



A7 Corsair II

By Michael Hammer



This model is dedicated to my friend George "Geros" Koutsouras who flew F-104 Starfighters and A7 Corsairs in the Hellenic Air Force.

Thank you for your help and inspiration.

The real A7 Corsair II



The A-7 Corsair II entered service in 1967 and was the Navy's primary light bomber from the Vietnam War to Operation Desert Storm in 1991. Its distinctive design earned it many nicknames such as "The Harley", "SLUF (Short Low Ugly Fellow)", and from deck crews, "The Gator".

Specifications:

Length: 14.06 m (46.2 ft)

Wingspan: 11.80 m (38 ft 9 in)

Height: 4.90 m (16 ft 1 in)

Wing area: 34.83 m² (374.9 ft²)

Max. takeoff weight: 19050 kg (41998 lb)

Max speed: 1.111 km/h (690mph) at sea level



The A7 Corsair II semi scale model

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The 3D-printed A-7 Corsair II model is designed to closely resemble and fly like the full-scale aircraft. The prominent air intake, high-mounted swept wings, and realistic loadout options help capture the look of the real jet.

The optimized EDF duct ensures excellent performance without relying on cheater holes or oversized, non-scale intakes. The model is designed for a 50 mm XFly Galaxy electric ducted fan and provides strong performance with flight times of 4–6 minutes. Most components are intended to be printed in LW-PLA, although some parts require standard PLA.

No carbon tubes or similar reinforcements are needed. Simply print the parts and assemble them using cyanoacrylate (cyano) glue. The Corsair is intended to be powered by a 4S XFly Galaxy 50 mm EDF paired with a quality 4S 1800 mAh battery. Other 50 mm EDF units, such as those from FMS, will also fit. Four 9 g servos are required to control the model.

The model features a full complement of AIM-9 Sidewinder missiles, Mk-82 bombs, and auxiliary fuel tanks, all of which can be either magnetically attached or permanently glued in place. Control-throw gauges are included to make it easy to set the correct aileron and elevator travel. A CG cradle is also provided to assist with accurately balancing the model at the correct center of gravity.

The 3D-printed A-7 Corsair II is easy to hand-launch, and it also includes a catapult hook for bungee-assisted launches. For the safest and most reliable takeoff, a catapult or bungee system with 5–6 kg of pulling force is highly recommended. You can find instructions on how to build an inexpensive Bungee Launcher here: [Bungee Launcher Youtube video](#)

All parts are designed to be easily aligned and glued with cyano glue.

Model specifications:

Wingspan: 676mm

Length: 752mm

Weight of empty airframe: 330g

LW-PLA 4S version: Ready to fly weight (4S1800mAh): 770g (without tanks and bombs)

Flight time: 5-8 minutes



3D Printer Requirements

Recommended Prusa MK3S or equivalent.

Nozzle: 0,4mm

Filament: Light Weight PLA, LW-PLA (active foaming PLA) like PolyLight 1.0 and PLA like PolyAir 1.0 Both filaments are available from 3DLabPrint.com

Slicer: PrusaSlicer

Print settings

All parts are designed to be printed with 0,4mm nozzle, 0,25mm layer height

Before you start slicing the stl-files yourself, I highly recommend printing a couple of the supplied G-Code files first to see if they will print OK on your printer. For many the supplied G-Code files will do the job just fine.

If you prefer to slice the files yourself you should use the latest version of PrusaSlicer and load the supplied 3mf files into it. The 3mf files contain all the optimal slicing info for the parts. You can then choose your printer and press slice. Or you can modify the settings to suit your needs.

If you wish to slice the parts with a slicer of your own choice, it is still recommended to start by checking the slicer settings for the specific part in PrusaSlice. It will give you a very precise overview of how the part was designed to be printed. It just takes the guesswork out of trying to find the optimal way to print the part.

You can also preview the G-code files with PrusaSlicer G-code Viewer to get an idea of how the parts should look when printed correctly. Launch PrusaSlicer G-code Viewer from the file menu of PrusaSlicer or run the prusa-gcodeviewer.exe

You can print the EDF-Plug part as a test piece. The finished part should weigh 10g if all settings are correct.

