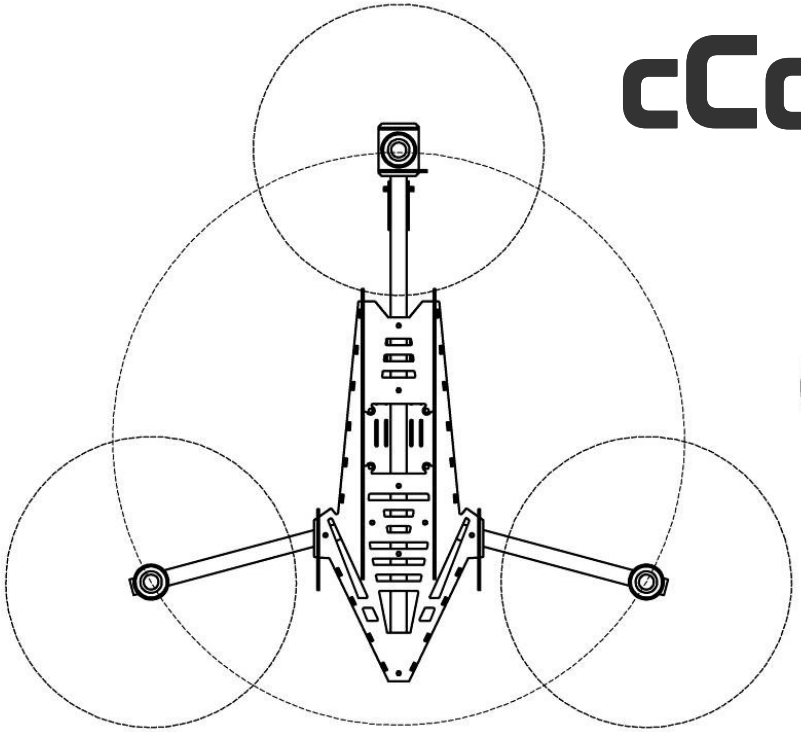
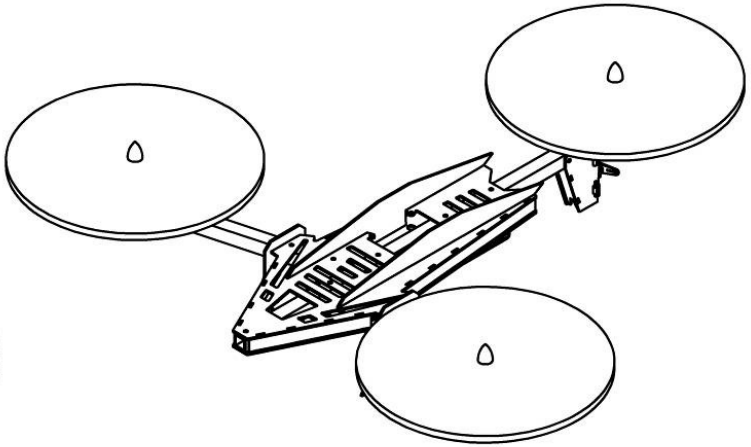
TWISTED HOBBYS



cCopter / 450



Assembly Manual

TABLE OF CONTENTS

TWISTED HOBBYS

Website: www.twistedhobbys.com – email: sales@twistedhobbys.com

Thank you for your purchasing a Twisted Hobbys' model. Please read through the entire manual before beginning to build this model. If you have any questions please contact us at the above indicated email address.

WARNING INFORMATION

This R/C Aircraft is not a toy! Read and understand the entire manual before assembly. If misused, it can cause serious bodily harm and property damage. Fly only in open areas, and AMA (*Academy of Model Aeronautics*) approved flying sites. Do not over look the warnings and instructions enclosed or those provided by other manufactures' products. If you are not an experienced pilot and airplane modeler you must use the help of an experienced pilot or an authorized flight instructor for the building and flying of this model aircraft.

These instructions are suggestions only on how to assemble this model. There are other ways and methods to do so. Twisted Hobbys has no control over the final assembly, the materials and accessories used when assembling this kit, or the manner in which the assembled model, installed radio gear and electronic parts are used and maintained. Thus, no liability is assumed or accepted for any damage resulting from the use of the assembled model aircraft or from this instruction manual including but not limited to direct, indirect, incidental, special, and consequential damages. By the act of using this user-assembled product, the user accepts all resulting liability. In no event shall Twisted Hobbys' liability exceed the original purchase price of the kit.

SHIPPING DAMAGE

Twisted Hobbys checks each model before shipping to ensure that each kit is in fine condition. We have no bearing on the condition of any component parts damaged by use, modification, or assembly of the model. Inspect the components of this kit upon receipt. If you find any parts damaged or missing, contact Twisted Hobbys immediately. We will not accept the return or replacement of parts on which assembly work has already begun. Twisted Hobbys reserves the right to change this warranty at anytime without notice.

OUR MISSION

To provide the best products and service to our customers at the lowest prices possible. We take great pride in our company, our commitment to customer service and in the products we sell. Our online store is designed to provide you with a safe and secure environment to browse our product catalog.

Thank you for shopping with Twisted Hobbys!

SAFETY NOTES

- ✓ Before assembling and flying this model, read carefully any instructions and warnings of other manufacturers for all the products you installed or used on your model, especially radio equipment and power source.

- ✓ Check thoroughly before every flight that the model's components are in good shape and functioning properly. If you find a fault do not fly the model until you have corrected the problem.

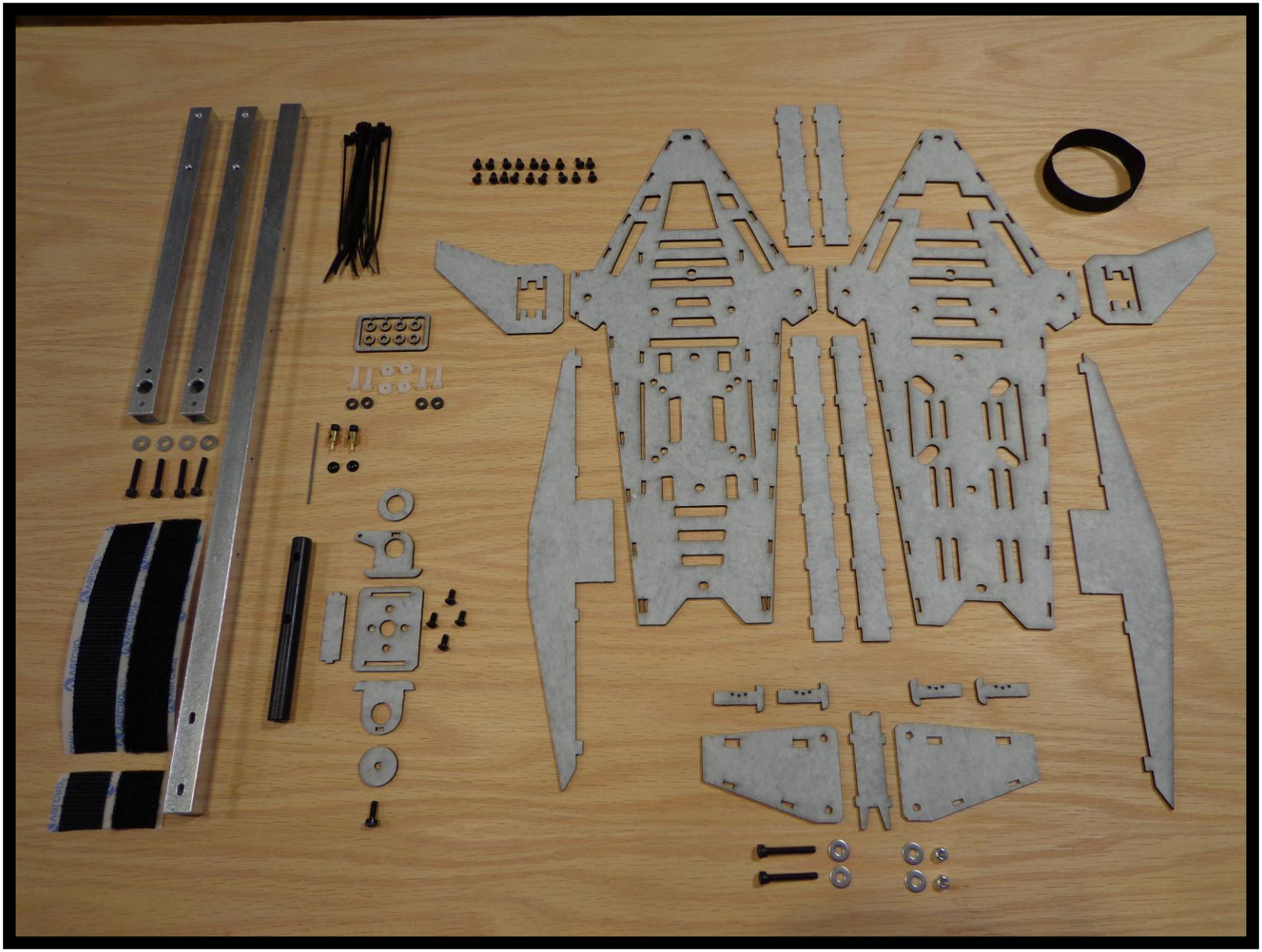
- ✓ Radio interference caused by unknown sources can occur at any time without notice. In such a case, your model will be uncontrollable and completely unpredictable. Make sure to perform a range check before every flight. If you detect a control problem or interference during a flight, immediately land the model to prevent a potential accident.

- ✓ Youngsters should only be allowed to assemble and fly these models under the instruction and supervision of an experienced adult.

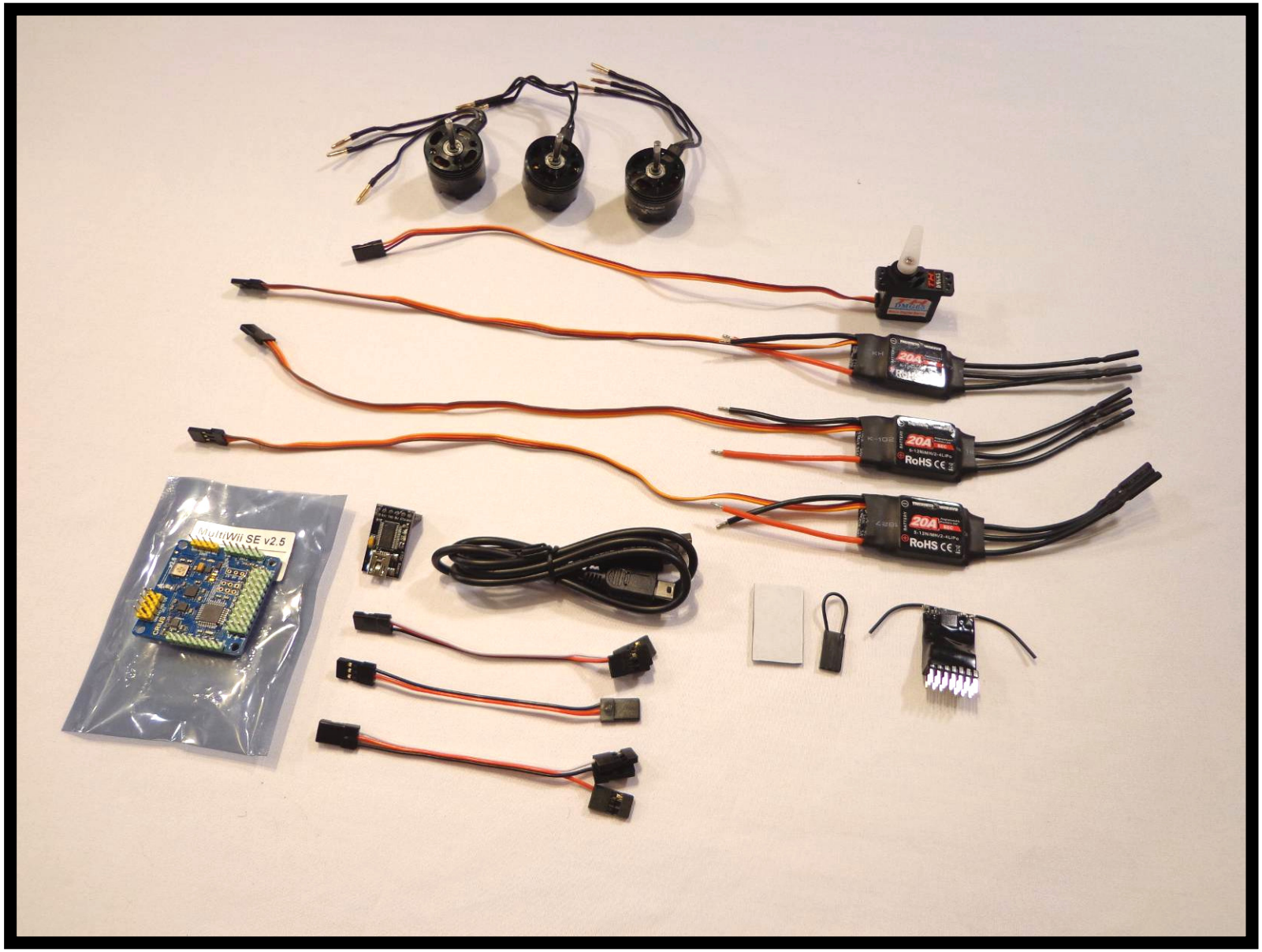
- ✓ Do not operate this model in a confined area.

- ✓ Do not stand in line with, or in front of a spinning propeller and never touch it with any object.

KIT CONTENTS

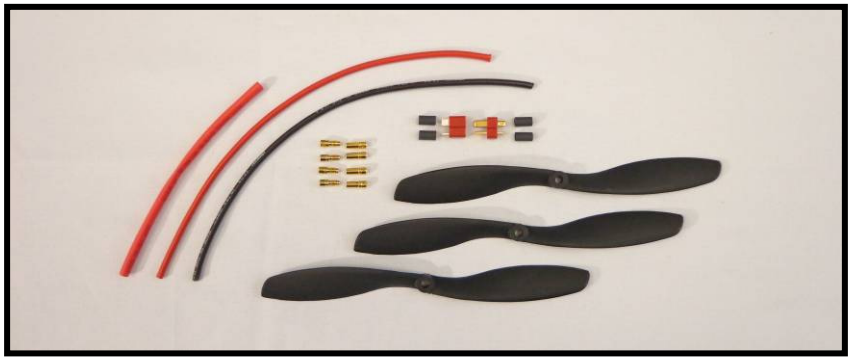


ELECTRONICS NEEDED



TOOLS & ACCESSORIES NEEDED

ADDITIONAL ITEMS



Also needed to finish your build:

- 4x 3.5mm Male Bullets
- 4x 3.5mm Female Bullets
- 3x Props (9x4.7 CCW suggested)
- Battery Connector of choice
- 12in of red wire similar in gage to ESC wires
- 12in of black wire similar in gage to ESC wires
- 6in of heat shrink tubing

BEFORE STARTING

CHECK THE "UPDATES AND MODS SECTION" BEFORE STARTING THE BUILD

The following guide and instructions are suggestions on how to assemble this model. Depending on your skill level, you may deviate from the procedures to accommodate your own building preferences. This manual is for mechanical assembly and installation of electronic components only. Additional documents are available for setup and tuning of the Flight Control Board. If not using the Twisted Hobbys' Components, some of the details may still apply, but ultimately functionality will be the responsibility of the builder. It is also assumed that the builder has some basic skills related to soldering and computer radio programming. It should also be noted that the Motors must all be the same and the ESC's should be multirotor compatible, this Assembly Manual assumes that you are using the power components recommended by Twisted Hobbys.

THE BUILD

If you are familiar with building these type models, some of the directions may not apply. It is however suggested that due to some of the unique construction techniques, some attention be given to those areas of the build. - ENJOY

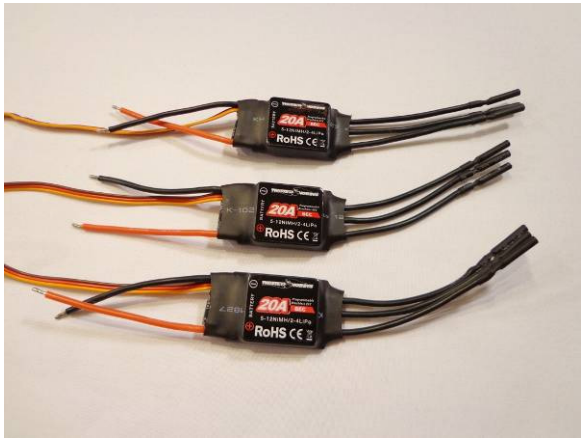
Examine the kit contents. Make sure everything arrived safely

Items are packaged in groups by assembly process. Each bag has a label with what it should contain

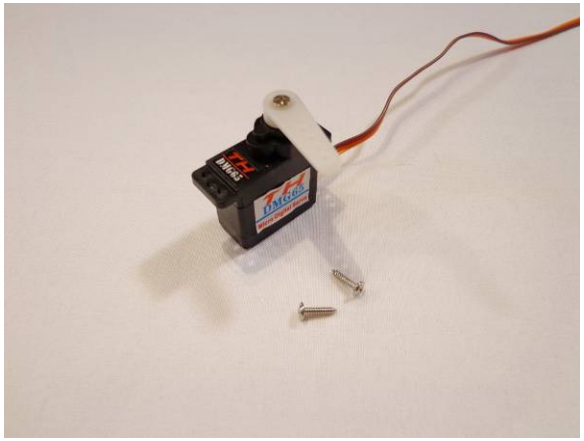
Three identical motors and multirotor ESC's, one servo, a receiver and flight control board are needed.

