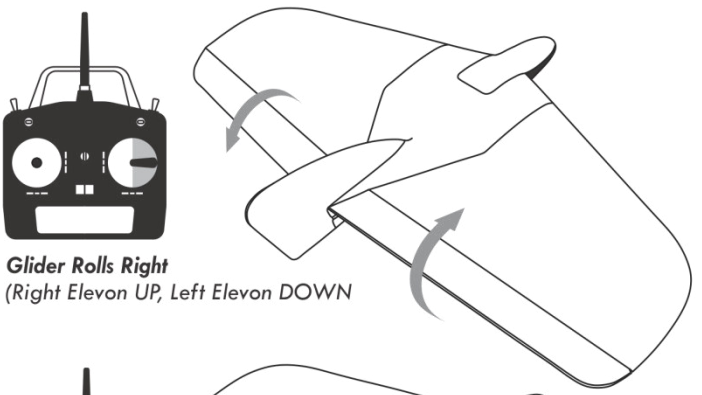
4. Refer to table and graphic below to verify proper control surface movements. Hold glider with nose facing away from you and verify that control stick inputs result in correct control surface movements.

Roll	***Roll Right:*** Right elevon up, Left elevon down ***Roll Left:*** Left elevon up, Right elevon down
Pitch	***Nose Up:*** Elevons both deflected up ***Nose Down:*** Elevons both deflected down

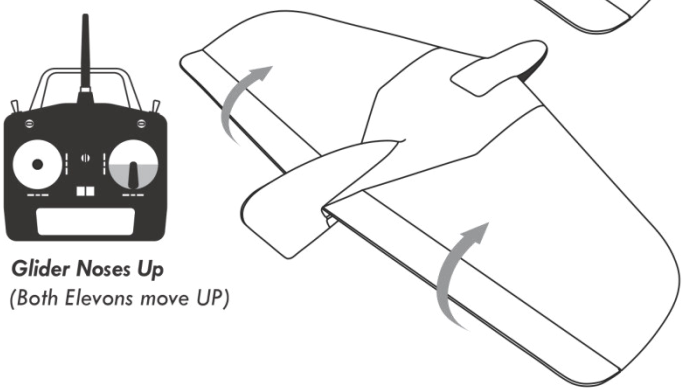
5. Check for any binding or interference between moving parts and do a range test according to your transmitter's instructions. You are now ready for the maiden flight!

CONTROL SURFACE MOVEMENTS

Corresponding "Mode 2" transmitter inputs shown.



Glider Rolls Right
(Right Elevon UP, Left Elevon DOWN



Glider Noses Up
(Both Elevons move UP)

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TEST FLIGHTS: TRIMMING FOR STRAIGHT AND LEVEL FLIGHT

1. Locate a flat, open, grassy field for initial test flights. Choose a nice day with a light breeze.

2. Turn on transmitter, then glider. Check controls and flight surfaces for proper operation. If you are unsure, start with "Low Rate" elevon deflections listed on page 13.

3. While grasping nose of glider in front of wing using your thumb and middle finger, slide index finger rearward into launching hole.

4. As shown, use simple, overhand javelin-style launches until you achieve proper trim.

5. ALWAYS launch and land your glider into wind to minimize ground speed. Throw the Weasel-TREK firmly but not excessively, like a javelin, without twisting your wrist. Make sure to point nose towards horizon (not up or down). Make trim adjustments via trim levers on your transmitter until glider flies straight and level.

6. Once you have achieved a straight and level glide, you are ready for a go out on the slope. Fine tuning of your model for optimum flight will be explained in the following section.





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FINE-TUNING THE WEASEL-TREK FOR OPTIMUM FLIGHT PERFORMANCE

►It is well worth spending a little time verifying the proper balance and trim of your glider. Doing so will ensure the Weasel-TREK is a pure joy to fly and reacts predictably to the varying air currents experienced while slope soaring. We find it easiest to fine-tune the CG position on the slope in light to moderate lift. This will make it easy to climb quickly to altitude for the "dive test" described below.