Most parts for the A7 Corsair II are printed with these settings:

1 wall

3 bottom layers

3 top layers

3% gyroid infill

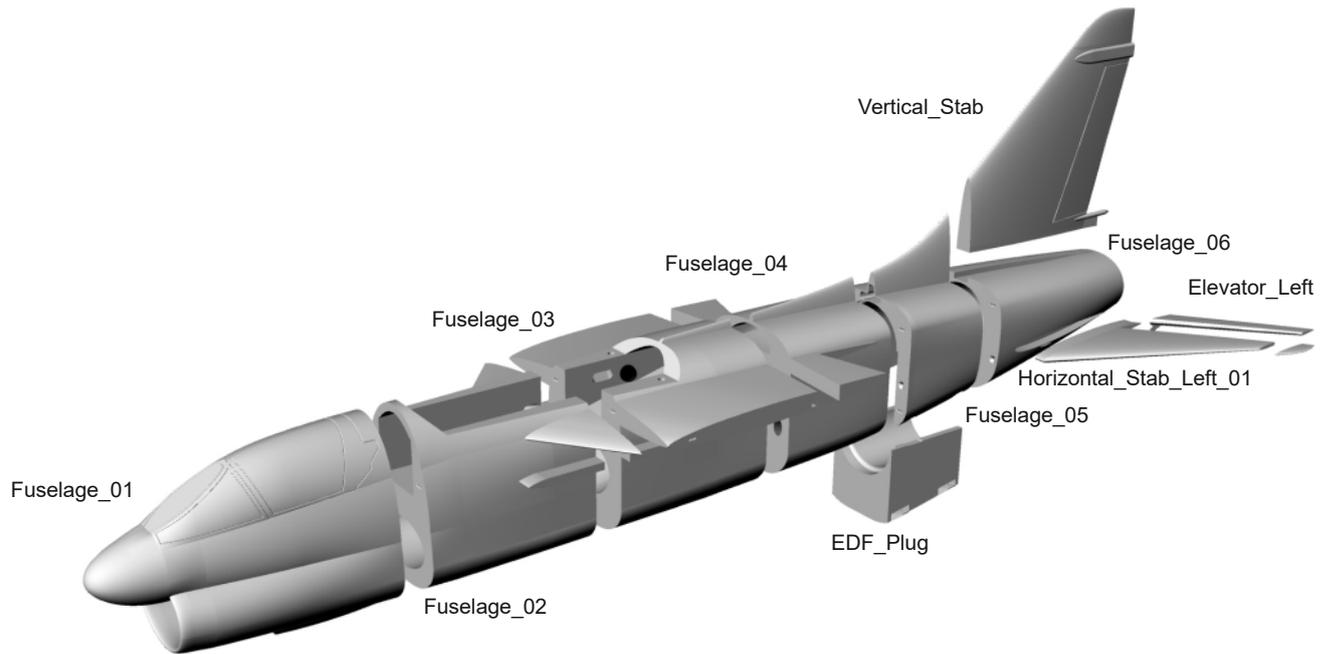
Bill of Materials

- 1mm pianowire
- Cyano hinge sheet (or use strong plastic from blister packaging. Remember to sand with coarse sandpaper)
- Cyano glue and accelerator spray, medium or thin
- 4 x 9g servoes like HXT900 available from HobbyKing.com
- EDF: XFly Galaxy 4S edition available from www.turbines-rc.com (Europe) or www.bananahobby.com (North America) Otherdealers can be found here: www.xfly-model.com/wheretobuy. Other 50mm quality EDFs with the same dimensions as the XFly Galaxy, like FMS can also be used to power the Corsair
- Receiver: 4-6 ch
- ESC: 40A
- Battery: 4S1800mAh 25C or higher for 4S EDF (Max battery cross section size: 40x40mm)
- 5x3 magnets (4 x magnets for the hatch and 24 x magnets for the tanks and bombs if you want them to be detachable)

Important:

All printed parts should be cleaned up using a sharp knife or sandpaper. Use a piece of sandpaper to bevel the edges of the parts slightly.

Follow the steps outlined in this User Guide. It will help you through the build process and ensure that the finished A7 Corsair II model will fly well and give you lots of enjoyable flight time.