Items included with the motor in the Twisted Hobbys' power set. Note - Not all of these items will be needed

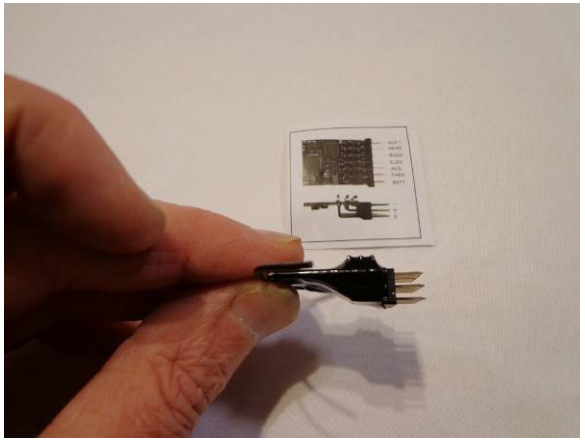
Set all the included items aside except what is shown above



Multirotor capable ESC's are needed. The 20Amp Twisted Hobbys' ESC's are what is recommended for this Tri-Copter

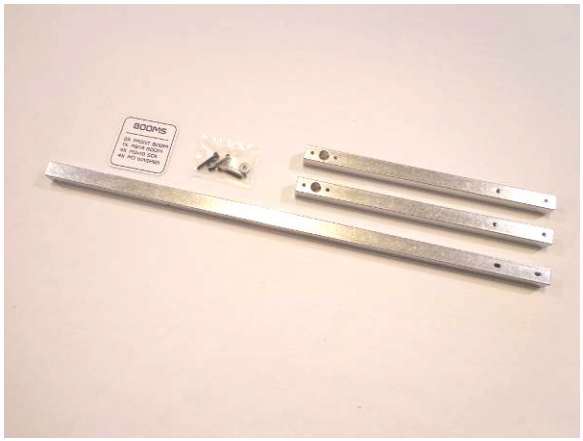


Servo size is important. Either use the 65 Series Twisted Hobbys' servo, or one that is the EXACT same size. The servo is an integral part of the tail and fits precisely



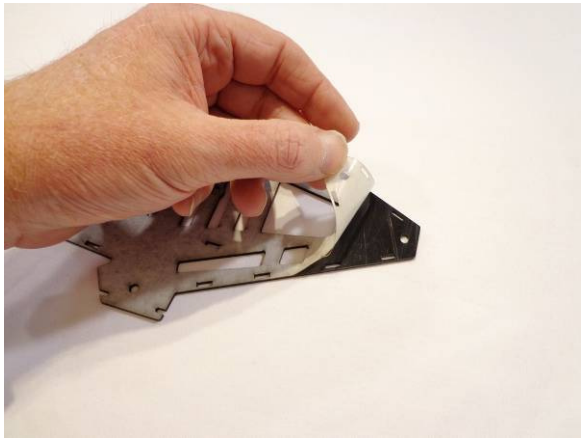
Receiver Detail - use the Receiver of choice, the Twisted Hobbys' Crack Receiver is shown above. Note the polarity of the pins in relation to the diagram in the picture

This build will use the MultiWii SE v2.5 Flight Control (FC) Board, available from Twisted Hobbys, comes with the accessories shown

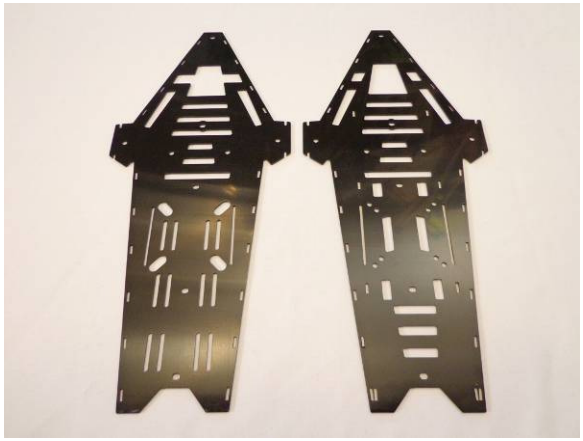


Remove the booms and hardware from the "Booms" Bag, set the hardware aside for now. This hardware is used to mount the motors to the booms in a later step

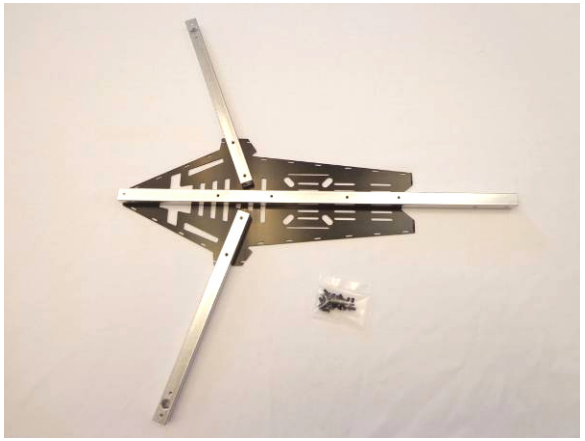
Remove the items fro the "Main Frame" Bag. Initially the two large frame pieces (Top and Bottom Deck) and the 18 button head screws is what will be needed



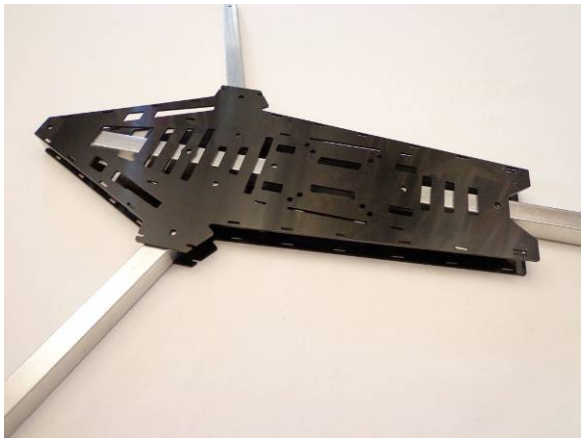
Peel off the protective coating from the Top and Bottom Deck pieces



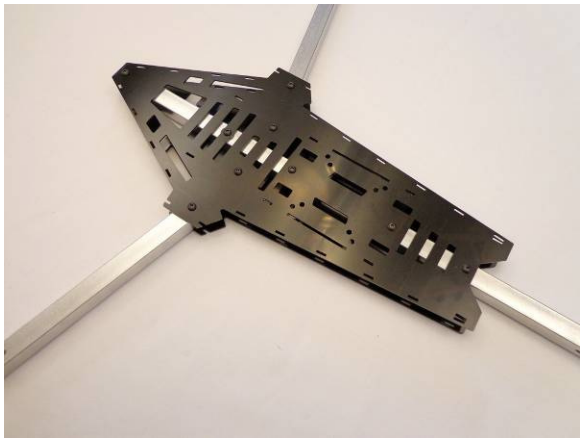
Paper removed and ready for assembly



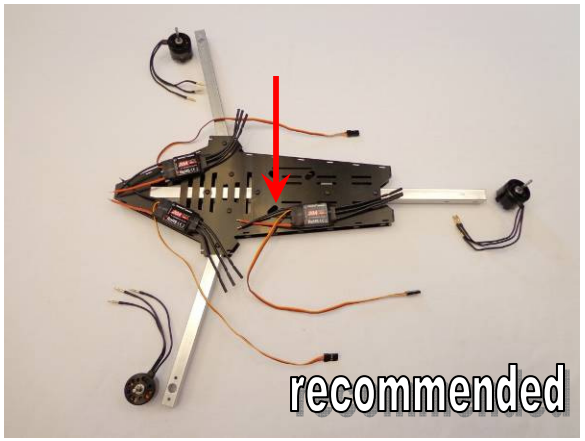
Lay the bottom Deck onto your work surface and situate the Booms on top as shown



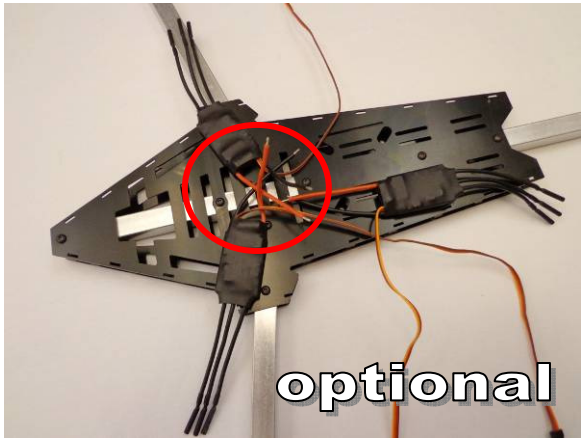
Lay the Top Deck on next.
The next couple steps are for planning the placement of the Electronics only. Do not assemble things permanently at this time



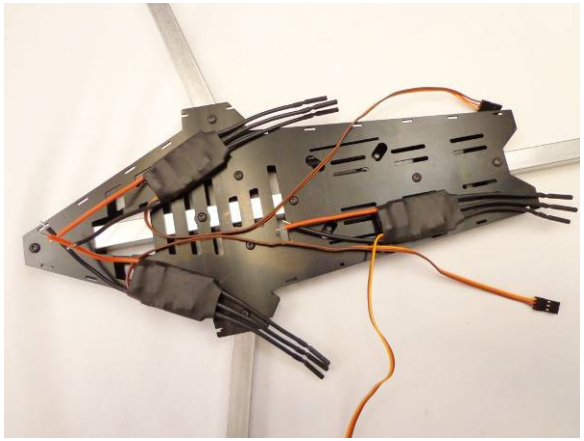
Loosely install the screws, start from the nose and work towards the rear. If there are any miss alignments slightly enlarge the holes as needed with hobby knife. Threads are delicate, use care to avoid damage



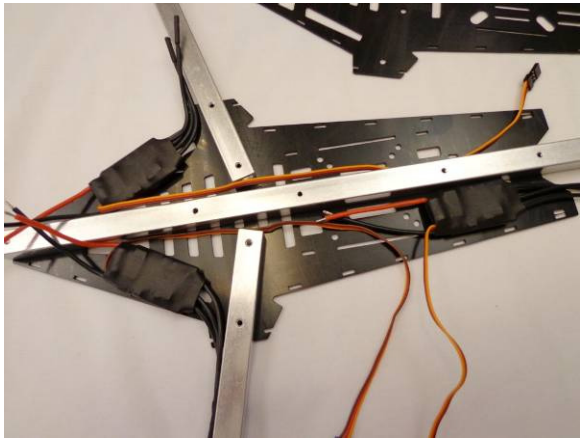
Laying out the ESC's as shown will allow for mounting them inside the frame, but will require that the ESC for the tail have an extension



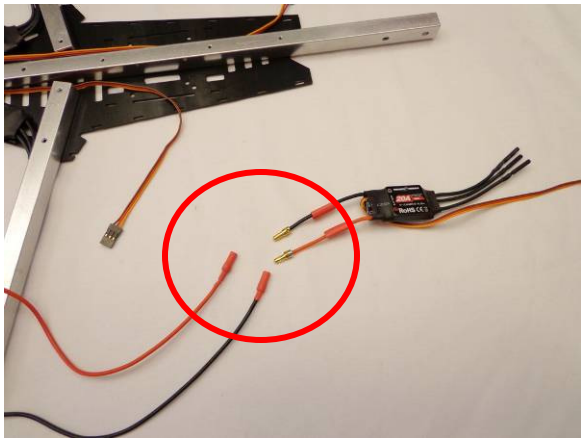
Mounting the ESC's, externally, approx as shown will not require any modifications to any of the ESC leads. Note how the position of the ESCs allow for all the leads to match up



This build will show the ESC's mounted internally. This provides for a nice clean underside. Shown on the outside here for general location purposes only

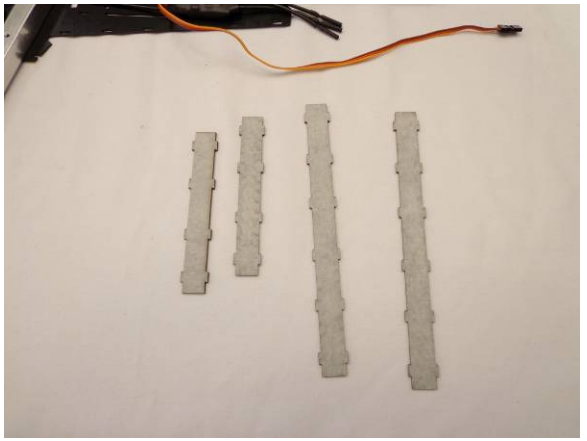


Remove the Bottom Deck and place the ESC's in their approx position. Lay ESCs in side as shown in the approx position you determined in the previous step

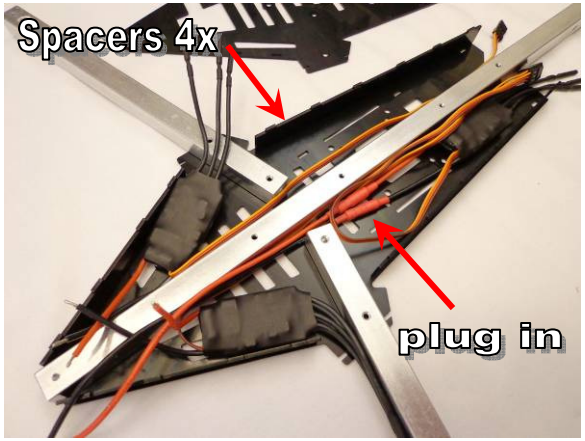


Solder some male 3.5mm bullets onto the ESC and matching female bullets to 6 or so inches of wire as shown. Wire should be the same gage as the wires of the ESC

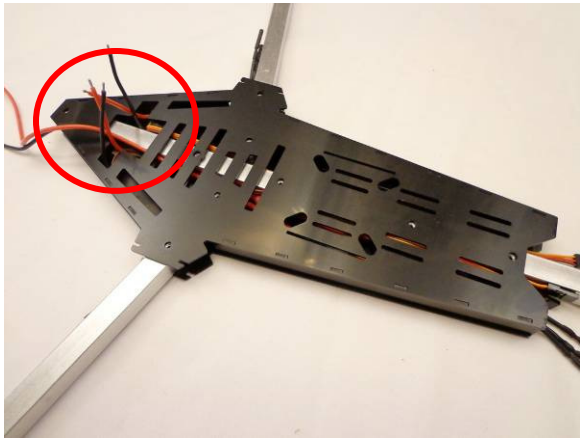
Locate the Misc Frame bag



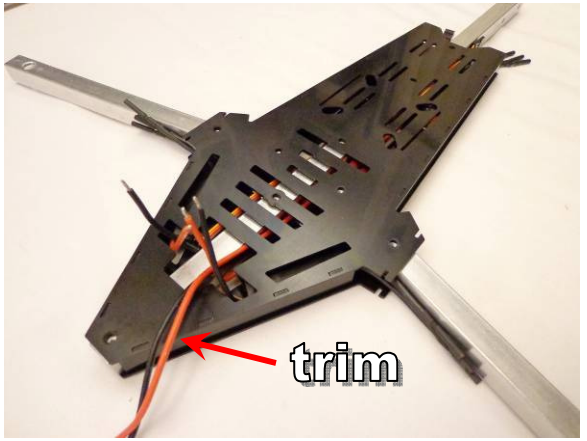
Take the two Short Spacers and the two Long Spacers from the bag, remove the protective coating



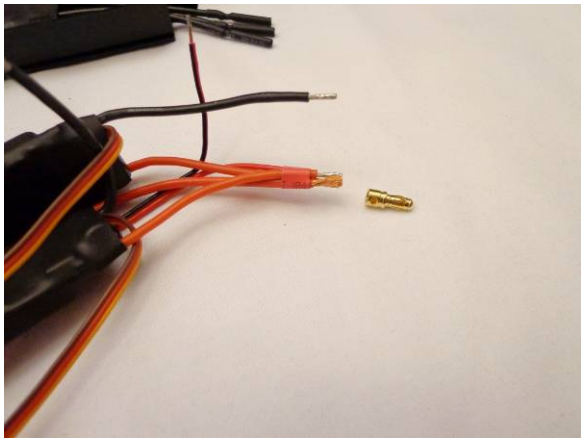
Install the Spacers into the slots on the Top Deck, this will hold the ESC's in their approx positions. Plug the extension into the Tail Rotor ESC



Set the Bottom Deck in place. No screws needed at this time. Take note of how all the wires will be run

