



# ReadyMadeRC

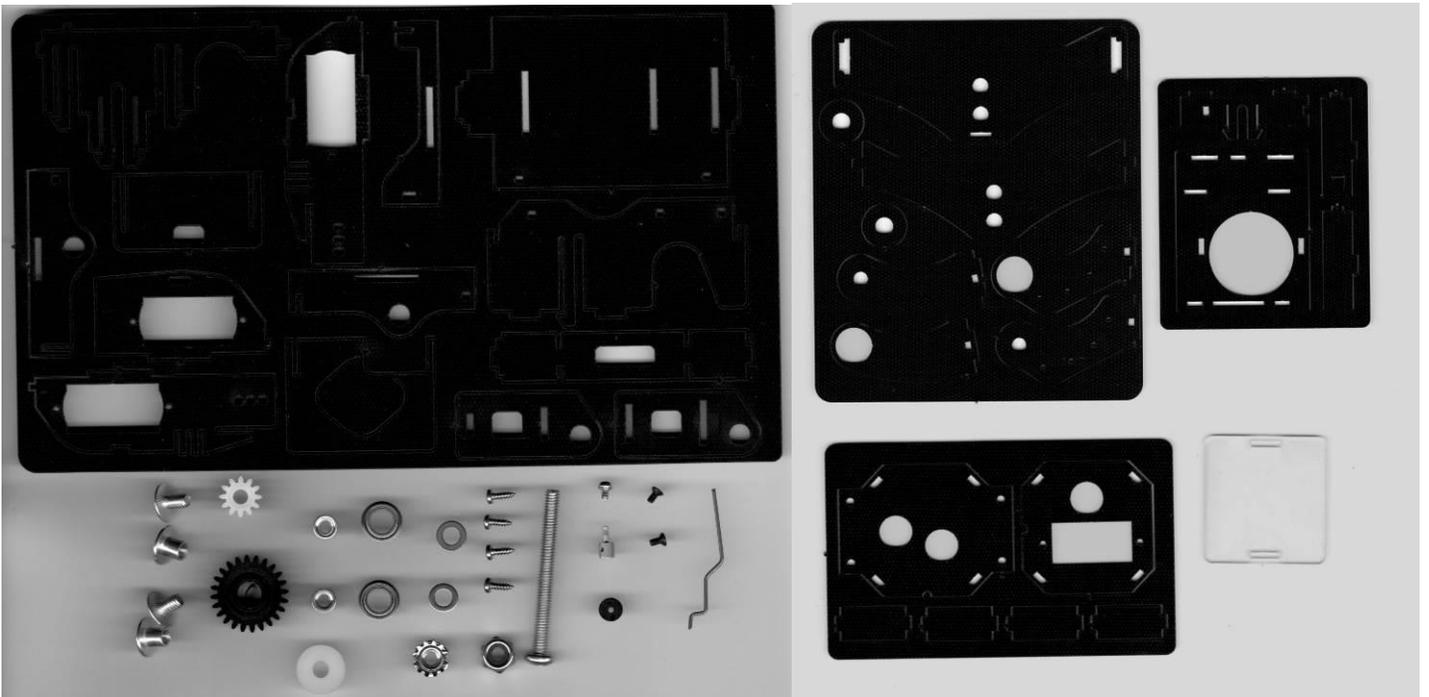
## Pro Combo Pan & Tilt for CCD and GoPro Hero 3

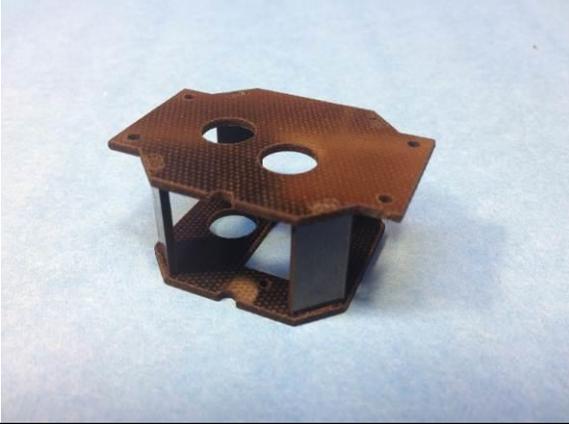
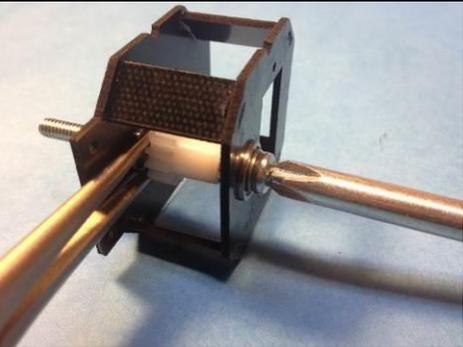
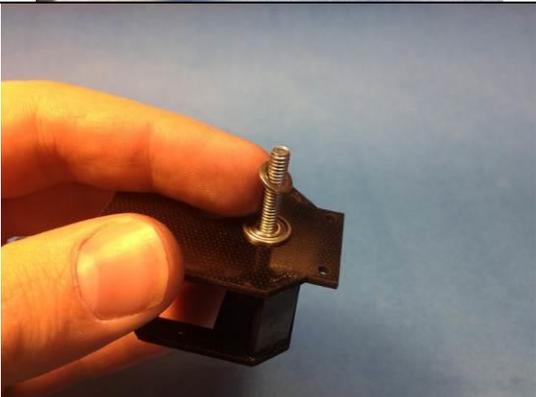
Note: prior to gluing pieces, dry fit the parts to insure there are no binding joints.