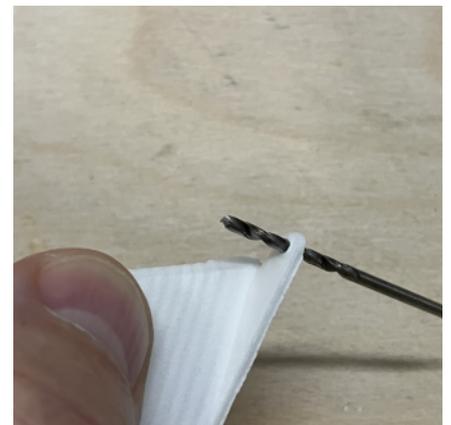
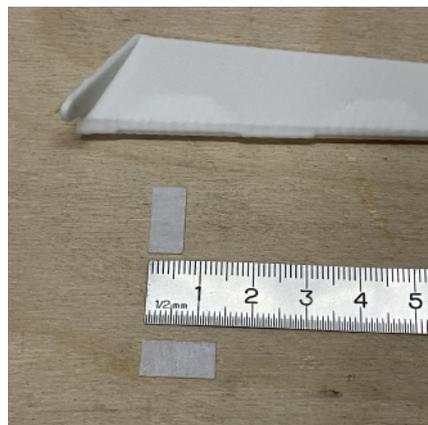


Fuselage Assembly

Start your Corsair build with the tail section. Use medium thickness cyano and wipe off excess glue with a cloth. Spray with accelerator.

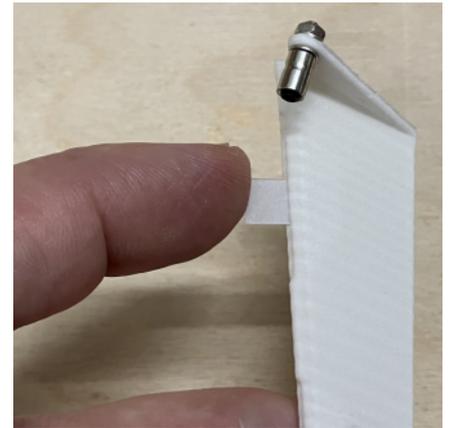
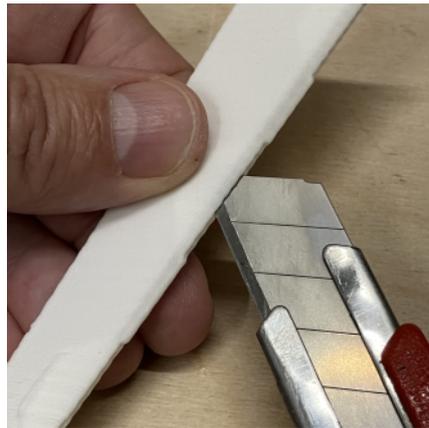
Glue both sides of the Horizontal_Stab_01 and 02 together on a flat surface protected by plastic film.

Cut six 6x14mm hinges from cyano hinge sheet or use strong plastic from blister packaging. Remember to sand with coarse sandpaper. Use a 2mm drill bit to open the hole in the control horn as shown in the photo below.



Insert a pushrod connector in the control horn. Verify that the connector can rotate freely but with a bit of resistance. Secure the connector nut with a drop of cyano.

Use a sharp hobby knife to check that the hinge pockets in both the elevator and the Horizontal stab are open. Insert hinges and check the fit. Glue the hinges into the elevator hinge pockets with a minimal amount of cyano glue.



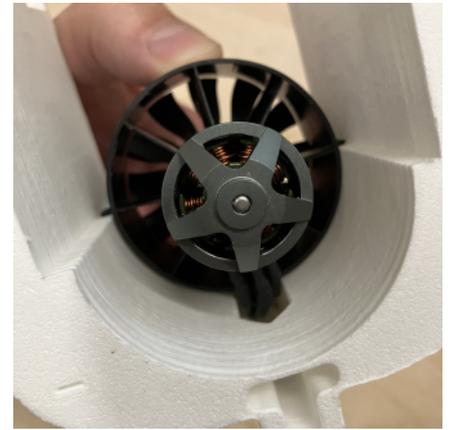
Check the fit of the horizontal stabs and make sure the stabs are fully inserted into the pocket in Fuselage_06.

Verify that the right stab is positioned on the right side of Fuselage_06 and the left stab is positioned on the left side. With both stabs inserted the horizontal stabilizers should have positive dihedral - pointing slightly upwards as seen in the photo below.

If you are satisfied with the fit of both stabs, glue them in with cyano and make sure that both stabs have identical amount of dihedral.