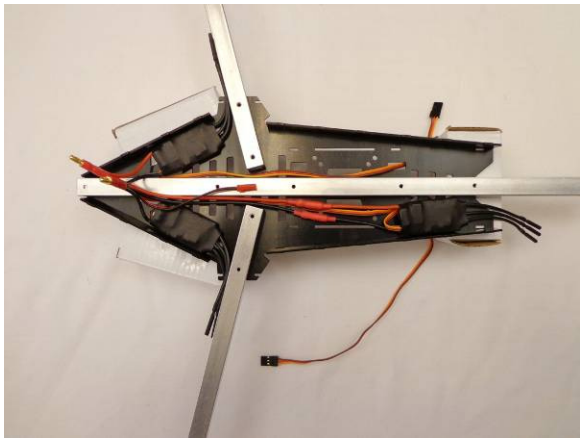


Trim the extension wires to match the length of the other two ESC's

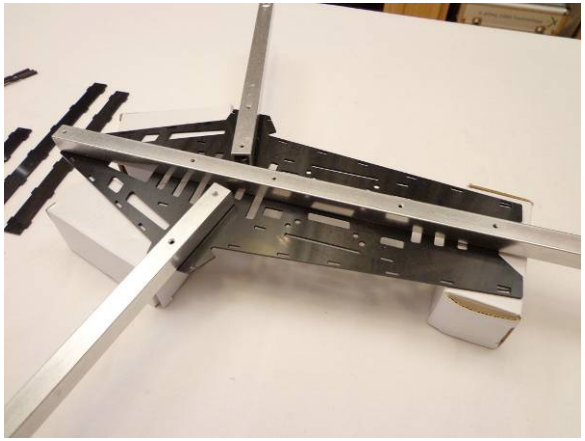


Bundle all the Red wires together as shown. A short piece of shrink tubing can be used to temporarily hold them in place. Insert into the bullet and solder. Repeat for the Black wires

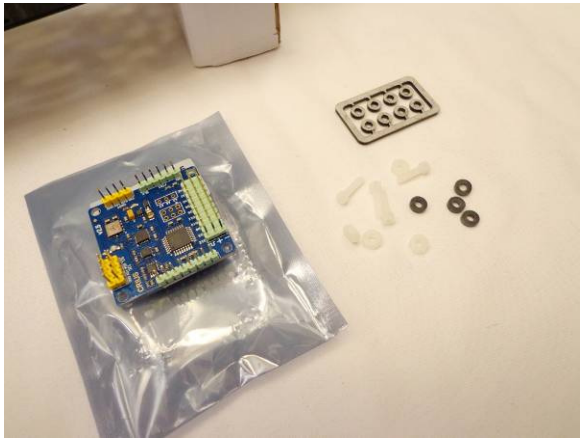
Remove the short temporary pieces of shrink tubing and install slightly longer ones that will protect the solder joints as shown. Note that a JST power tap was added, this could be for lights if wanted



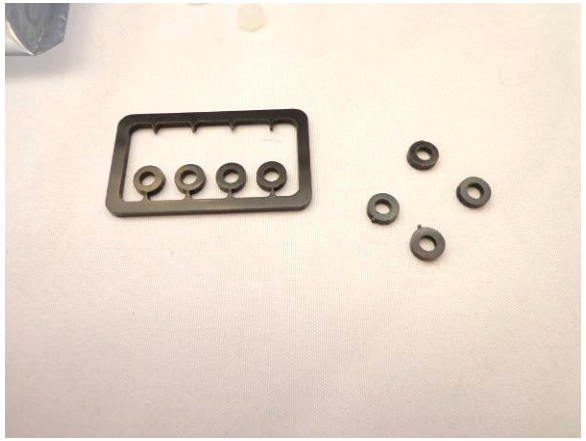
Lay everything back into the frame to verify that all the wires reach



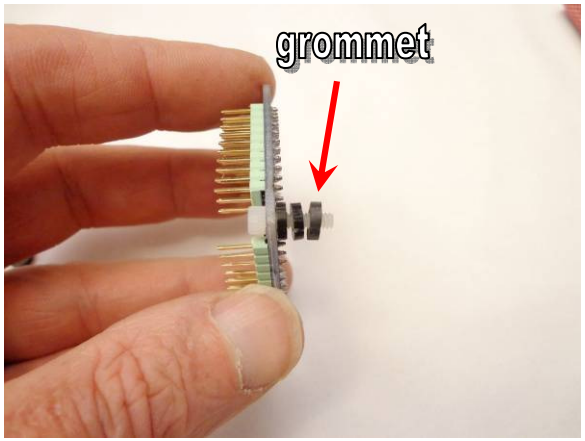
Remove the ESC harness and the Spacers. It is easier to do the next couple steps with the ESC harness out of the way



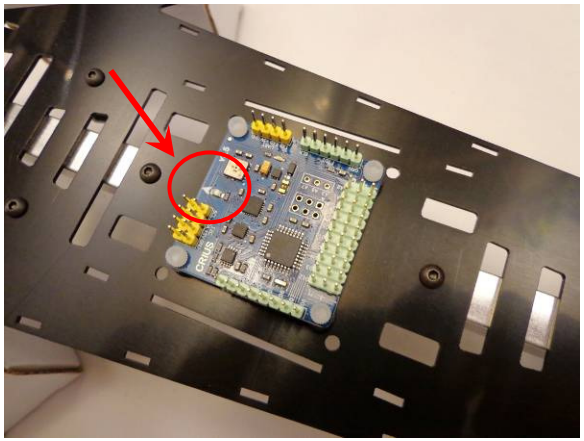
Locate your Flight Control Board and mounting hardware. Note if you don't yet have a FC board, or will be installing with stick foam, skip the next couple steps



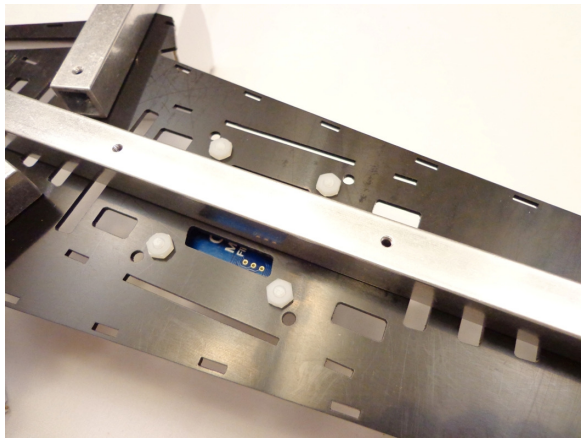
Break off how ever many FC Spacers you will need to space the board far enough away from the mounting surface so there is no contact



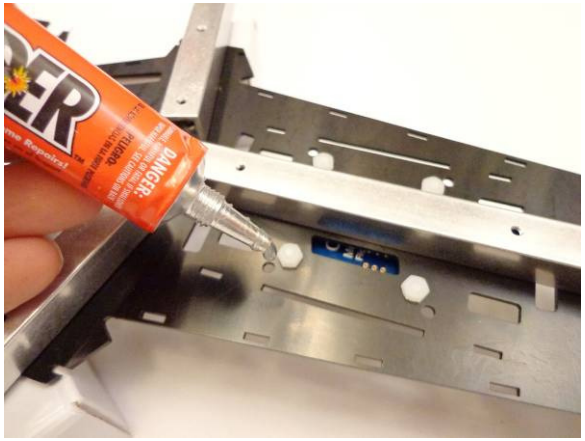
For the MultiWii SE v2.5, you will need two of the FC Spacers on each screw. The third washer shown is the FC Grommet, a rubber washer to help vibration dampening



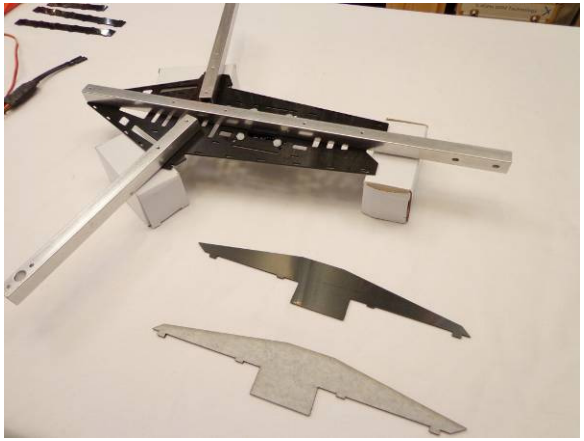
Make sure the Arrow is facing forward



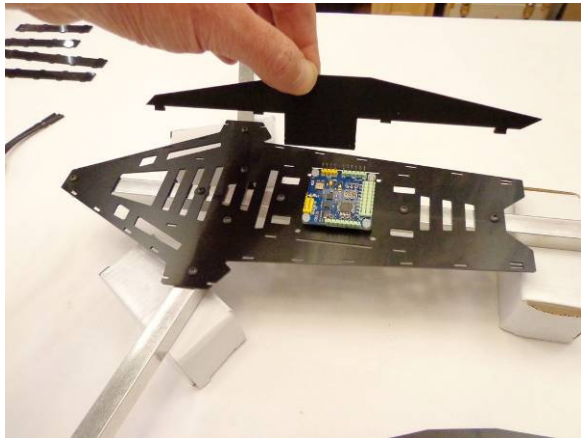
Under side of the Top Deck, Do Not Over Tighten these screws, they should only slightly compress the FC Grommets



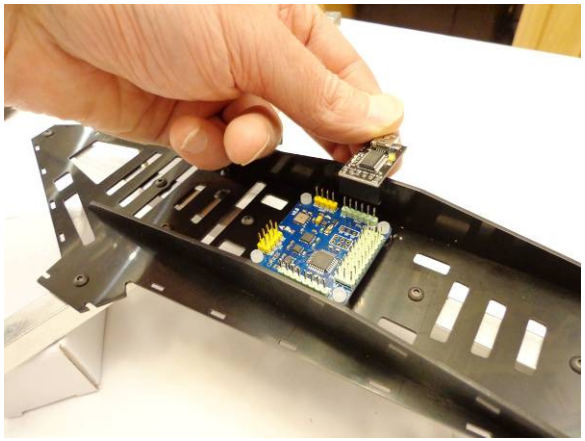
Lock the nuts in place with some glue. Welders works well for this



From the Misc Frame bag, get the Canopy Rails and remove the protective paper

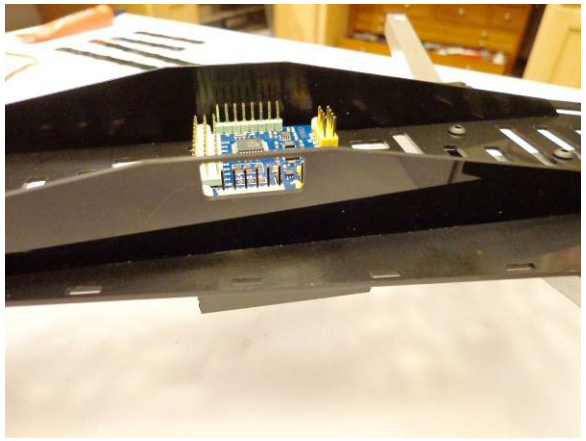


Install as shown. Note that the forward most and rearward most tabs will "snap" into their locations slots

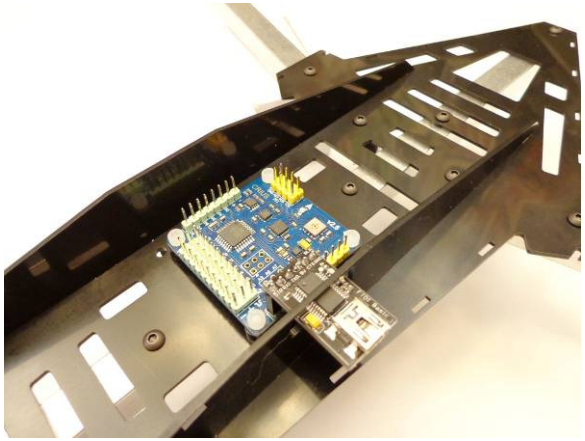


Check that the USB adapter will reach the FTDI pins on the board. The adapter included with the MultiWii SE v2.5 will not, so a clearance hole or notch will be needed

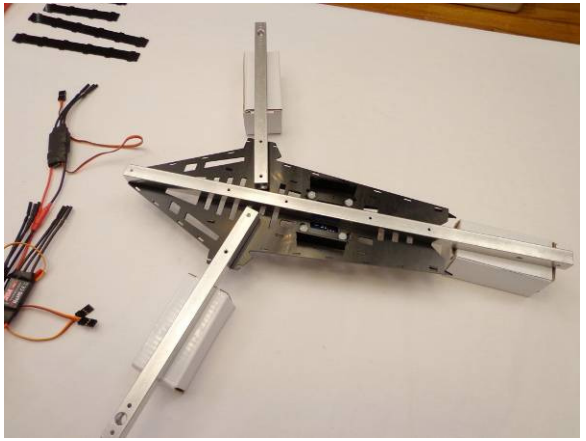
Hole added with a motor tool for the USB adapter. Note - this slot was added in later releases of the model



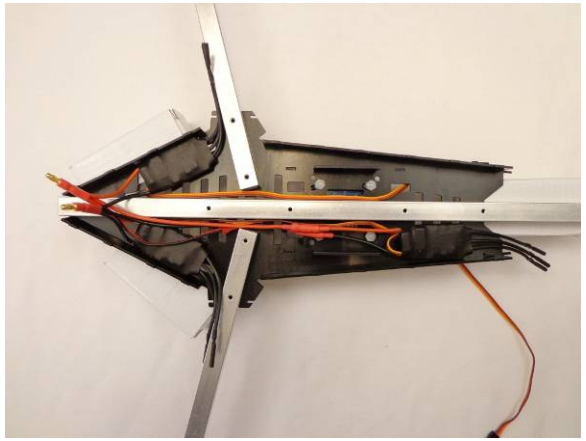
The USB Adapter is only used during initial "flashing" of the board, and later for adjusting the flight parameters, so it will only be installed as needed for programming and not be a permanent part of the airframe



View of the USB Adapter installed thru the added hole

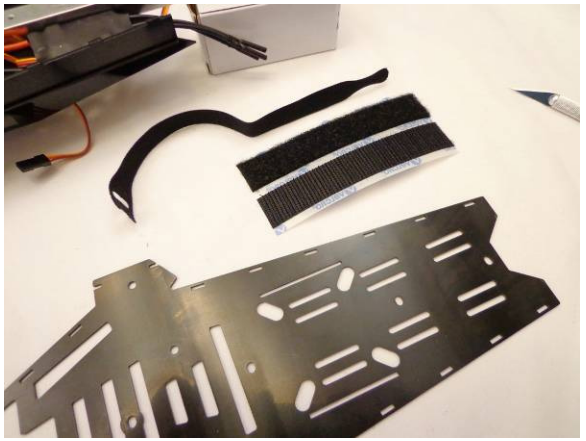


Now, flip the frame onto it's back as shown, both Canopy Rails should be installed at this point. Space the frame off the work surface with the motor boxes

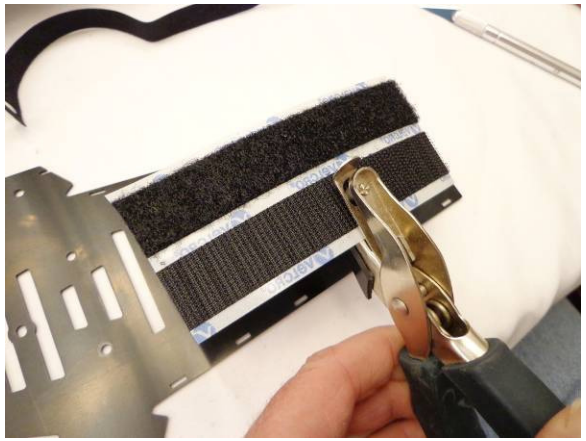


Lay the ESC Harness back in place like it was earlier

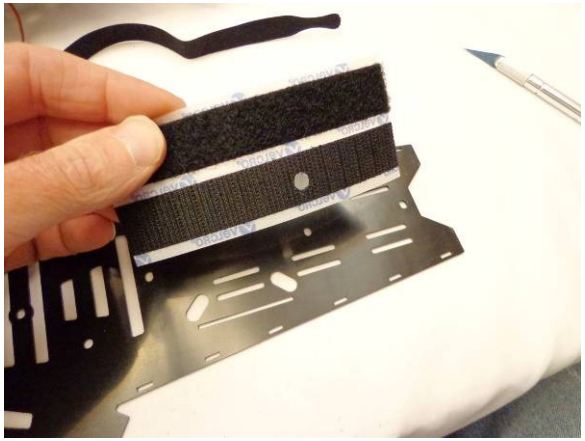
Find the Misc B ag



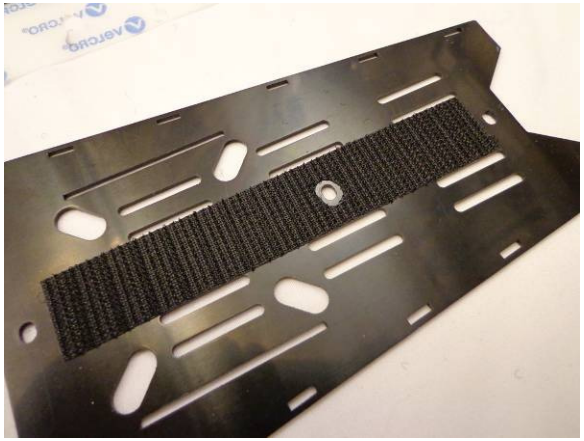
Remove the Velcro Strap and the Long Velcro Set