To fine-tune the CG position for optimum performance, first climb to safe altitude, and verify glider is trimmed for straight and level flight. If necessary, make any trim adjustments until a fairly straight and level hands-off glide is achieved). Proceed to put glider into 45° dive to increase airspeed. Allow glider to dive "hands-off" and see which of the three scenarios holds true for your glider:

1. **Correct CG Position:** If properly balanced and trimmed for level flight, the Weasel-TREK will remain in a straight 45° hands-off dive. Additionally, a well-balanced and trimmed aircraft will fly hands-off in a straight and level glide for a good while. If instead your glider noses up or down as speed increases, this is a sign that your CG position is off; read on if this is the case.
2. **Nose-Heavy (too forward CG):** If the glider noses up gradually as speed increases without any elevator input, the aircraft is most likely nose-heavy. ***Solution:*** Remove a bit of nose-weight and add DOWN elevator trim until the first scenario above is achieved.
3. **Tail-Heavy (too rearward CG):** If the glider increases steepness of dive at higher speed (i.e. "tucks under"), then it is tail-heavy. A tail-heavy glider will be a chore to fly, constantly requiring elevator input to maintain a smooth flight trajectory. ***Solution:*** Add nose-weight and UP elevator trim until the first scenario above is achieved.

IMPORTANT NOTES:

Make sure your transmitter's trim steps are set to the absolute minimum, since small flying wings like the Weasel-TREK are very sensitive to trim adjustments. Note that not all transmitters have adjustable trim steps.

In order to achieve trimmed flight, you will have to adjust elevator trim slightly each time you add or remove balance weight to the nose of the glider.



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CONFIRMING CG LOCATION

You can confirm the CG location via the **inverted flight test** below:

Inverted Flight Test: A properly balanced Weasel-TREK should fly inverted with a little forward stick (down elevator), assuming good lift and moderate airspeed. If it takes NO forward stick, then the glider is neutral or slightly tail-heavy, and if it takes more than 1/3 forward stick the glider is a bit nose-heavy. How much this bothers you should be dictated by the previous CG tests, and how much you like to fly inverted. Some prefer their gliders to be a bit more nose-heavy, as they tend to be more stable and predictable. We like ours quite neutral, as this gives the glider a smooth and precise feel and makes for the straightest launches to altitude, although it will require a little more concentration to fly.

ADJUSTING ELEVATOR RATES

At the same time you are working on the CG, you'll probably find that your elevator rates need adjusting. For a flying wing, having too much elevator movement is as bad as having poor balance. This is especially so if you move the CG back a bit, as this will make your plane more sensitive to pitch, i.e. elevator inputs. The easiest way to test elevator rates is the **Loop Test:**

1. In decent lift, an Weasel-TREK with proper CG and elevator rates should be able to do a nice, reasonably tight loop after building airspeed in a dive. If the plane has too much elevator throw, when attempting a loop the glider will nose up quickly and then hesitate, perhaps not finishing the top of the loop. This is a sign of excessive elevator throw, and the hesitation is a type of stall caused by too much control surface movement. If you see this, you need to reduce your elevator rates.

2. Likewise, if the loop is huge and it seems like the glider could be looping tighter, you can increase the elevator rates. If the CG is close to right on, you won't need to do much. We recommend increasing the rates a little at a time until you get a nice loop from a reasonable entry speed. We like our elevators relatively insensitive, so we don't usually set our elevator rates as high as other people (We find it makes the elevator too sensitive and thus makes the glider harder to fly smoothly and efficiently). Play with it until you get it "dialed in" exactly the way you like. The elevator response should be nice and smooth.