Proceed to Fuselage_05, where the EDF is installed. It's possible to install the EDF after the model has been built but it is by far much easier to install the EDF at this stage. Route the 3 wires from the EDF through the wire canal. Then position the EDF as shown in the photos below and make sure that the 3 wires runs in a nice compact way from the motor and into the canal.



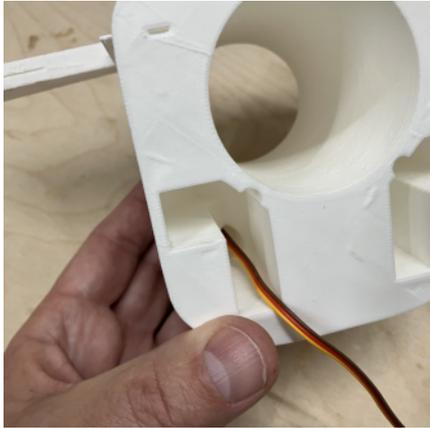
Lock the EDF into place with the EDF_Plug and secure it with 4 small screws supplied with the 9g servos.



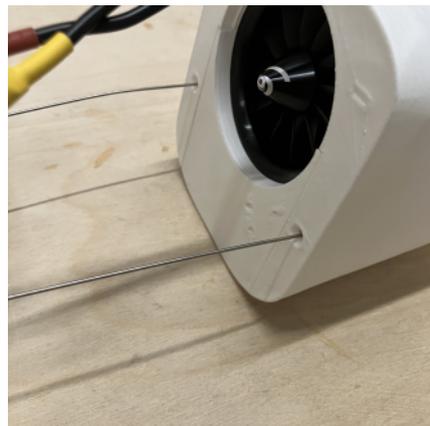
Push PLA joiners into the prepared holes in Fuselage_06. Test that the joiners line up with corresponding holes in Fuselage_05 and that the two fuselage parts will slide together for a nice fit. When satisfied with the fit add cyano glue **ONLY** to Fuselage_05 and **NOT** to the EDF-Plug. Press the two fuselage parts firmly together and wipe off excess glue with a cloth and spray with accelerator.



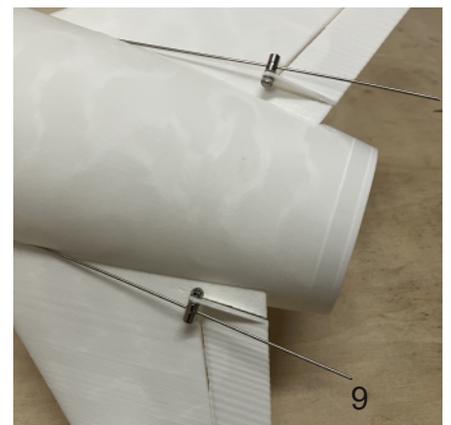
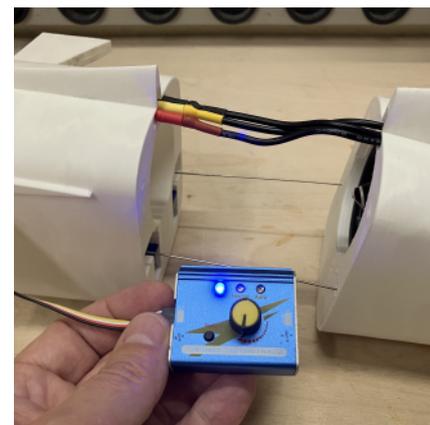
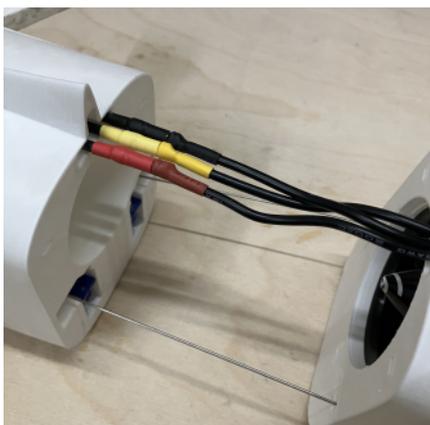
Prepare the two elevator servos with servo arms like shown in the photos below. Make sure the servos are centered. Cut two 240mm long lengths of 1mm piano wire and make a Z-bend in one end and push it through the servo arms as shown. Remove any decals from the sides of the servos and make the surface rough with the tip of a hobby knife. Route the servo wires through the wire canals in Fuselage_04