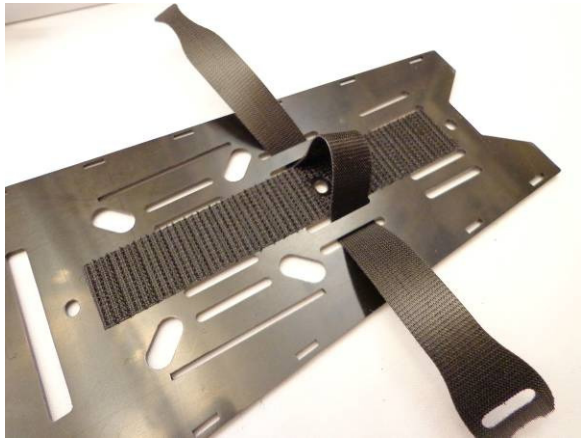
With a hole punch or hobby knife, make a hole in the Velcro strip that will be attached to the airframe, so that it clears the head of the button head screw, see the next two steps to help determine exact location



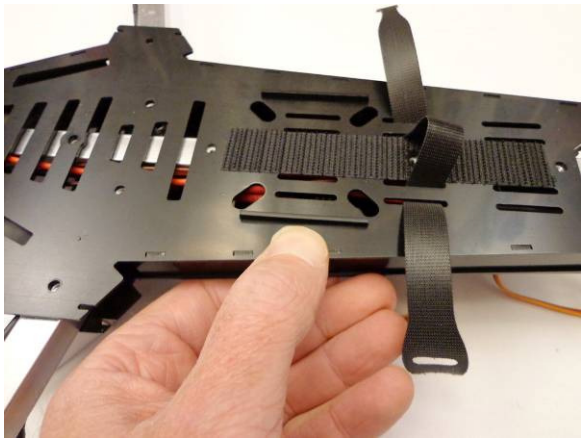
Double check that the hole is in the right place and big enough to clear the screw head



Stick down to the frame, between the slots as shown

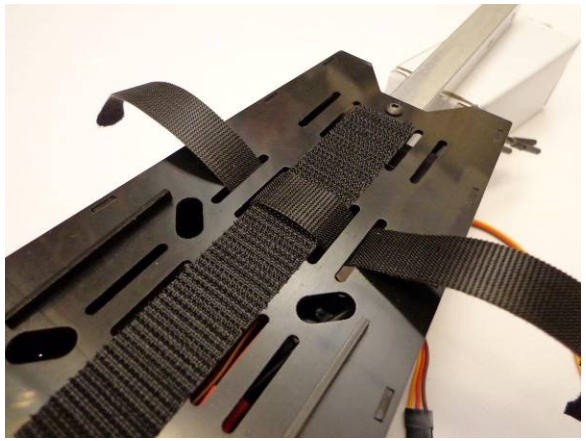


Feed the strap thru as shown. Middle slots for sport flying.... rear slots for flying with camera payload, mounted to the nose

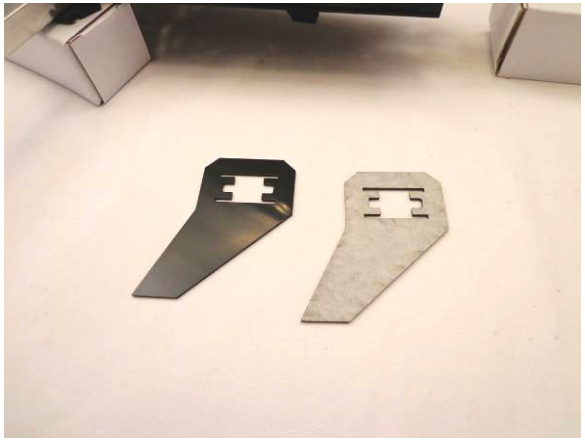


Snap the Bottom Deck onto the tabs of the Canopy Rails as shown

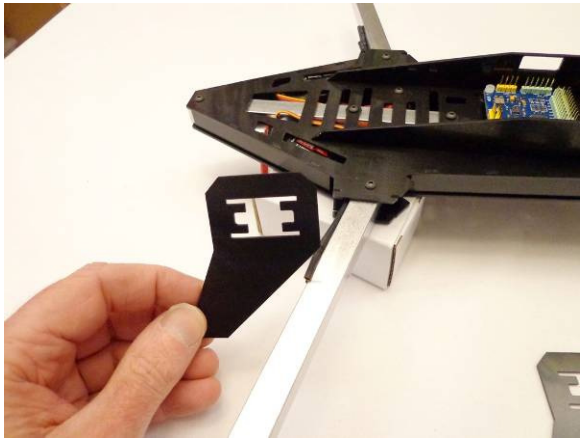
Install the screws to secure the Bottom Deck. Loosely again, starting from the nose and working back. Enlarge any holes as necessary for alignment



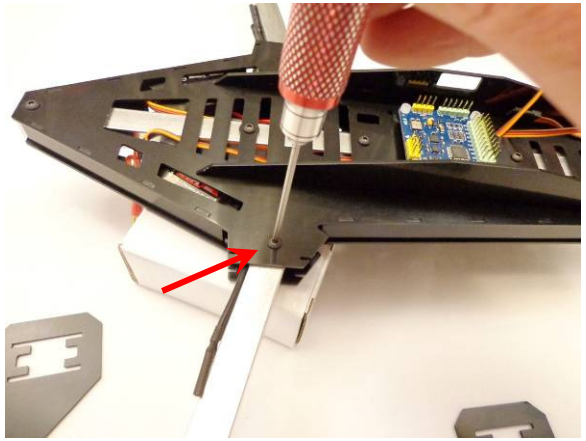
Pull the Velcro strap tight



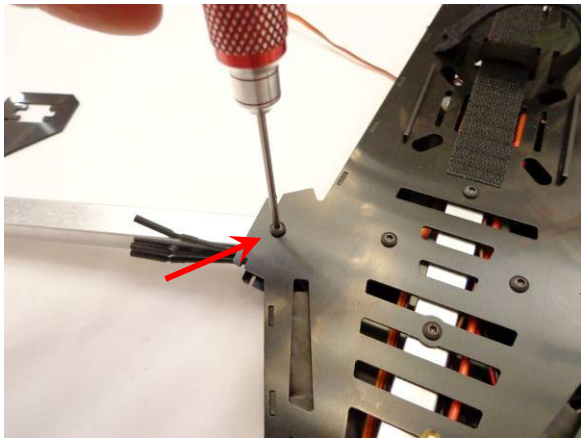
Locate the Front Legs from the Misc Frame Bag and remove the protective paper



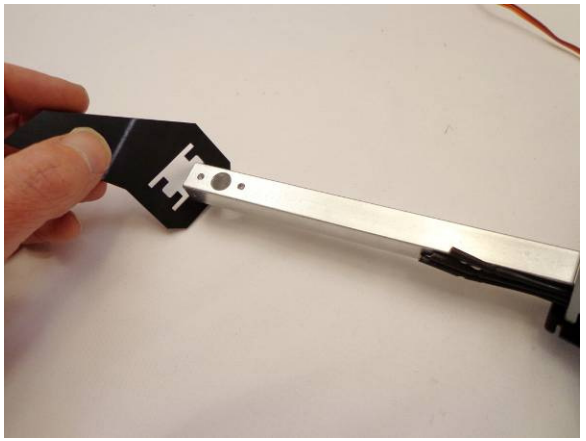
Legs point forward as shown



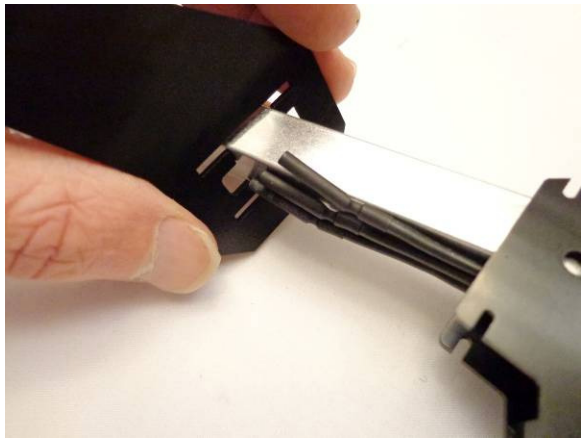
Installing the Legs requires that the boom pivots. Remove the outer most screws from the Top Deck as shown



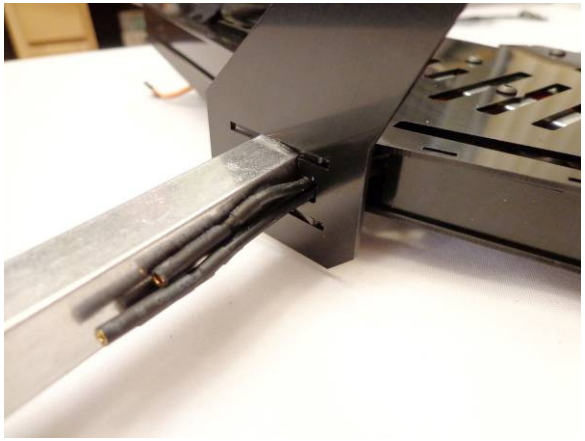
Remove the outer most screw from the Bottom Deck



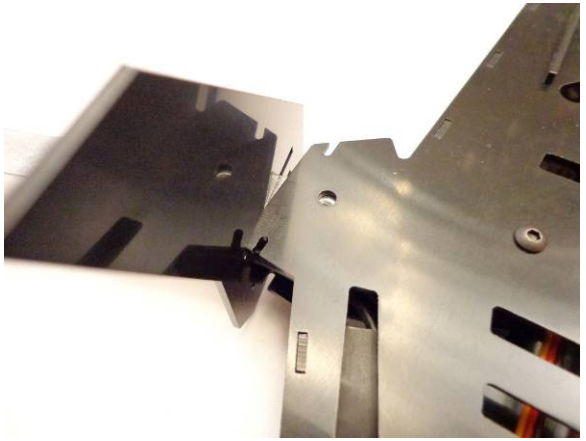
Slide the Leg on to the Boom



Feed the wires thru the provided slot

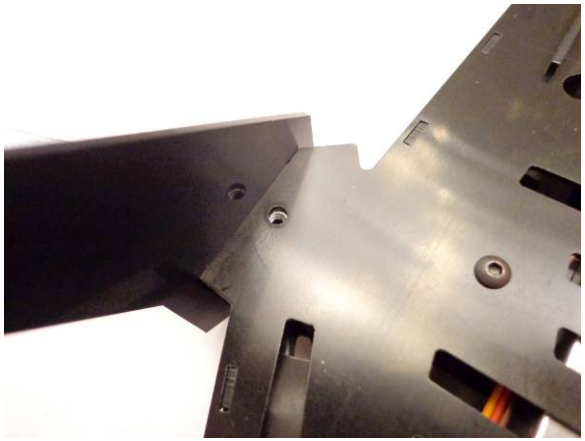


Continue sliding the Leg towards the Frame

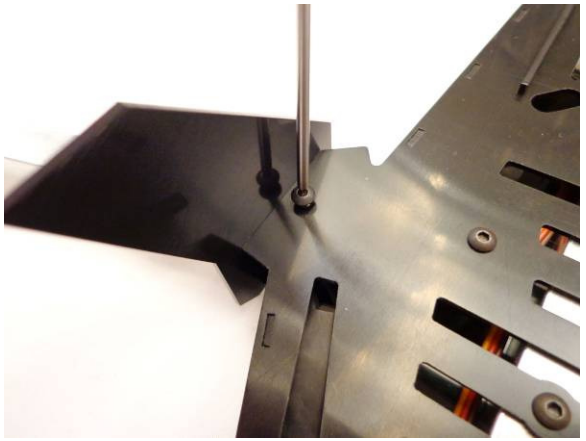


Line up the slots in the Leg with the material thickness of the Top and Bottom Decks

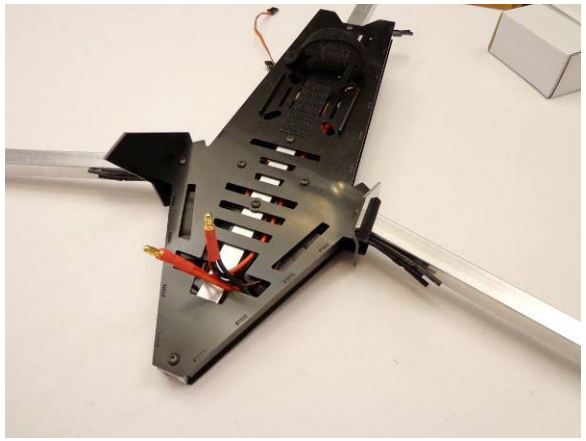
Pivot the Boom slightly forward so that the Leg can engage the front set of slots



Pivot the Boom towards the rear now so that the Leg can engage the rear set of slots. Once the front and rear slots are engaged, center the Boom with it's mating hole in the Bottom Deck

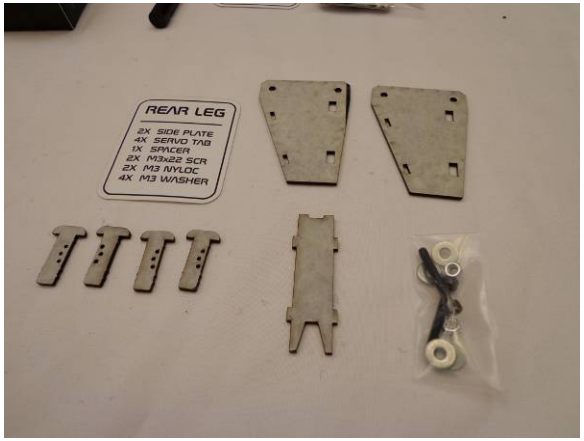


Install the screw to lock the Boom and Leg in place

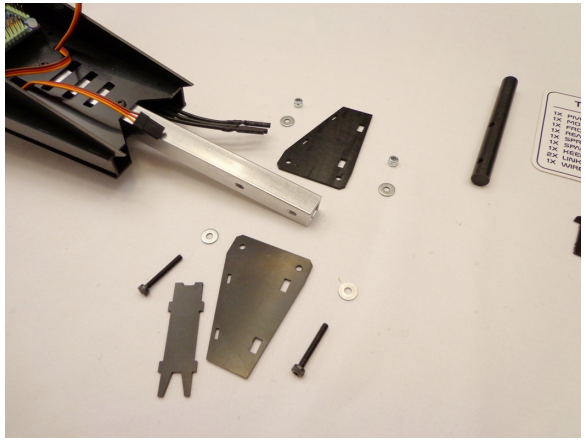


Repeat for the other side

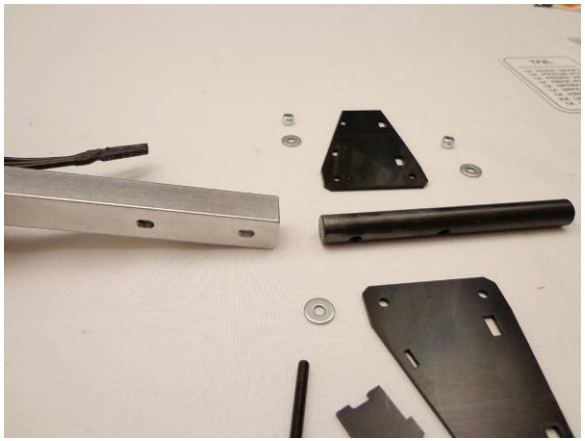
Locate the Tail Bag and Rear Leg Bag



Remove all the items from the Rear Leg Bag and only the Pivot Shaft from the Tail Bag as seen in the next two steps



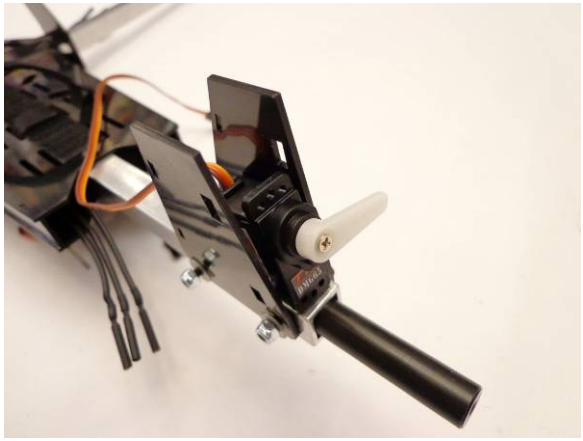
Remove the protective paper. Notice the orientation of the Side Plates and the Spacer



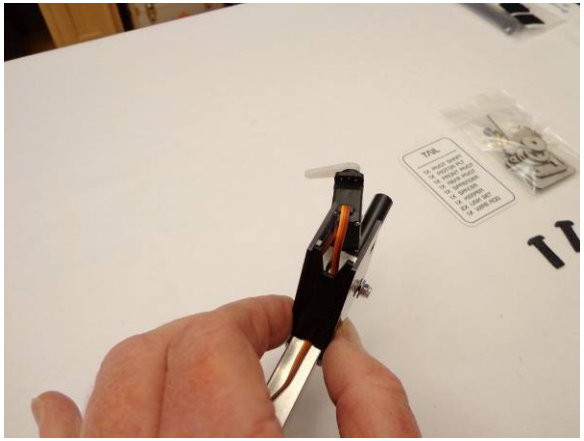
Slide the Pivot Shaft into the opening in the back of the Rear Boom. Note - End with the holes goes in first

It does not have to slide freely, but should go in and out with only a slight amount of pressure. Line the holes up with the slots. Slots are used in a later step to adjust the end play in the Tail Box