Items required for completion of pan/tilt kit:

- Thin CA with narrow application nozzle.
- Needle nose pliers, Phillips screw driver, and a wide flat-head screw driver.
- Sharp hobby knife.
- Blue thread locking compound.
- Rubber Gloves if you don't like dirty fingers.
- Your cameras, servos, and other FPV gear!

Please verify that all components are included:



Section 1 – Pan Assembly	-----
<p>1. Assemble Pan base as shown and glue with CA. Make sure alignment dimples are on the same edge, and the small holes line up. Make sure all pieces are fit completely together and that the unit is not crooked.</p> <p>** Double check for proper hole alignment prior to gluing. **</p>	
<p>2. Push aluminum spacers into flange bearings until flush on the wide side of the bearing. Install one unit onto main screw with a washer in between as shown.</p>	
<p>3. Place the white gear onto the screw while inserting through bottom of the base. Screw the second bearing/spacer down through the top and sandwich the white gear in between.</p>	
<p>4. Tighten down the top bearing/spacer onto the gear using pliers to keep it in place. The white gear should not be able to spin freely after tightening.</p>	
<p>5. Install washer onto main screw followed by the lock nut and tighten until snug. Verify free movement of assembly.</p>	

6. Cut all four arms of the large servo arm at the second hole.

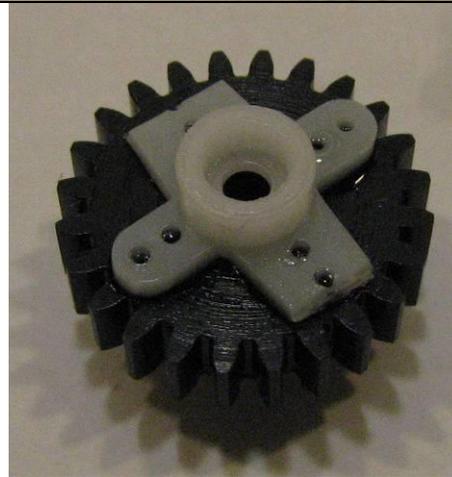


7. Sand the top surface of the servo arm and the side of the large gear to roughen.

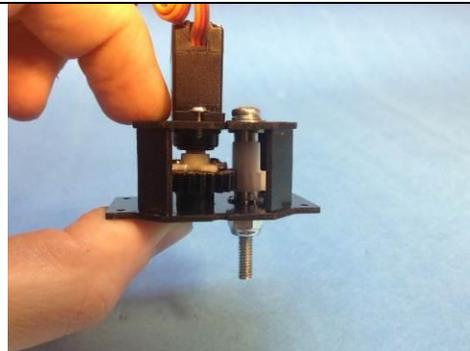


8. Apply a thin layer of epoxy to the top of the servo arms and place it on the gear. Make sure the arm is centered in the gear (look through the opposite side to make sure the holes line up). Be careful to not get any epoxy on the gears. Quickly wipe excess epoxy away using alcohol on a rag if needed.

\*\* If desired, you may also add small screws to attach horn to gear at the inner holes. Be sure to pre drill to avoid splitting.  
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9. Insert the gear in the large hole and insert servo into gear. Tighten screw to secure servo horn through the hole in the gear center.