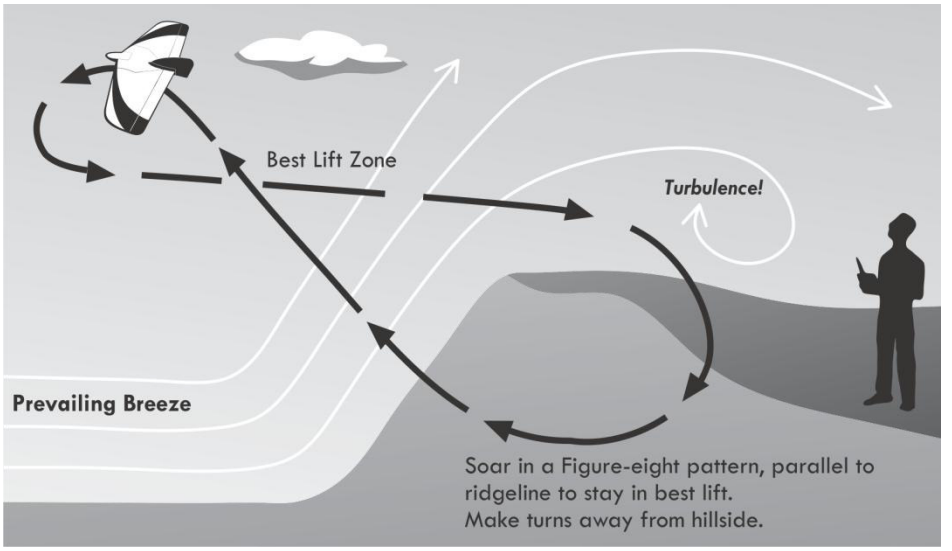
3. ***A final note:*** If, when flying, you pull back and the glider's nose bobs up and down very rapidly in a "hyper-stall," then you've got way too much elevator deflection. If you have your control surface rates set to the recommended amounts and you have your CG correct, YOU WILL NOT SEE THIS. However, if you are seeing it, it's a sure sign your elevator rates are too high.

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SLOPE SOARING BACKGROUND AND TECHNIQUE

Slope soaring, or ridge soaring, may be one of the easiest and most rewarding ways to experience the thrills of RC soaring flight. One could describe the act of slope soaring as surfing an invisible wave of upward moving wind. RC slope soaring is quiet, clean, challenging, and fun! The glider sustains flight by riding the updraft created when wind is deflected upward by a sizeable land feature (sand dune, mountain, cliff, etc). Through mastering the soaring techniques demonstrated on the following pages, one develops a unique appreciation and understanding of the environment and weather patterns.

Slope soaring with a simple two channel glider like the Weasel-TREK can be a great first introduction to RC flight, as it allows the pilot to develop his/her flying skills quickly, due to the often consistent and easy-to-navigate nature of the lift source: ridge lift. The Weasel-TREK's small size, low weight, simplicity, low cost, and durability give the pilot added confidence that facilitates the learning process. Unlike the days of learning to fly a "classic" balsa glider, when the fledgling pilot worried constantly about putting the glider "back in kit form," one can now avoid the constant fear of crashing a delicate glider and concentrate more fully on the joy of learning to fly.