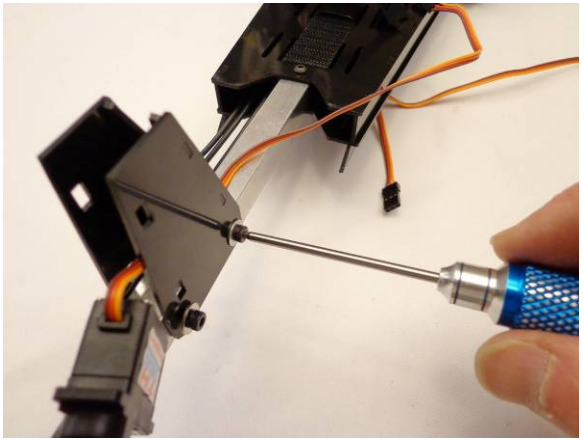
Loosely install the Side Plates as shown



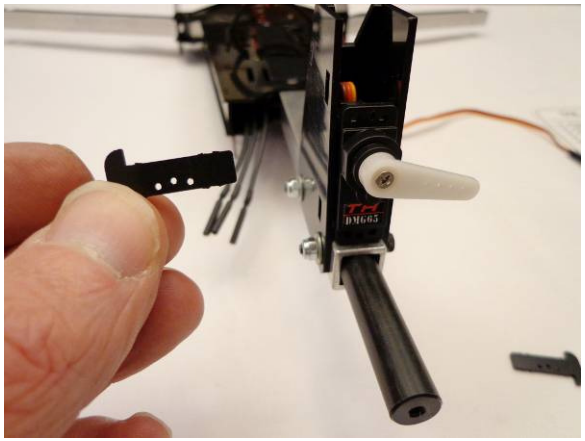
Set the servo in place, with orientation as shown



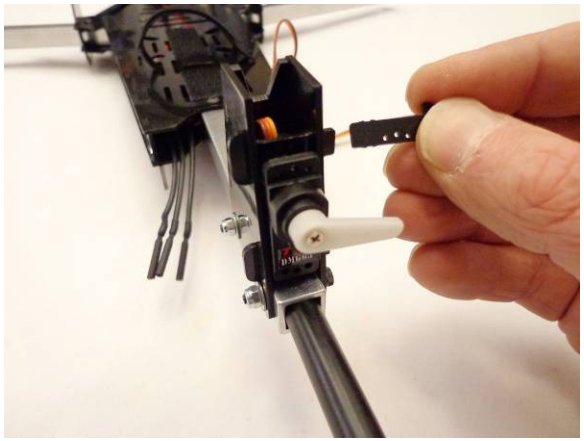
Install the spacer into the slots along the front edges of the Side Plates. Notice that there is a small notch near the Boom surface for the wire, and a larger notch at the open end of the leg



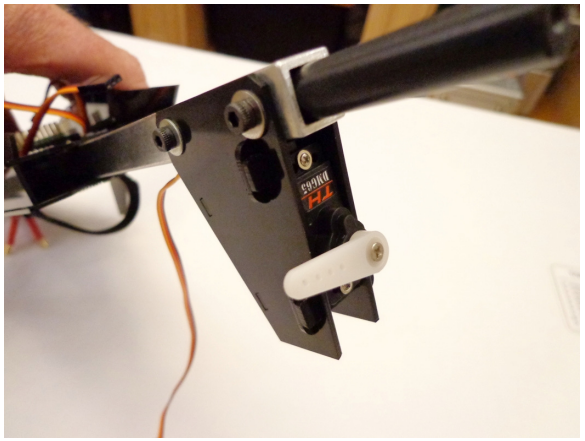
Hold everything in place and snug up the bolts



Find the four Servo Tabs from the Rear Leg Bag. Note that the hole pattern matches the Twisted Hobbys' servo and MUST be installed as shown



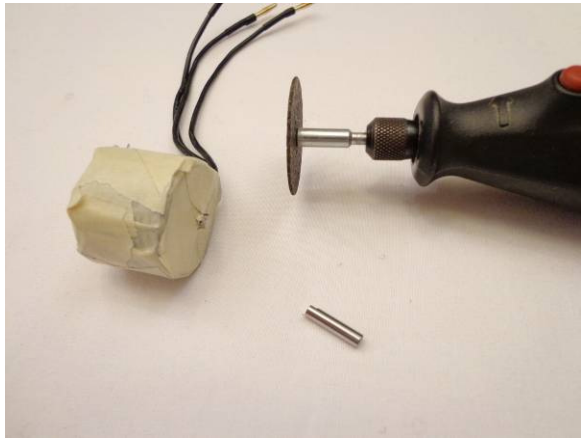
Slide one tab in from each side. Both at the top and bottom of the servo. Make sure and get the hole pattern right so that they line up and allow a screw to be installed



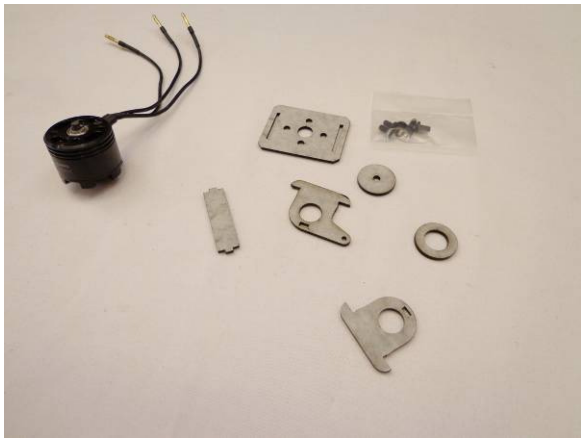
Install the servo mounting screws as shown one on the top ear and one on the bottom ear. This locks the whole assembly together and provides for a strong and rigid servo mount

Prepare the Tail Motor for mounting. The Shaft must be shortened

Wrap the motor with tape to completely seal it off so that no shavings get inside during the shaft cutting process

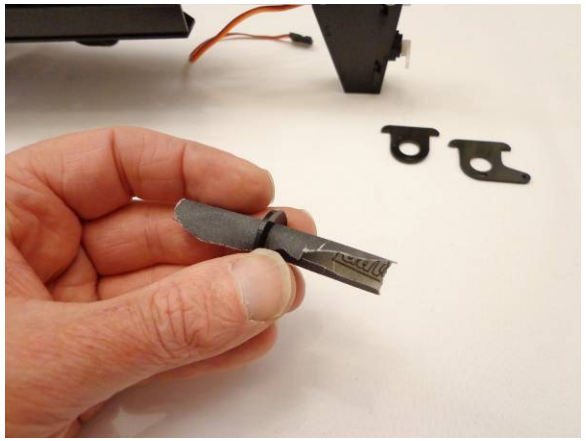


Cut the Shaft..... leave about 3/16" to 1/4" from the base of the motor

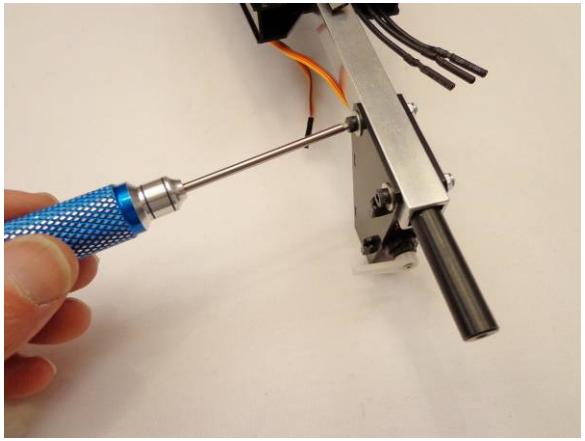


Locate the items shown from the Tail Bag

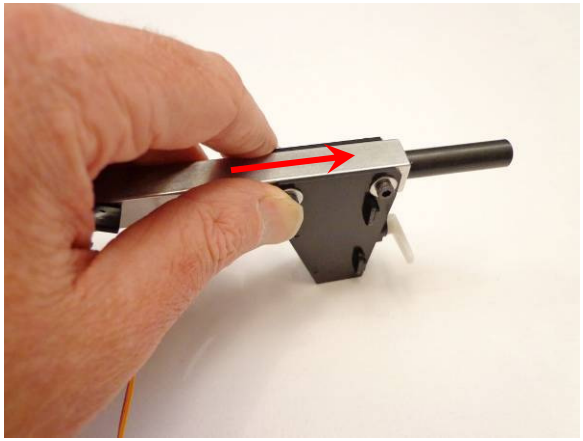
Check the fit of the Spacer to the Tail Pivot Shaft as shown. It should slide freely, a little friction is okay



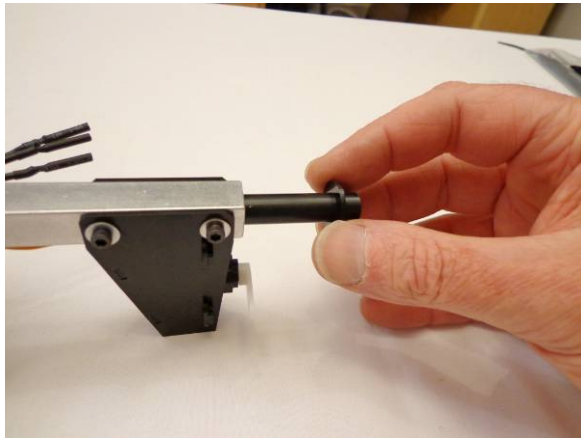
Roll up a piece of 220 grit sand paper if the Spacer needs to be sized. Note - it may only take a small amount of sanding. It is better to be a little tight and not loose. Repeat with the Front and Rear Pivots



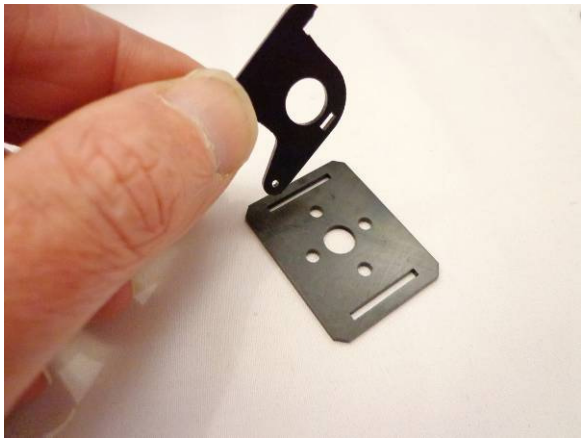
Loosen the Rear Leg screws



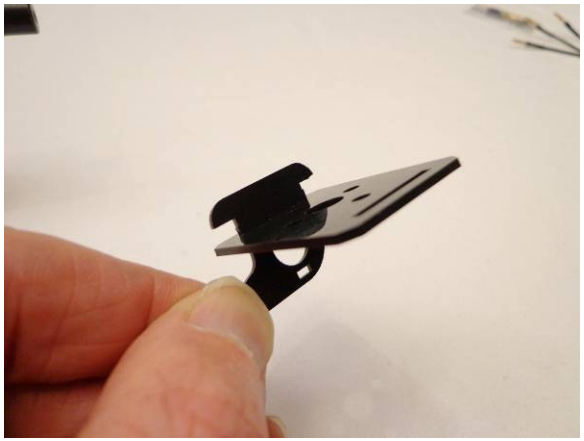
Slide the assembly all the way rearward



Install the Spacer onto the Pivot Shaft



Take the Front Pivot and install into one of the Motor Plate slots. ORIENTATION IS CRITICIAL. Make sure the arm is to the left as shown

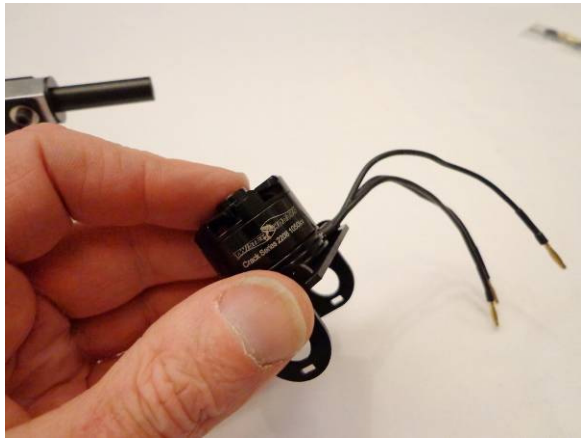


Push thru the slot

Push until the Front Pivot SNAPS into place

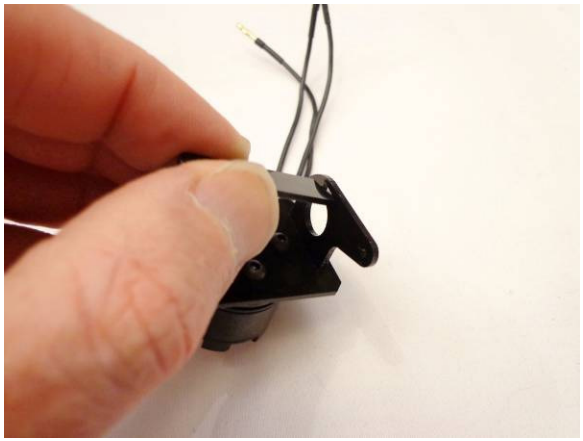
Repeat with the Rear Pivot

Find the bag of hardware that contains the five screws that were included in the Tail Bag. The four button head screws will be used to attach the motor to the Motor Plate

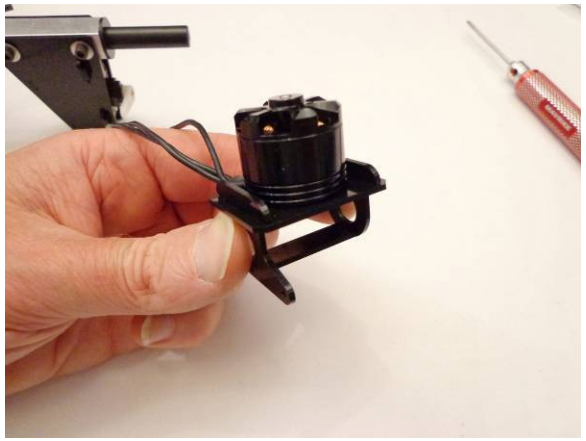


Locate the wires as shown, pointing forward at approx 45 degrees

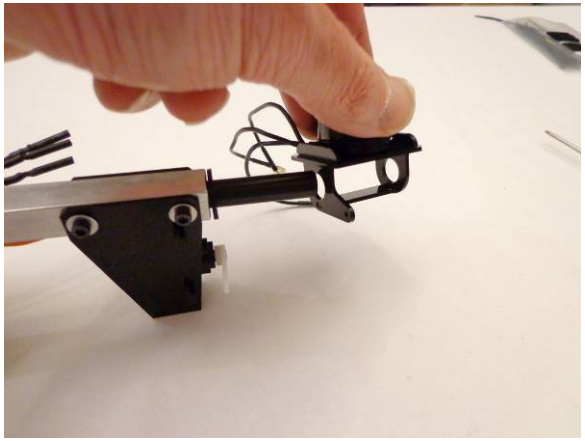
Secure the motor to the Motor Plate. Use thread locker and make sure the motor spins freely.



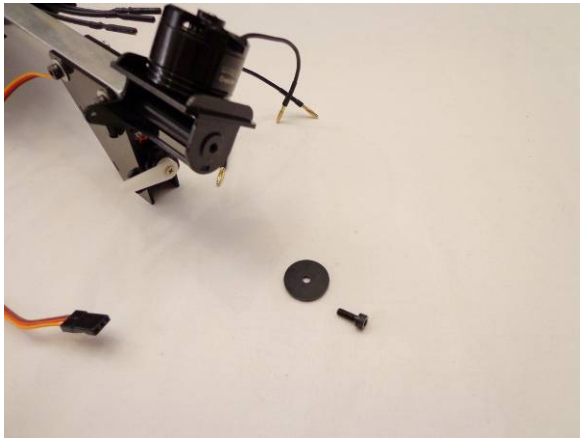
Install the Spreader into the slots of the Front and Rear Pivots



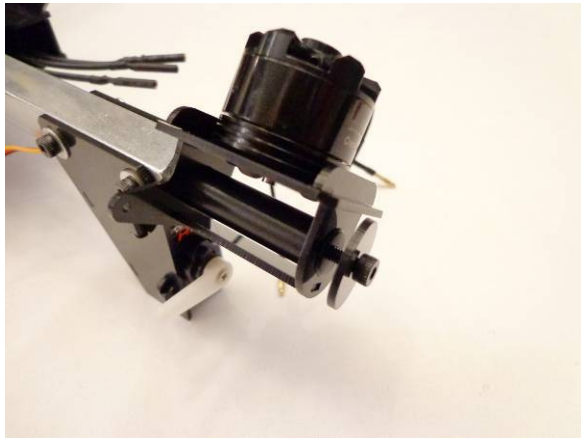
Complete Tail Box assembly with Motor



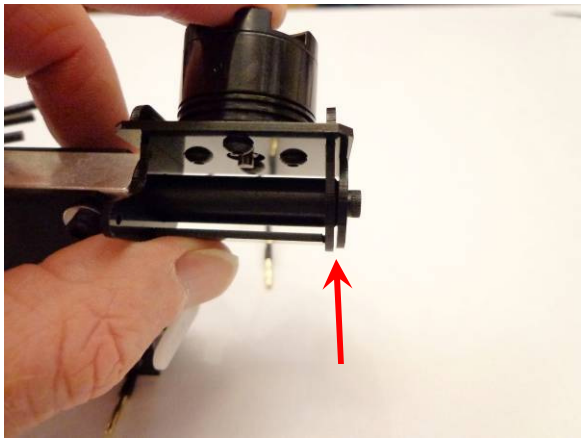
Slide the assembly onto the Pivot Shaft as shown. Make sure the Spacer was slid on first as shown



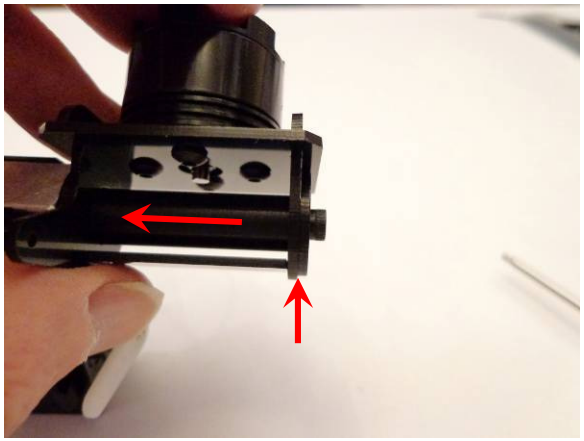
Take the remaining screw from the bag, a M3x8, and the Keeper...



