PILOT HOBBIES – PILOT TRAK MINI ASSEMBLY MANUAL

Required Parts

8x M2.5 x 8mm Screws

2x M4 x 16mm Screws

2x M3 x 4mm Grub Screw

2x N20 Gear Motors

2x Micro ESC

1x Micro Receiver

1x Micro FPV Camera

1x Micro Battery Plug

1-3x 5mm LED (optional)

Wire & Solder

You will need electronic speed controllers, a receiver, and an FPV camera. Links to parts featured on next page. Examples are available in my build videos on my YouTube Channel https://youtube.com/user/pilotgeek

Parts Lists – All Amazon Links are Paid Promotional Links

Screws / Hardware

- M2.5 x 8mm Phillips Self Tapping Screws: https://amzn.to/3tocdBp
- M3 x 4mm Grub Screw / Set Screws: https://amzn.to/3rt3v3l
- M4 x 16mm Cap Screws / Axle Screws : https://amzn.to/36Dvghr

Electronics

- Two Pack N20 Gear Motor: https://amzn.to/3tljXUU
- Micro FRSKY Receiver: https://www.banggood.com/2_4G-8CH-D8-Mini-FrSky-Compatible-Receiver-With-PWM-PPM-SBUS-Output-p-1140478.html
- Walkera Micro Battery Connector: https://www.banggood.com/Walkera-Mini-Super-CP-Li-Po-Battery-1s-Plug-1-to-4-Charging-Cable-DIY-p-78817.html
- Micro 1S ESC: https://www.banggood.com/2_7A-1S-Dual-Way-Micro-Brush-ESC-3_3-6V-Winch-Reversing-with-Overheat-Out-of-Control-Protection-for-DIY-RC-Model-p-1533777.html
- Micro FPV Camera: https://www.banggood.com/Eachine-TX06-700TVL-FOV-120-Degree-5_8Ghz-48CH-Smart-Audio-Mini-FPV-Camera-Support-Pitmode-AIO-Transmitter-For-RC-Drone-Tiny-Whoop-p-1413572.html

Plastic

- SainSmart Black TPU: https://amzn.to/3tktefM
- PLA, Black (Or other colors): https://amzn.to/3rIll7Y

3D Printing

Overview

The chassis was tested in PLA, and the tracks were printed using SainSmart black TPU.

General Settings

- Nozzle: 0.4mm
- Slicer: Confirmed to print on Cura 4.5

Print Settings

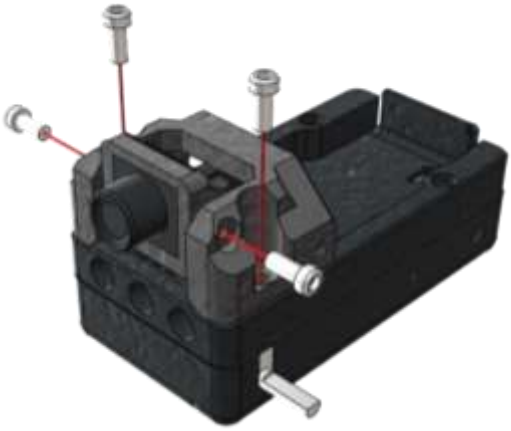
- Infill
  - Any infill should do, it does not need to be super tough. Cura defaults should be fine.
- Supports
  - Parts marked support will require support, ones without do not.
- Notes
  - Don't try to print too fast, you want it to be good. Even when using PLA, it helps to build in a warmer environment for strong layer adhesion and less warping.
  - I recommend printing the camera adapter in TPU to prevent the VTX from melting it.
  - TPU tracks can be finnicky. Print at a low rate (20-30mm/s). I recommend a direct drive hot end. They're tested to slice in Cura, though some slicers do not like the thin walls.

Assembly

Lower Chassis

Prep motors by soldering leader wires to ESCs. Press fit motors into lower chassis, taking care not to pinch them. Tape ESCs to bottom of lower chassis. If using a micro receiver, you may optionally install it on the electronics shelf, otherwise, fish the wires from the ESCs through the slots in the chassis cover. Secure with M2.5 Self Tapping Screws. If using a larger receiver, tape it down into the top compartment.

Upper Chassis / Camera



Solder positive, negative, and signal wires from the ESCs to the Aileron and Elevator channels of your receiver. Affix 5mm LEDs (optional) with a small dab of superglue. Use a 100 ohm resistor in series with each LED, and solder LEDs to the positive and negative voltage rails of your receiver. Solder desired battery connector type to receiver positive and negative rails. Solder camera power leads to positive and negative rails on your receiver. If using a smaller AIO camera, place FPV camera into adapter. I recommend printing the camera adapter in TPU or PETG to prevent the hot VTX / camera from warping or melting the plastic. Larger cameras do not require the adapter. Use M2.5 screws to secure the camera frame and adapter to the chassis. The battery cover should snap on.

Wheels & LID

Idler wheels ride on M4 x 16mm screws. **Do not overtighten**, as it will bind the wheel and possibly jam the motor from the back side. I recommend a plastic safe grease on the axles to prevent wear or squeaks. Drive wheels should slip on the motor axles, and use an M3 grub screw to secure in place. If you do not have an M3 grub screw, you can alternatively use glue to adhere the wheel to the motor shaft.

Complete!

Your FPV Rover is now assembled! Send complaints to pilotgeek45@gmail.com