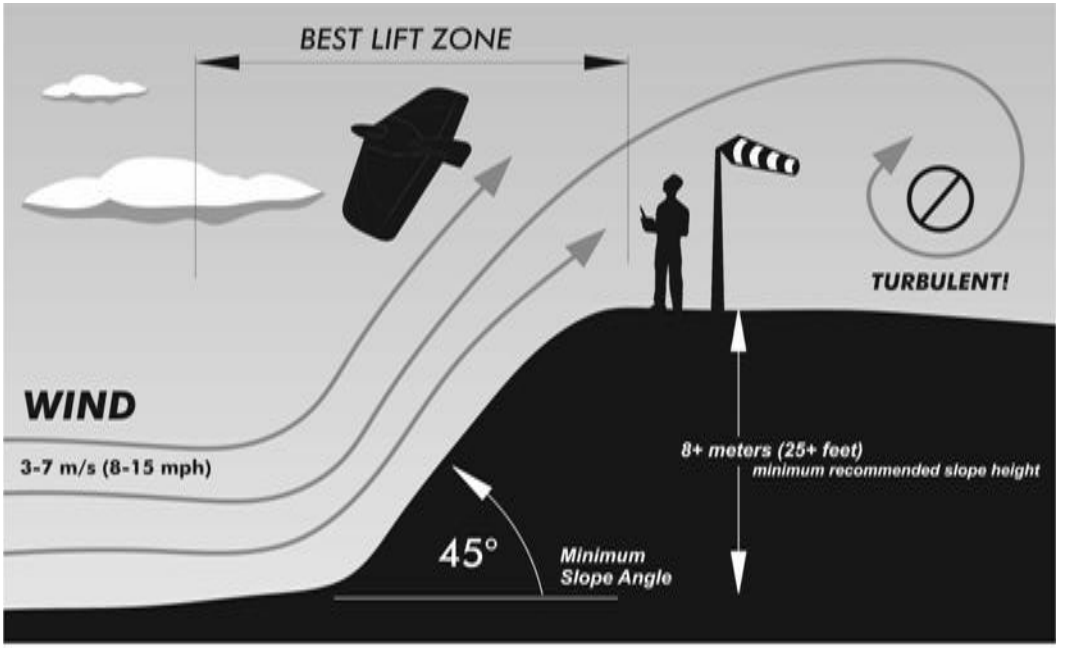


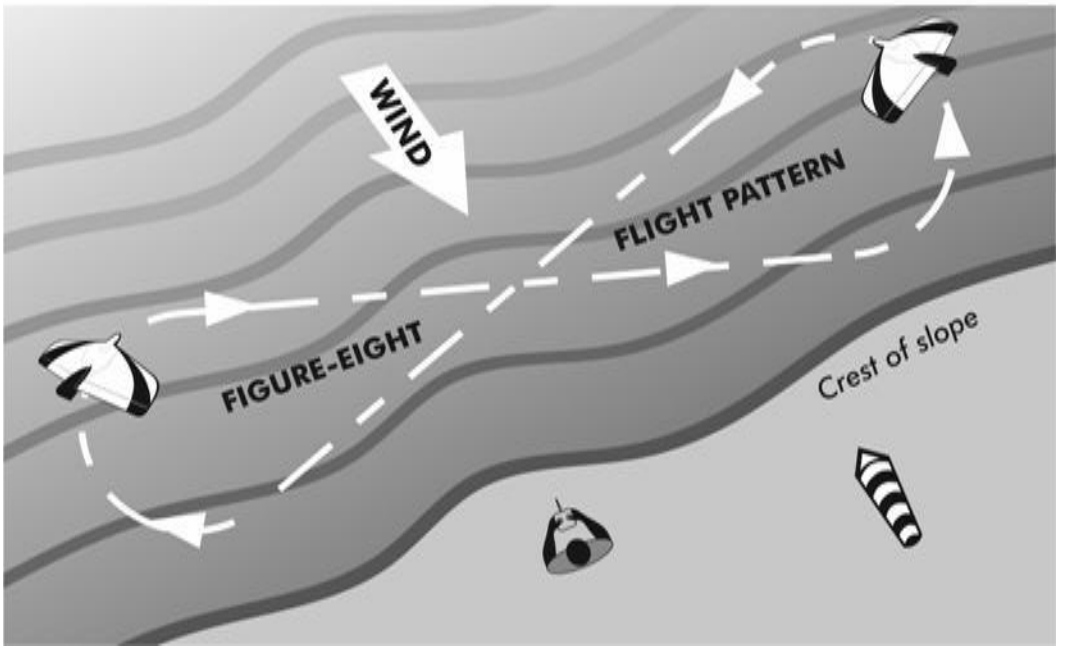
Important guidelines to follow when flying the Weasel-TREK:

- ►**When learning how to fly, always seek advice and training from experienced local pilots.**
- ►**Choose a flying location with a nice grassy area and free of large obstacles.**
- ►**When slope soaring, use a figure-eight shaped flight pattern to remain in best lift zone.**
- ►**Make turns away from slope whenever possible and give right of way to larger, heavier aircraft.**
- ►**Launch and land glider into wind and away from people, obstacles, and turbulence.**
- ►**Treat the land and its occupants with the utmost of respect.**
- ►**Fly glider a safe distance away from any individuals present.**
- ►**Have fun and enjoy the sun, wind, and your surroundings. This is what RC soaring is all about!**

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SLOPE SOARING FUNDAMENTALS - Views from side and above





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