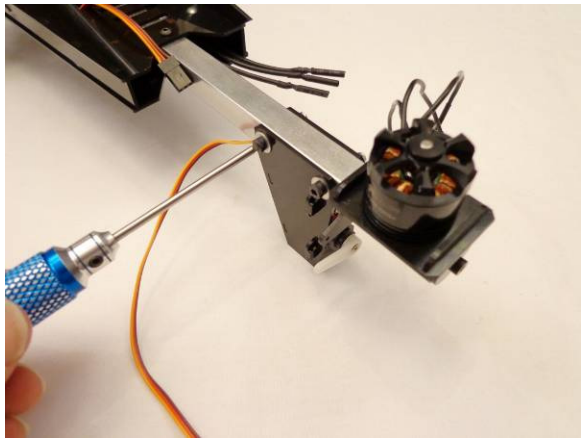
... install onto the back end of the Pivot Shaft as shown



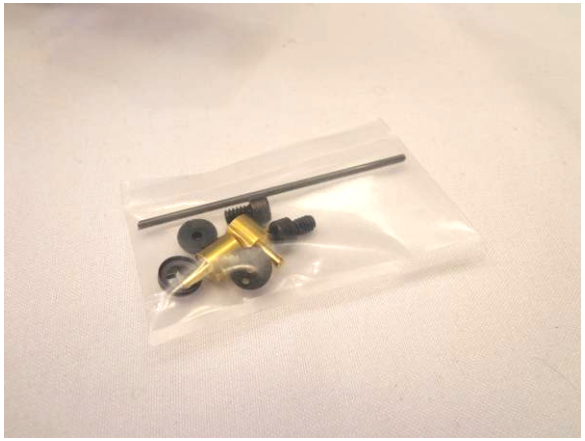
When the Tail Box assembly is completely forward, there should be approx 1/16" gap between the rear of the Tail Box and the Keeper as shown



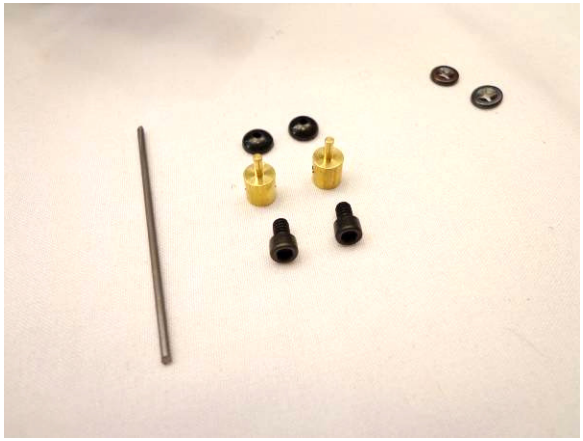
Slide the Rear Leg assembly toward the front of the airframe until the Pivot Shaft and the Keeper just touch. Check that the assembly pivots with just a slight amount of drag



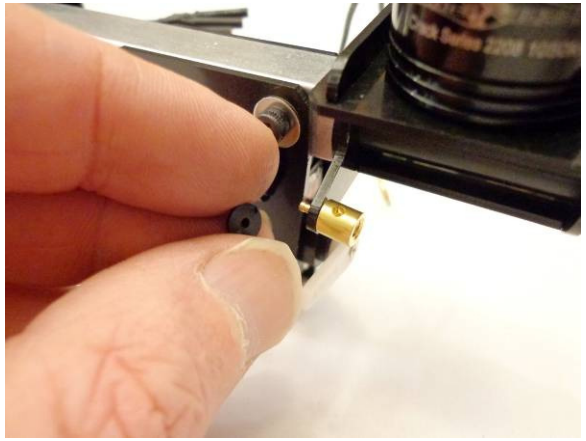
Tighten the Leg Screws to lock everything into place



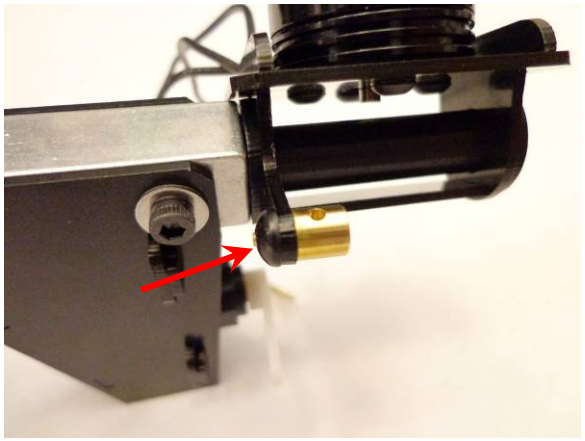
Locate the bag with the Quick Links and Wire Rod



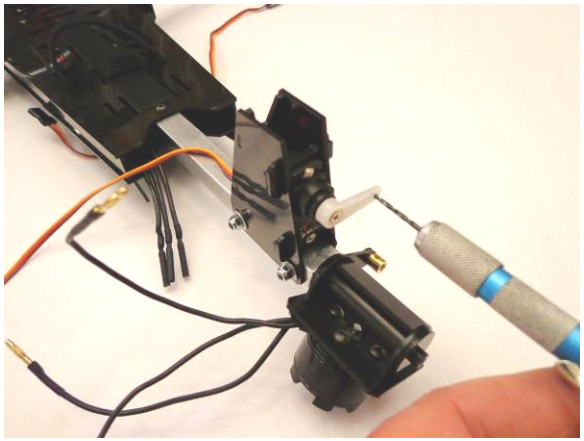
Items in the Bag... the metal keeper clips are not used



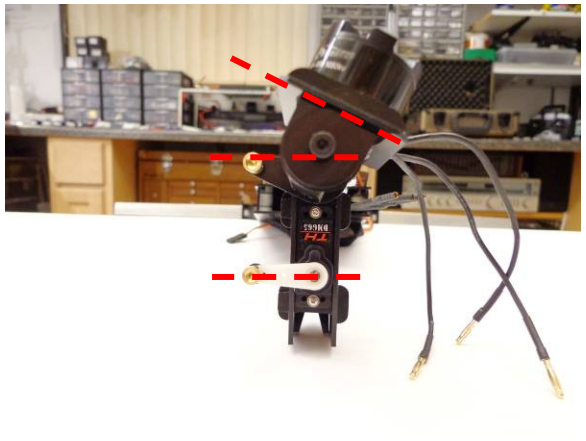
Install the Quick Link onto the arm of the Front Pivot as shown



Press the plastic retainer on as shown

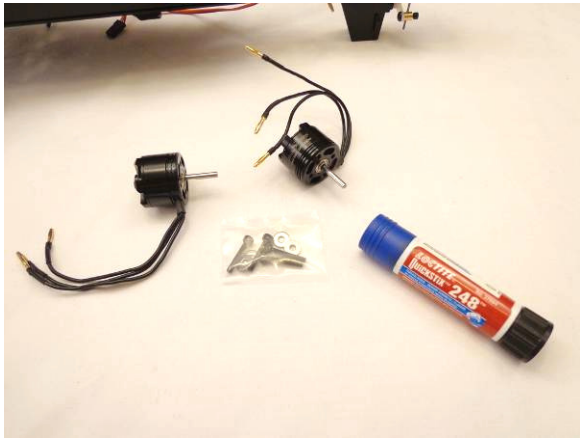


Drill the outer most hole of the servo arm out to 1/16" diameter

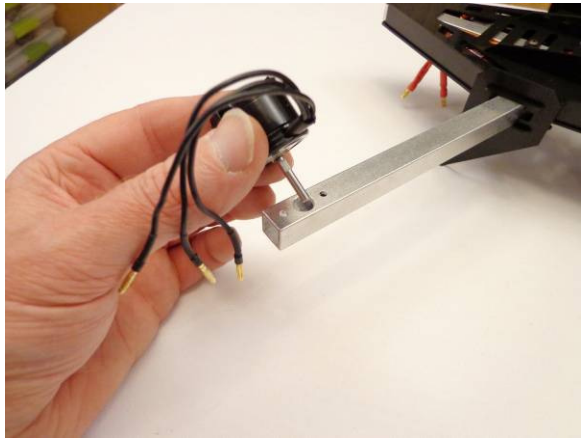


With the servo in it's center position, and the arm horizontal, the neutral position of the Tail Box should be approx 20 degrees

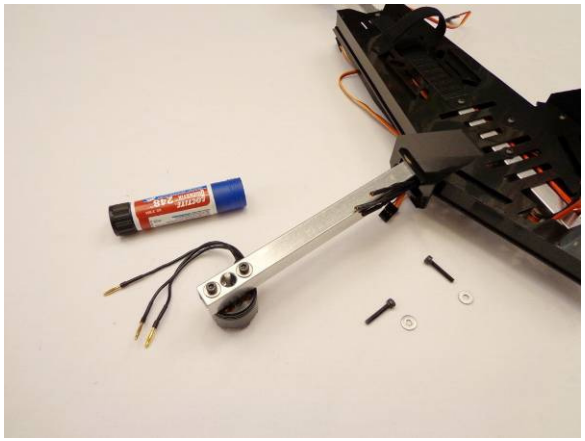
Install the Wire Rod and secure with the small included screws. No thread locker yet, this will be done once the final position is determined



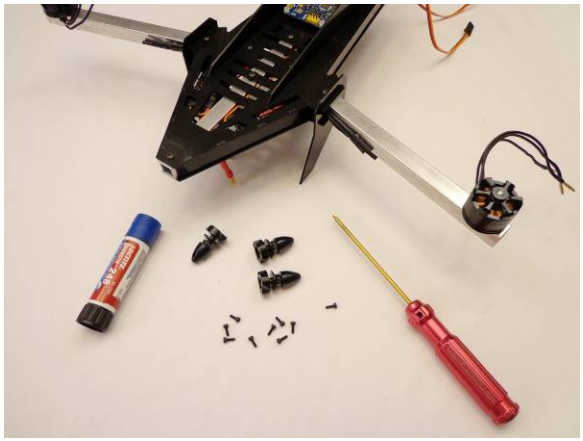
Locate the other two motors and the bag of screws from the Boom Bag



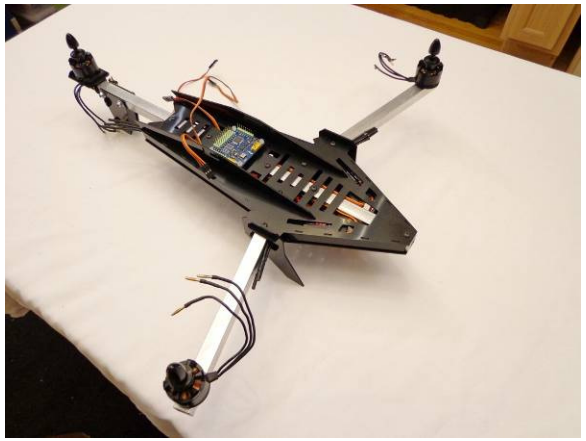
Install the motors as shown, with the shaft installing thru the clearance hole in the boom



Using thread locker, install the screws and washers from the underside as shown, repeat for the other side

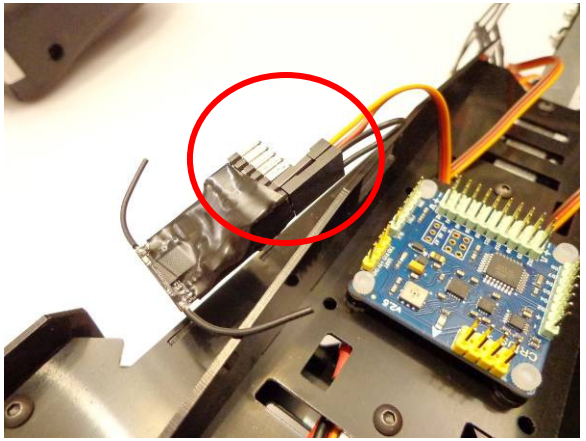


Next, install the Bolt on Prop Adapters. Use Thread locker, do not use too much force, these are small screws and will strip easily

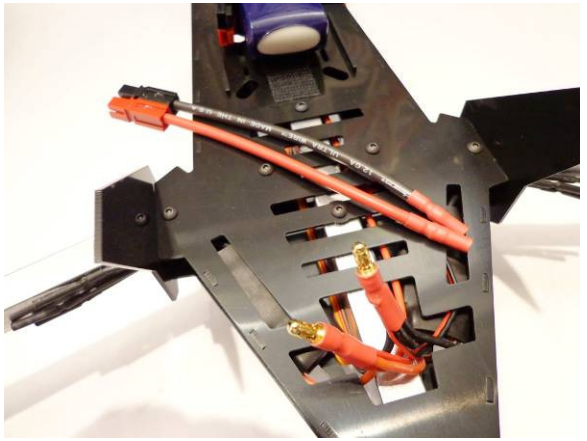


Repeat for all three motors

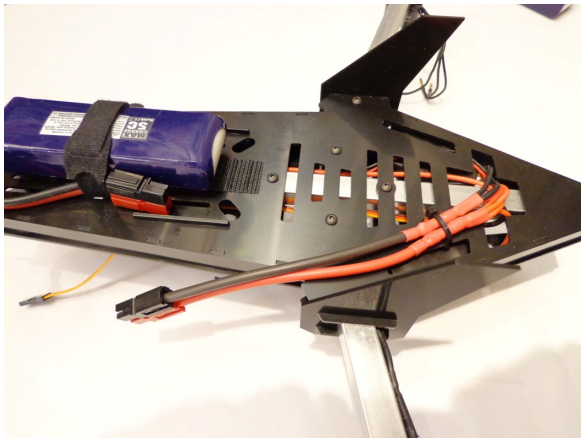
Setup a new Airplane Program on your Radio, zero all trims and subtrims



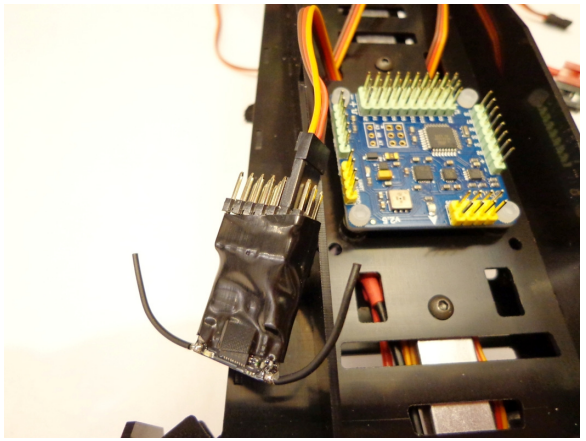
Prepare the Rx for Binding... Install the Bind plug, and plug one of the ESC's into the throttle channel



In this build we have made a pigtail to install between the ESC power inputs and the Battery. This will allow the use of different battery connectors by simply using a different pigtail



Battery installed and ready to power the System. Now Bind your Rx to the Tx per the Radio Mfg's instructions



Remove the Bind plug. Turn off the Rx and Tx, then power back on, Tx first, then Rx. Verify that there is throttle control for the motor connected to the ESC that is plugged into the Rx. Power off the Rx and Tx.

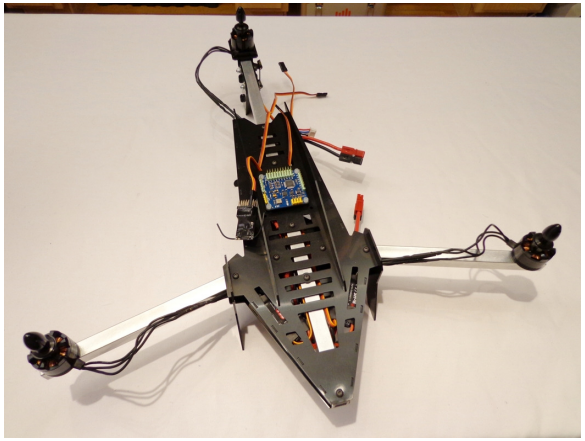
.....ESC CALIBRATION

INDIVIDUAL ESC CALIBRATION

THIS IS IMPERATIVE FOR PROPER FLIGHT CONTROL BOARD MANAGEMENT OF THE MOTORS.