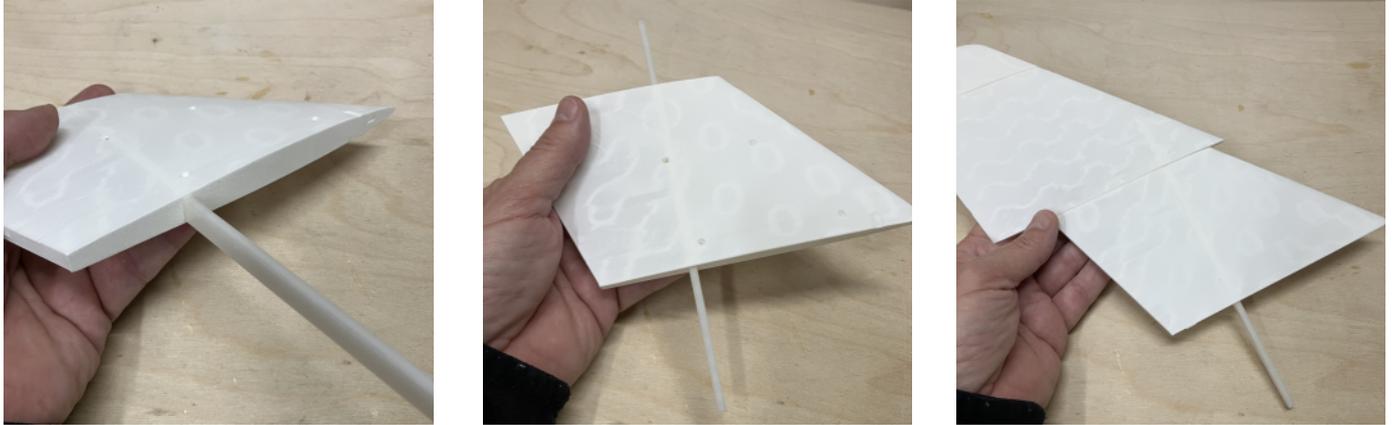
Add glue to the sides of the servos and slide the servos all the way into their pockets. Insert the elevator pushrods into the two control rod canals in Fuselage_5 and 6. Connect the ESC to the EDF and push the ESC into the upper opening in Fuselage_04 as shown below.



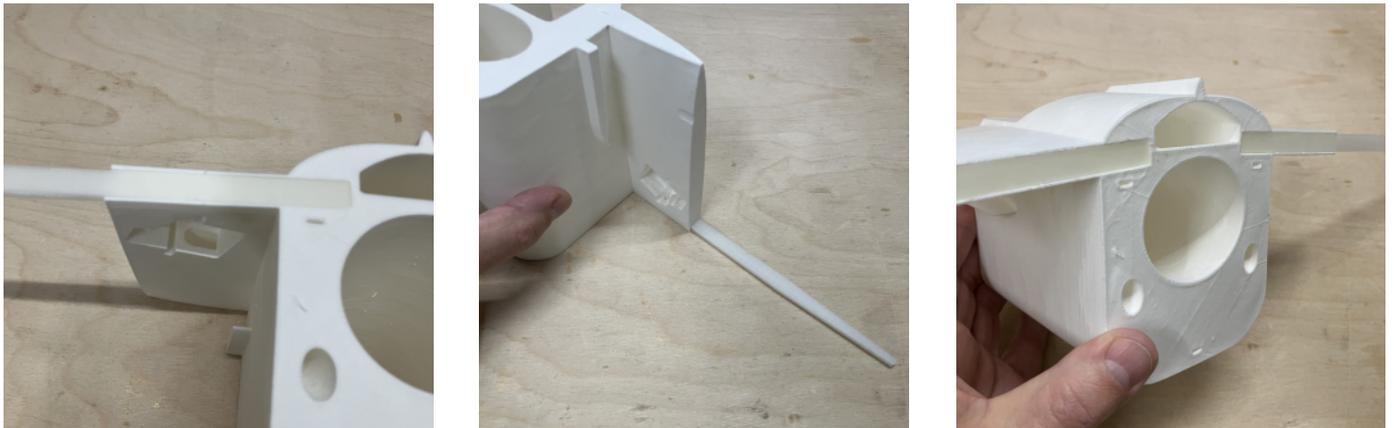
Insert PLA joiners into Fuselage_04. Test that the ESC is correctly connected and the EDF produces thrust. If not, switch two of the wires with each other. Test again. Add cyano glue ONLY to Fuselage_05 and NOT to the EDF-Plug. Push the parts firmly together and spray with accelerator. Install and glue the hinges of the elevators while taking care to insert the pushrods through the connector, center the elevator and tighten the connector screw.