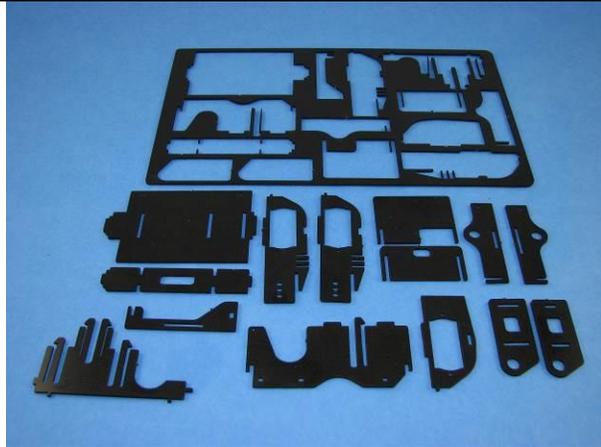


**Section 2 – GoPro/CCD Tilt Assembly**



1. *Important!* - We recommend that you fully assemble the tilt setup before using any CA. This will ensure that you have it built correctly before making a mistake.

We will begin with the upper section. Punch out all components on the large sheet and carefully de-burr with a hobby knife.



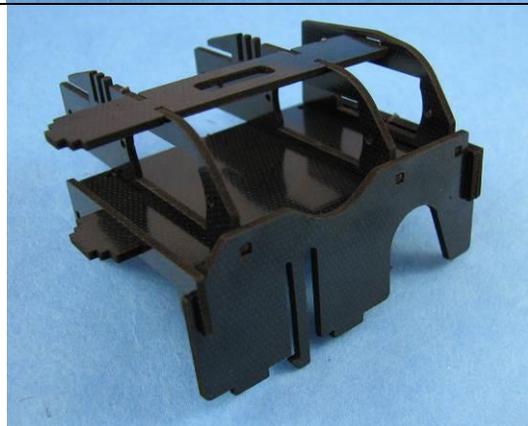
2. Locate the main back plate, the 3 back ribs, and the holding plate. Assemble as shown.

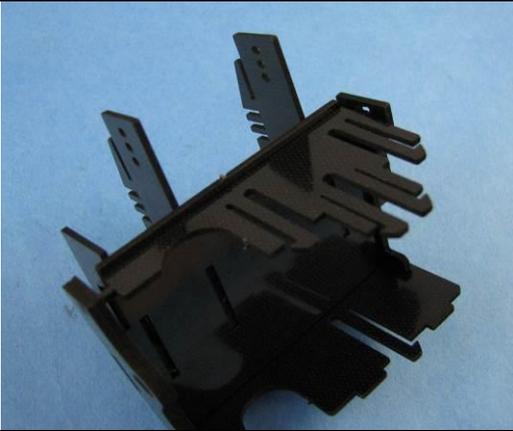
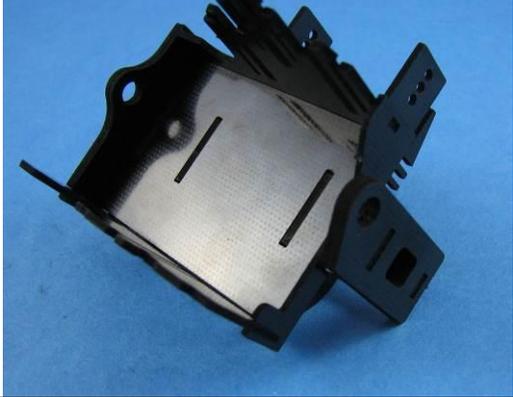
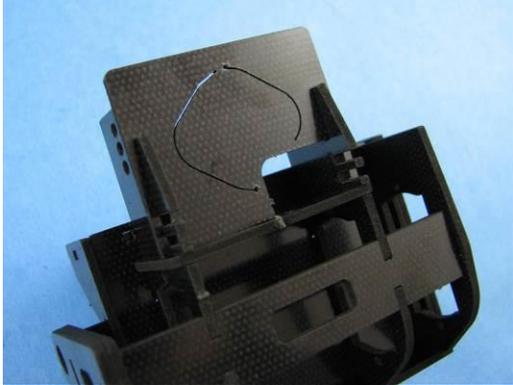


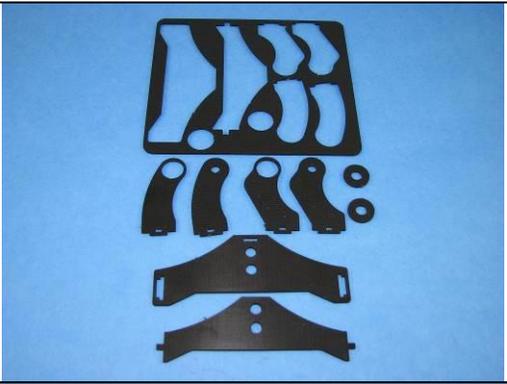
3. Place side panels onto main plate. Notice the different size holes between the panels. This allows only one way for proper assembly.