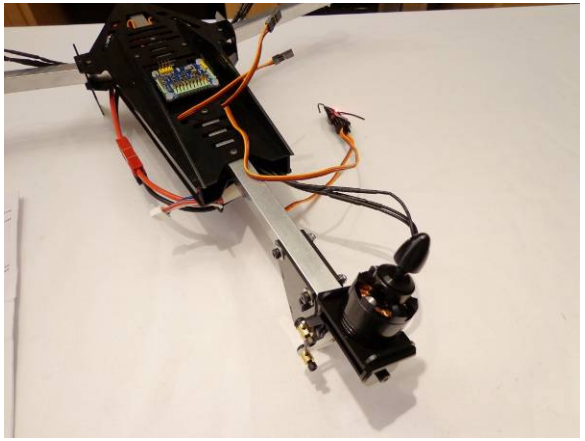
IF THIS IS NOT DONE OR DONE INCORRECTLY YOUR TRI-COPTER WILL NOT FLY.

UNDERSTAND AND FOLLOW THE NEXT STEPS CLOSELY



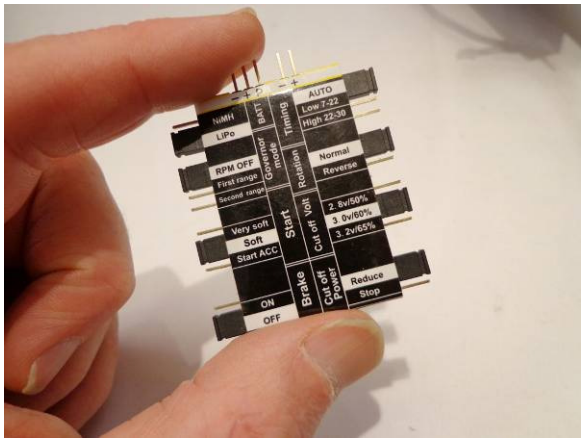
Start by making sure that each motor is plugged into an ESC. Make sure you have access to the signal wires from each ESC and that they will reach your Rx

One at a time, hook the ESC's up to the throttle channel of the Rx and calibrate per the MFG's instructions. This establishes available throttle range for the FC board for flight control mixing

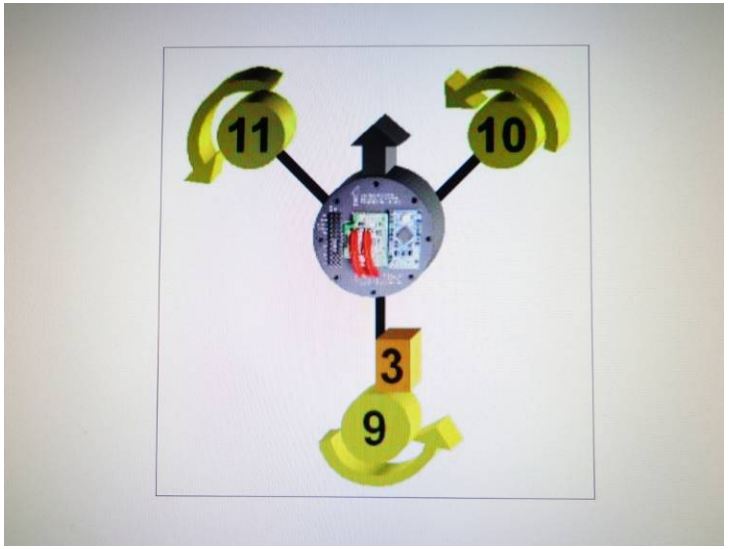


Once all the ESC's have been individually calibrated, test and center the Rudder Servo.

NOTE - Everything up to this point has been done directly thru the Receiver



Default Values for the ESC's are shown via the programming card. It is NOT necessary to change the ESC programming from the Factory, but if you have changed the programming, set the values back to their defaults



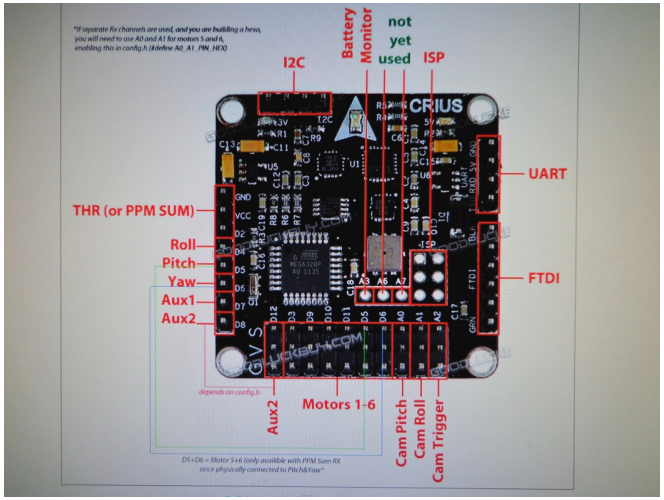
Shown here is how the motors and tail servo will be connected to the MultiWii SE v2.5 FC Board.

The numbers indicate which port to use on the board.

NOTE

The "3" shown in the Diagram corresponds to "D3" on the board, "9" to "D9", "10" to "D10" and "11" to "D11"

.....FC / ESC WIRING



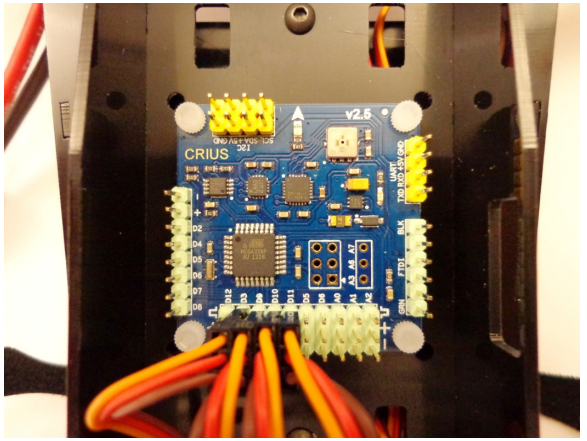
Online image of a similar board with all the exact same pin designations. Keep this diagram and the one in the previous step handy

FTDI pins are where you hook up the USB Adapter.

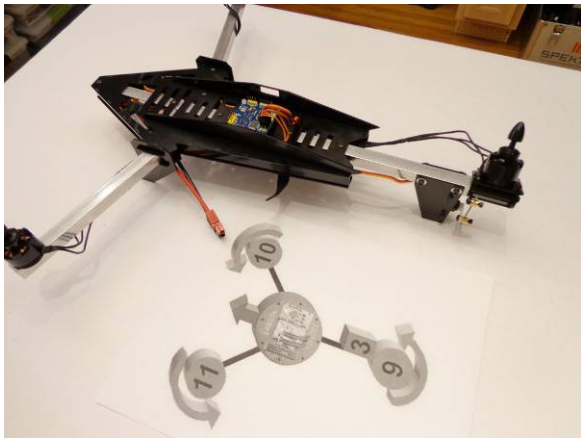
UART pins are used for a Bluetooth adapter which allows for changing flight control parameters via a Droid Smart Phone.

THR, Roll, Pitch, Yaw and Aux1 all correspond to the appropriate Tx/Rx channels.

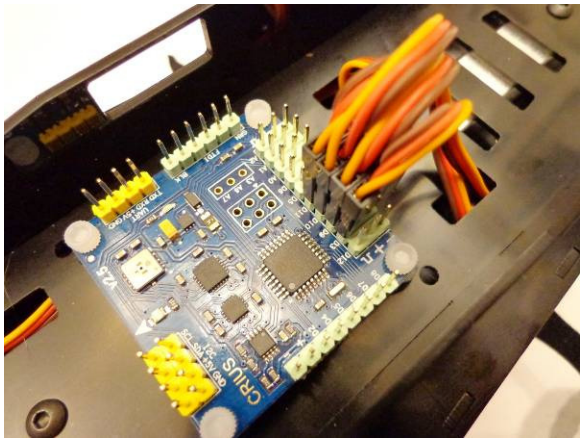
Motors 1-6 pins are for the ESC's of the corresponding motors. The rest is not used in this build



Plug the cable for the tail servo into "D3" and the ESC's into their appropriate port per the TriCopter Configuration Diagram



View of the Tri-Copter next to the diagram to show each motor's number and how they should be plugged in



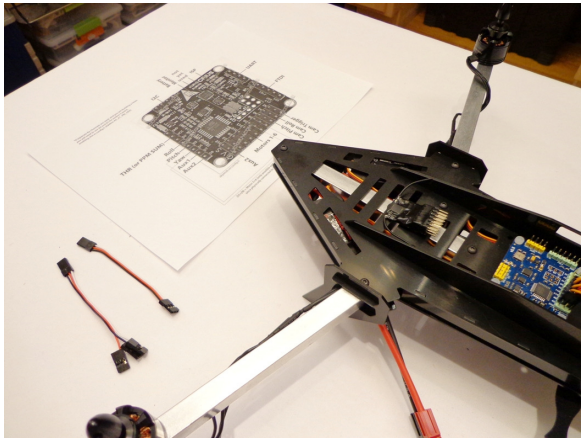
Another view of the tail servo lead, and ESC leads plugged into the MultiWii SE v2.5 board.
This is critical. Your Tri-Copter will not fly if this is not done exactly as shown

.....FC / RX WIRING

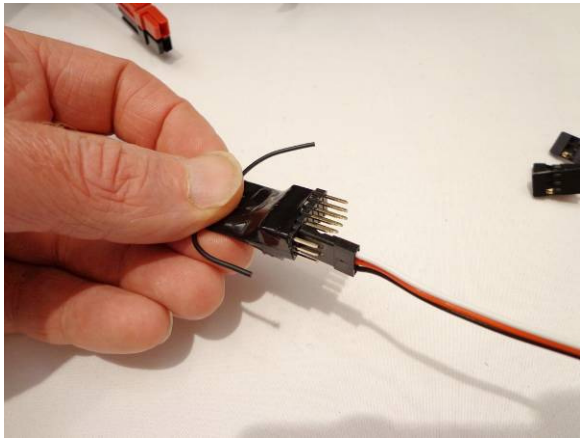
Next is the wiring of the Rx to the MultiWii SE v2.5 board.

In the package for the FC board, there are three cables, one with three wires going from end to end and two with one end being broke out into single wire connectors.

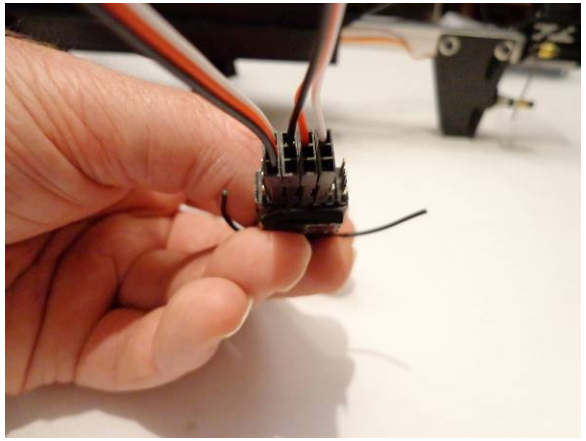
The full cable is how the FC board gets it's power and the signal for that channel (the throttle), the other cables transmit Signal Only, ie NO power, hence the need for only one wire



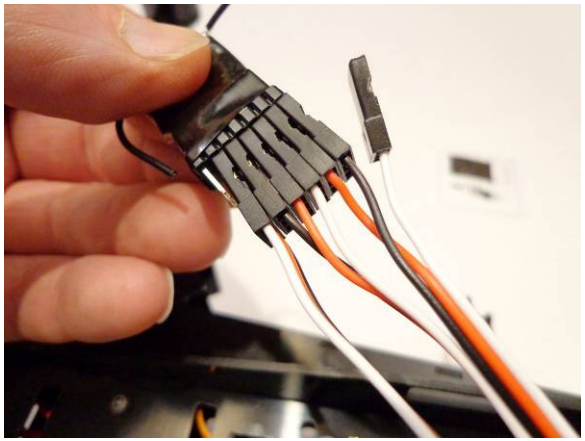
Layout the cables and have a picture of the pin outs of the board handy.



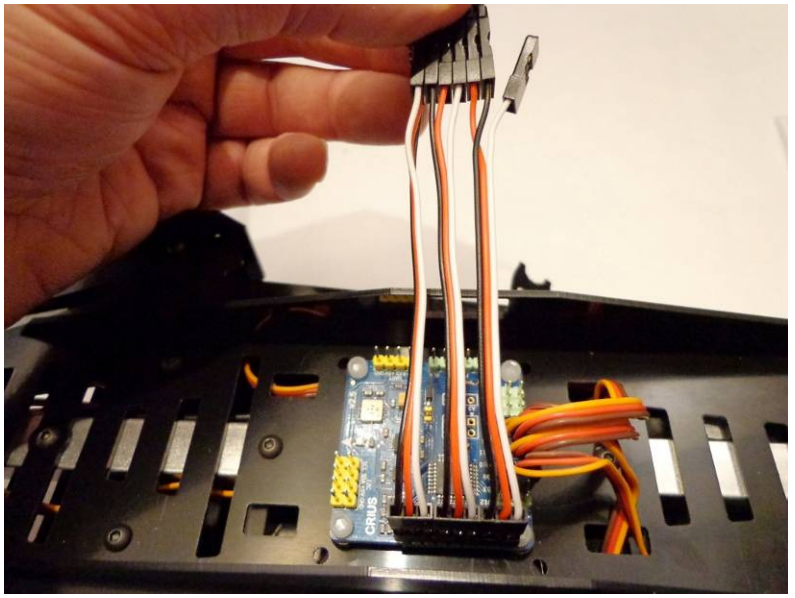
Start by plugging in the full cable into the throttle channel of the Rx as shown, make sure the polarity is correct



Next, take the single lead side of one cable and plug in to the "S" pin of the Rx as follows; Black wire into the AILE, Red wire into the ELEV and the White wire into RUDD. See picture above



Take the second single lead cable and continue the process... Red wire into GEAR, and Black wire into AUX1. The last White wire is not needed and can be left to dangle, if cutting it off, make sure and cap the end with a piece of shrink tubing



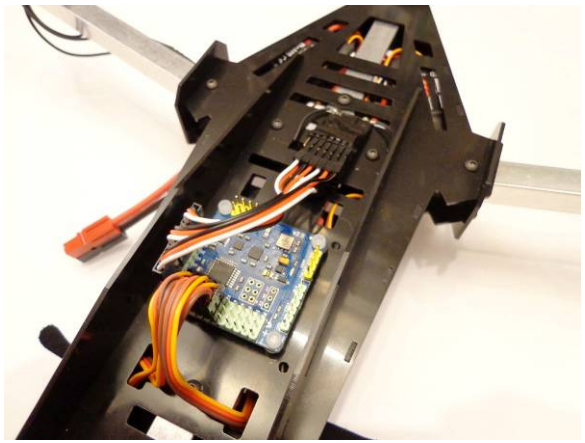
CONNECTION TO THE FC BOARD

Study the picture to the left carefully and hook your wires up

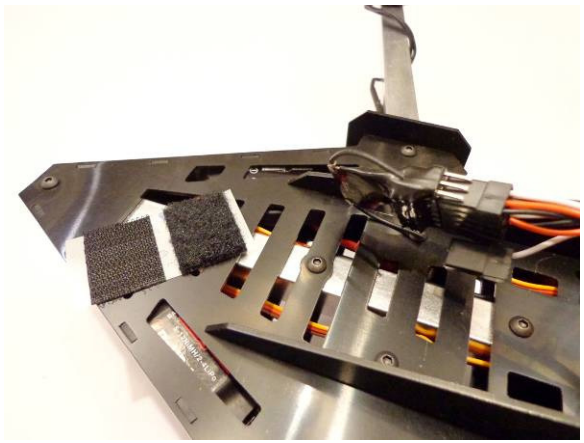
EXACTLY AS SHOWN

Your Tri-Copter will not fly if this is done incorrectly.