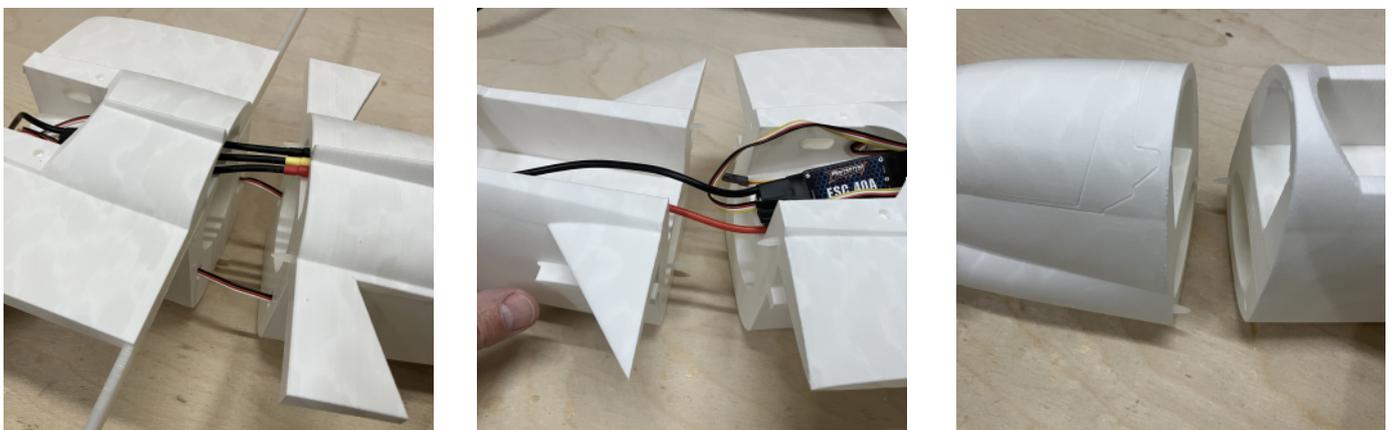
Before we move on to Fuselage_03, make sure that the wing spar can be inserted into the wing parts as shown in the photos below. To check if the spar is sufficiently inserted into Wing_01 you can test fit it to Fuselage_03.



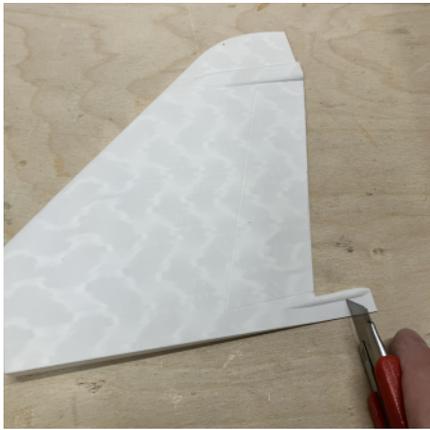
Insert both spars into their pockets in Fuselage_03 and glue them while using a flat surface to ensure that the spars are perpendicular to the fuselage center line.



Pull ESC and servo wires into Fuselage_03 and insert PLA joiners into Fuselage_04. Add cyano glue and press the parts firmly together and spray with accelerator. Repeat with Fuselage_02 and Fuselage_01.