4. Slide bottom plate into side panels. Snap into place over the small notches on back ribs.



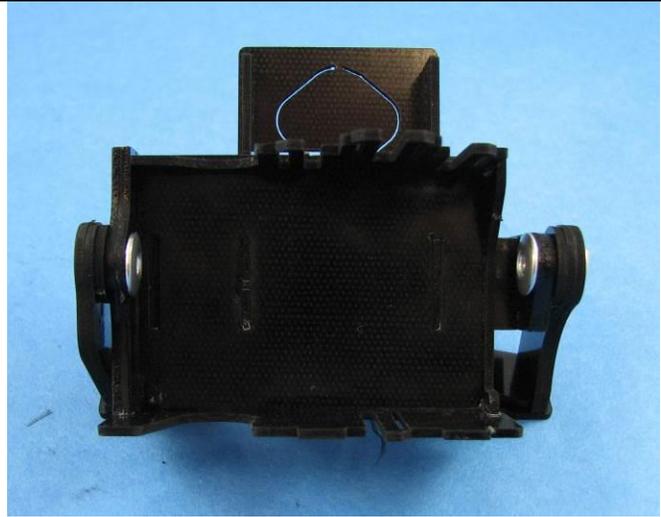
<p>5. Partially slide the upper side panels away from main plate and insert top plate. Slide side plates back together to secure.</p>	
<p>6. Install remaining pivot plates. Again, note that one has bigger notches cut and can slide in further. The plate with the smaller notches will only fit on the outside. Pivot hole should be in alignment with the panel on the opposite side (or “up”).</p>	
<p>7. CCD Panels – You may want to adjust this at a later date if you change your mind about the height of your CCD camera. We suggest installing them now, but not gluing until you are certain about its position.</p>	
<p>8. CA – Once you are <u>sure</u> that everything is in its correct position, you can begin gluing all points of contact. Thin CA is helpful in this case because of its “wicking” properties. A precision glue tip will help avoid a mess. Try to use as little as possible for a clean, finished product.</p>	
<p><b>Section 3 - Base Mount Assembly</b></p> <hr style="border-top: 1px dashed black;"/>	

<p>Locate the base plate sheet and punch out all components. Carefully de-burr with sharp hobby knife.</p>	
<p>1. Assemble inner section as shown. Notice which side pieces are used and what direction they are facing.</p>	
<p>2. Add the outer, side pieces onto the plate and place on top of larger, bottom plate. Notice that the outer, side plates have the larger holes.</p>	
<p>3. We recommend that you install the main camera housing into the lower bracket to ensure proper alignment prior to gluing.</p> <p>The female aluminum pieces are on the inside with the male screws on the outside. The large washer fits between the base mount and the camera housing.</p>	

4. Once you are sure of proper installation, carefully add thin CA to the base mount while keeping it as square as possible. Do not place any glue near the pivot point or aluminum fasteners.

After allowing time to cure, disassemble camera housing along with washers and fasteners from bottom bracket. Finish gluing remaining area with CA and allow time to cure. Do not add CA to areas where fasteners will touch, only on the outside of bracket.

Reassemble camera housing and bracket.



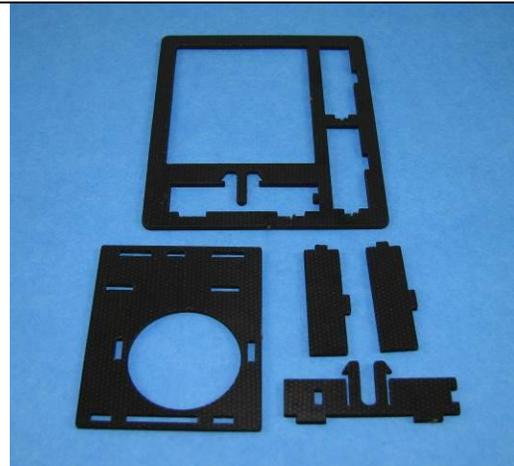
5. Tilt servo – Secure servo facing up with supplied screws. You may need to sand/file the servo housing slightly depending on your chosen brand of servo. Install EZ-connector onto control horn.

Insert control rod into pre-drilled hole in bottom bracket. Feed rod through hole of connector and tighten with set screw.