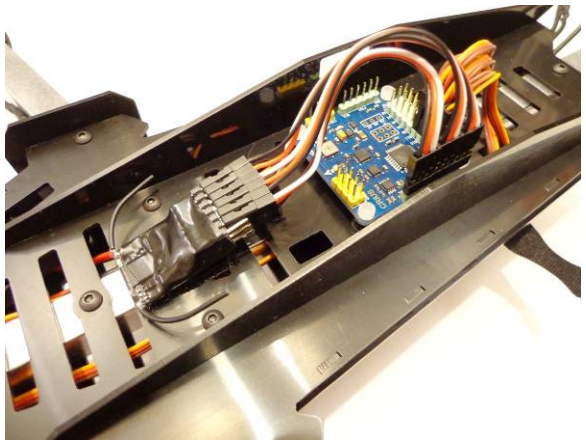
Note that the White wire on the far right is not actually matched up to a pin, this is intentional



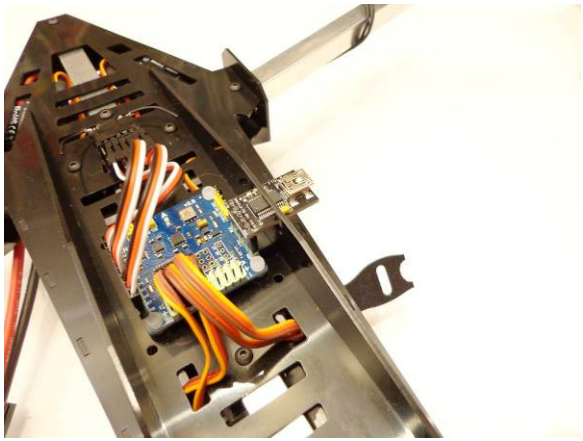
View of all the wires and cable connections



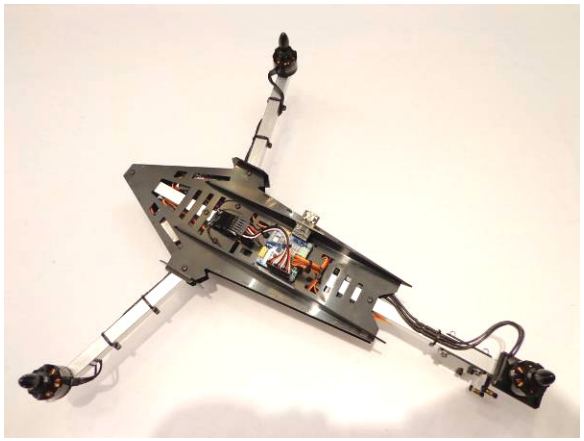
Locate the two small pieces of Velcro from the MISC Bag



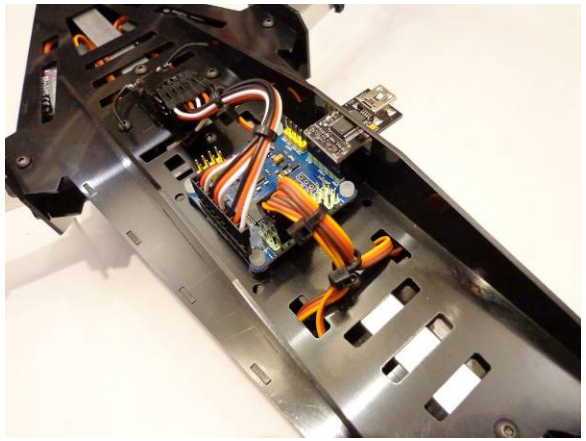
Attach the Velcro to the Tri-Copter frame and Rx so that the Rx is located approx as shown, leave a small amount of slack in the wires will help prevent vibrations from transmitting to the board



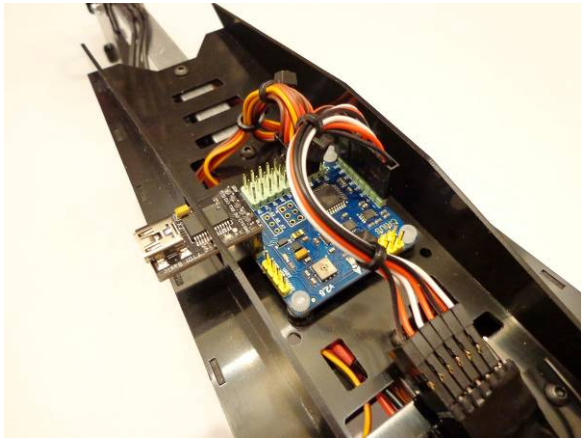
Another view of the cables and their routing. Note that the Tail Servo and ESC wires are all routed internally for a neat and clean setup. This view also shows the USB Adapter installed



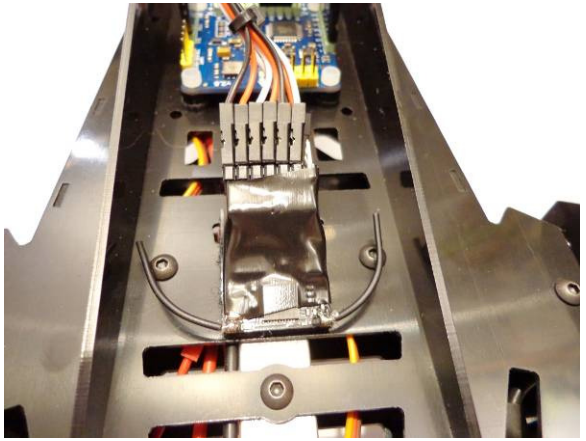
Tidy up the wires using the included zip ties. You may still need to switch the wires from the motor-esc connection, so do not zip tie over those connections



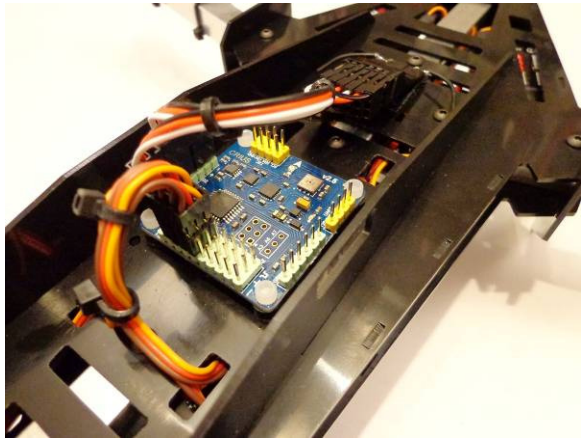
Close up view for reference



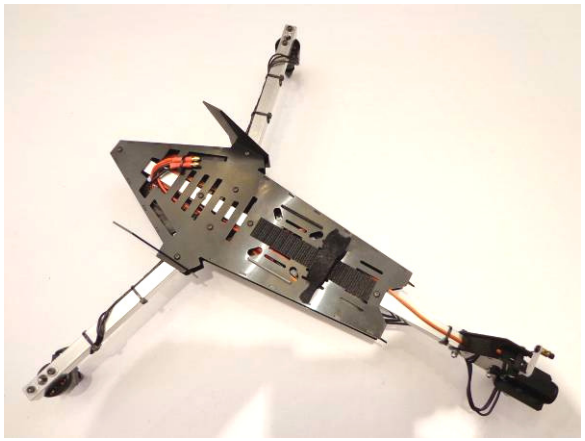
Another view from the front for reference



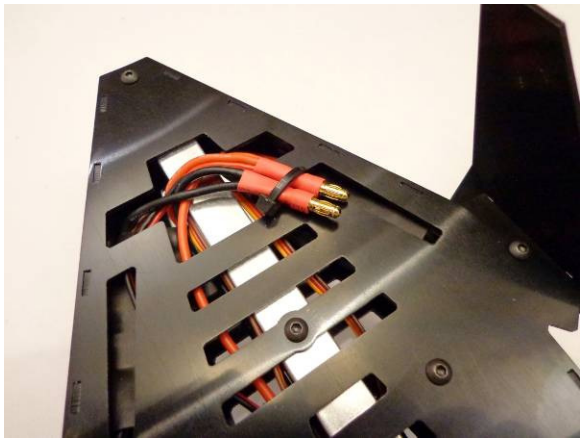
Close up of the Rx wires and mounting



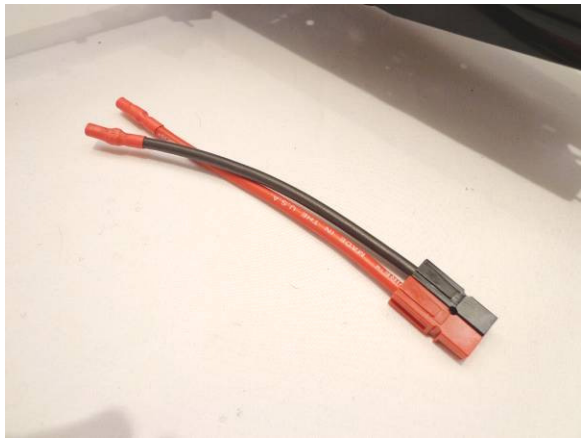
Close up of the wire bundles and FC board connections



Underside view of the connectors for battery hook up



Close up of the bullets at the end of the ESC harness



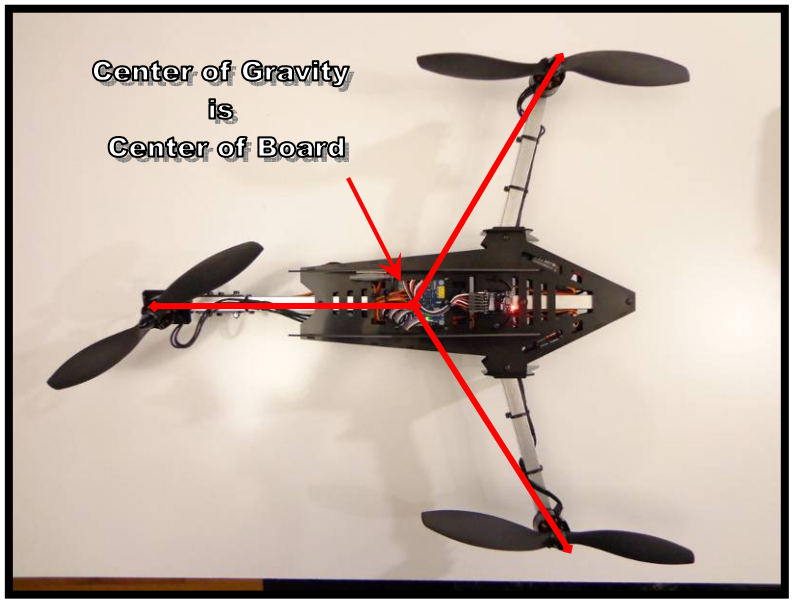
Pig tail as shown earlier that will be used to connect the battery to the ESC harness

Airframe is now COMPLETE. Balance some props. Note that the props should all be standard aircraft rotation. 9x4.7 Gemfam props are recommended for best all around performance

If you are familiar with the process of setting up the electronics for flight, do all this before fastening the props. If you are new to this board or the process in general, see the links below, there are also lots of resources online and YouTube if searching by the key word "MultiWii"

YOUR BUILD NOTES

CENTER OF GRAVITY



Center of Gravity regardless of payload or weight should be at the center of the board as shown above, some slight adjustment may be necessary once flight tested. When properly balanced, the craft should remain level during high powered vertical climbs

Underside shown above with 1600mAh/3s battery positioned for sport flying, ie no payload. If attaching cameras or FPV gear, a heavier battery and battery position could be adjusted to maintain proper Center of Gravity

PRE-FLIGHT & TESTING

Preflight Checks

Motors: Should all run smoothly at all stick positions, and transition smoothly from low to high RPM. If any motor is turning backwards, reverse two of the three wires between the motor and ESC. Check that the screws holding the motor to the booms are tight and secure.

Flight Control: Allow the Flight Control Board to initialize immediately after connecting the battery. Double check that all the Transmitter switches are in their proper position before arming the motors. Confirm that the Tail Box is working smoothly and free of slop. For the first flight of the Day, gently pull into a hover and confirm that all controls are responding appropriately.

Batteries: Should be fully charged prior to each flight. Watch transmitter battery level and follow manufactures recommendations. Motor battery should not be drained any further than recommended by the manufacture, use a timer to prevent an over discharged condition.

Radio: All trims should be set to neutral and throttle in the low position. Check that rate switches and mixes are set properly.

Range Check: With and without the motor running per radio manufactures instructions. If there is insufficient range or significant reduction with the motor running, resolve and re-test before flying.

Flight Testing

The first flights should be done with the CG at the center of the control board. Pull up into a hover approx four to five and confirm that all the controls are responding in the correct manner. Also, the craft should be stable in "Acro" mode with no oscillations. If oscillations exists or the craft is not responding in the proper manner review your settings on the MultiWii Config interface.

This Tri-Copter is a high performance aircraft capable of high speed passes, flip, rolls and FPV. The design of the frame for this multirotor is such that the items usually broken in a crash, it the front legs and tail box, are readily available, inexpensive and easy to replace. After any unintentional contact with the ground, always perform a thorough inspection of all components.

After each days flying sessions, always check that all screws and other hardware is tight and intact.

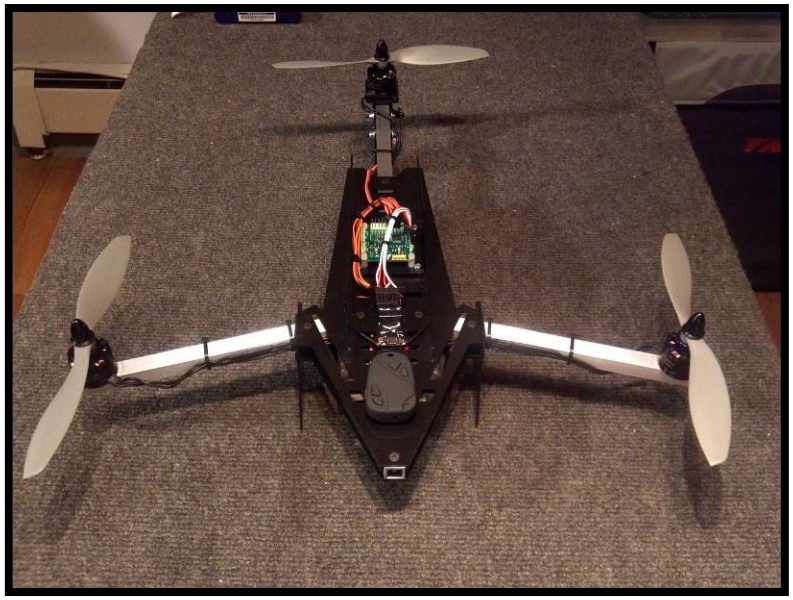
This multirotor should only be flown outdoors, and in areas free of obstacles and other people. Your experience will dictate how much room you need to fly, but safety for yourself and other should always be given first priority.

Storage

When not in use, store the MultiRotor in a dry clean place, any indoor living area would be fine. Avoid storing in extremely cold, dusty or dirty spaces.

Be safe and enjoy, thank you again for purchasing a Twisted Hobbys' Product!

OPTIONAL MISSIONS



Besides general sport flying and multirotor style stunts, such as flips and rolls, this craft is also capable of carrying a variety of payloads. Shown above are two different kinds of video cameras. The design and spacing of the front booms is such, that even with a wide angle lens, there will be no part of the props or airframe in the camera's field of view. Other payloads could include the necessary gear for FPV style flying

PROGRAMMING RESOURCES

for: CRIUS MultiWii SE v2.50 Flight Control Board

- Arduino -

http://arduino.cc/en/Main/Software

Windows: http://arduino.googlecode.com/files/arduino-1.0-windows.zip
Mac: http://arduino.googlecode.com/files/arduino-1.0-macosx.zip
Linux 32bit: http://arduino.googlecode.com/files/arduino-1.0-linux.tgz
Linux 64bit: http://arduino.googlecode.com/files/arduino-1.0-linux64.tgz

- Mac FTDI Driver -

http://www.ftdichip.com/Drivers/VCP.htm

- MultiWii Configuration GUI -

use MultiWii release 2.1
http://code.google.com/p/multiwii/downloads/list

- Arduino Sketch -

MWC_SEv25_450TriCopter
depending on servo used direction may need to
be changed in Section 2 of the config.h file
http://www.rcgroups.com/forums/attachment.php?attachmentid=6268378

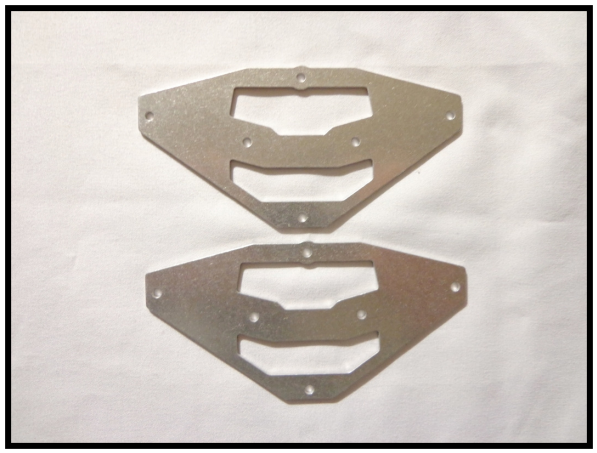
- Basic MultiWii PID Settings -

http://www.rcgroups.com/forums/attachment.php?attachmentid=6268391

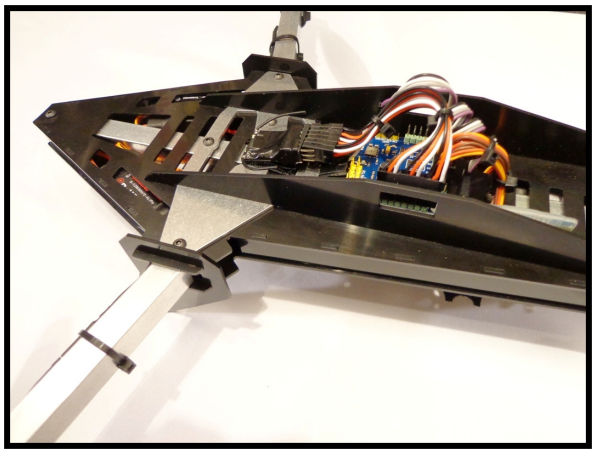
- DX8 Transmitter Program -

http://www.rcgroups.com/forums/attachment.php?attachmentid=6268377

UPDATES AND MODS



2013.11.28
Added Frame Doublers to the "Misc Frame" bag. This update provides much more strength and support to the front booms. Canopy Rails revised to provide clearance for the Doubler and Holes added for FTDI device.



2013.11.28
Frame Doublers attached to both the Upper and Lower Decks. Also notice the clearance holes in the Canopy Rails to provide access for the FTDI Device.


...Enjoy!
SPEKTRUM
TWISTED HOBBYS