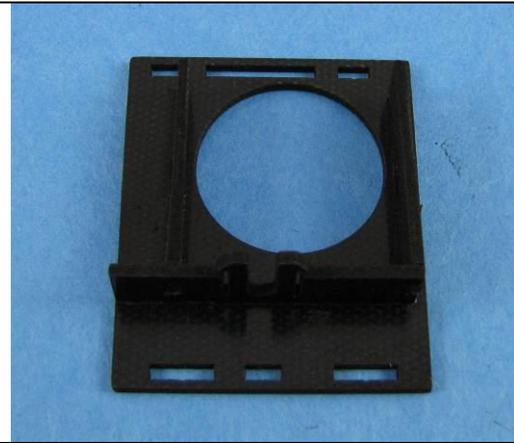


#### Section 4 – GoPro Lens Protector

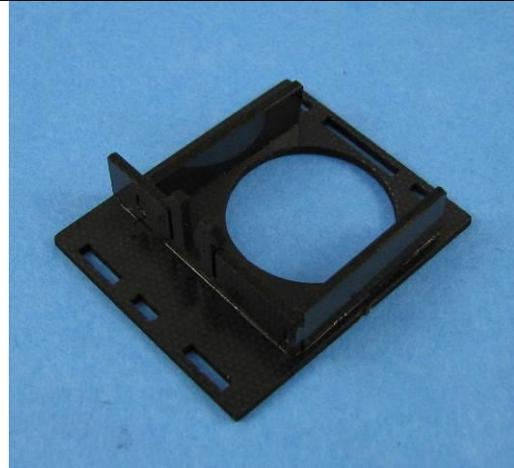
1. Locate the lens protector sheet and punch out all components. Carefully de-burr with sharp hobby knife.



2. Assemble as shown. Pay special attention to the direction of the base plate.



3. After you are sure that everything is in its correct position, use thin CA to glue at contact points.



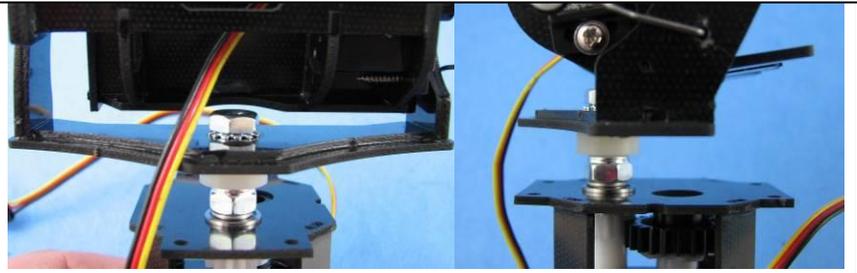
4. Place lens protector onto retainer clips and snap into place.



5. Peel protective cover off of lens and snap into place on frame.



16. Place nylon spacer onto shaft followed by the tilt platform and star nut. Center the pan servo and place tilt platform pointed 180 degrees from the desired direction. Hold the bolt with a screwdriver (DO NOT APPLY FORCE AGAINST THE SERVO). Rotate the tilt platform, making sure the bolt is moving, until the bolt is tight and the platform is facing the proper direction.



17. Place CCD camera into housing and secure with included fasteners. (Blue Loctite may be beneficial)

\*\*\* WARNING – Only use these screws in this setup! If used by themselves or with a thinner mounting material, you may short out the components inside the camera \*\*\*

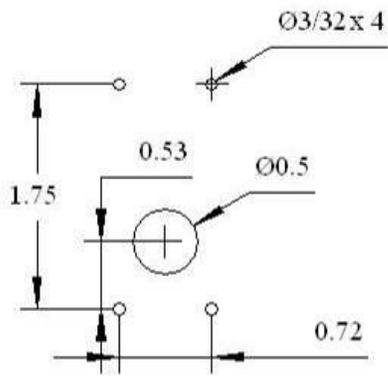


Assembled GoPro Pan/Tilt with Camera Installed:

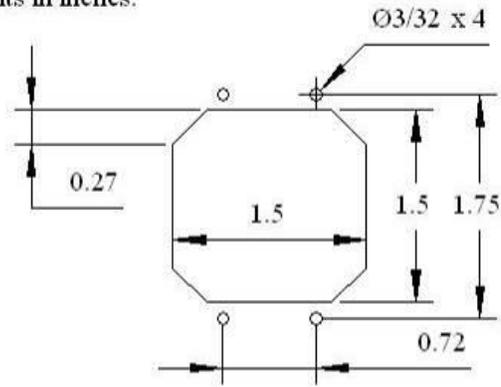


Cutout dimensions for stand-alone use:

Units in inches.



Cutout locations for through-mounting



Cutout locations when inserted through mounting surface.