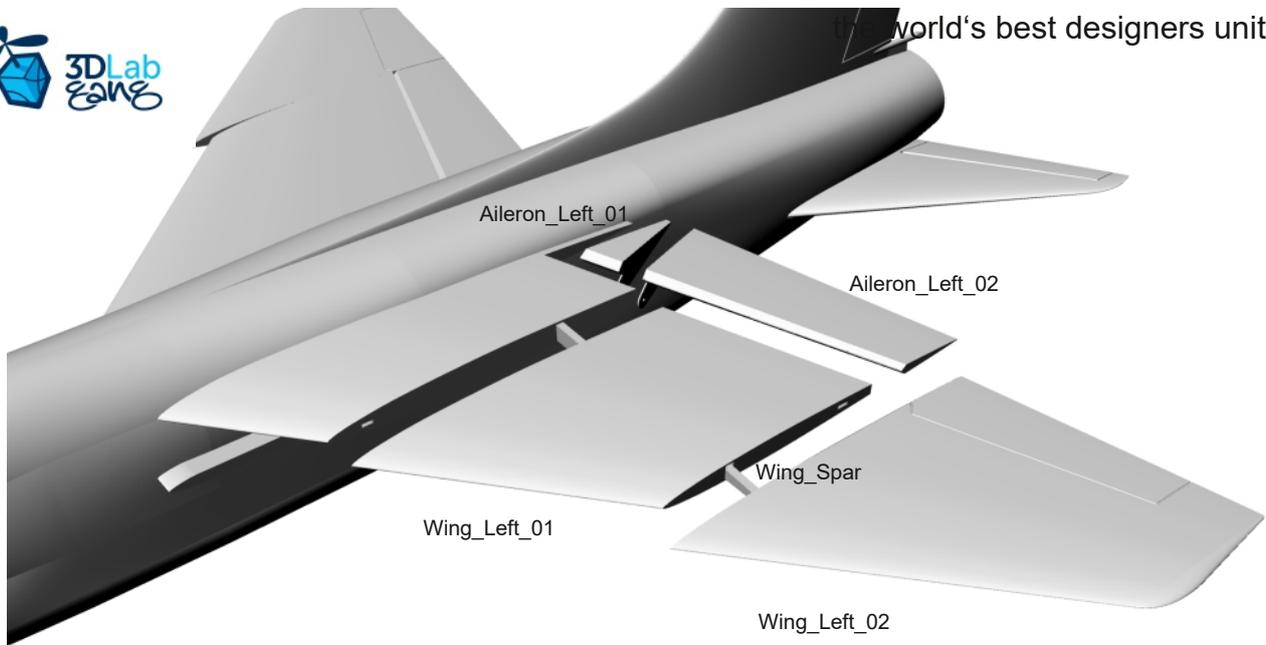


Remove the small support from the Vertical_Stab as shown below and test that the stabilizer fits into the pocket in Fuselage_06. Glue the stab with cyano.



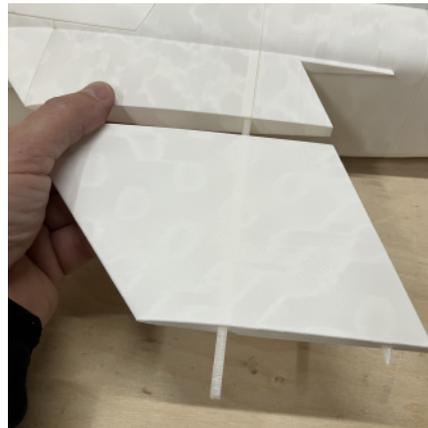
Use a flat surface protected with some plastic film to glue Hatch_01 and Hatch_02 together. Add glue to the two magnet pockets and insert the 5x3 magnets. Ensure that the surfaces of both the magnets and the hatch are flush. In the same way insert two magnets in the pockets of Fuselage_03 while making sure to orient the magnets in such a way that they attract the magnets in the hatch.





Wing assembly

Start by inserting a PLA joiner in the slot in Wing_Left_01. Test that Wing_Left_01 can slide on to the spar and connect to the fuselage. If satisfied with the fit, remove the Wing_Left_01 and add glue to the spar and root of the wing. Fit the wing again and push it firmly against the fuselage and spray with accelerator. Install Wing_Left_02 in a similar way.



Glue both sides of Aileron_Left_01 and 02 together on a flat surface protected by plastic film. Make sure the control horn is firmly pressed together. Add hinges and pushrod connector. Glue left aileron in place with minimal amount of cyano. Repeat the above for the right wing.

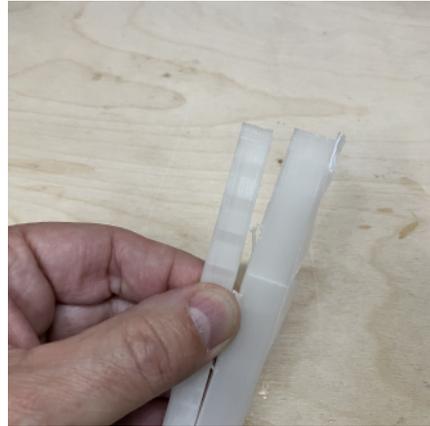
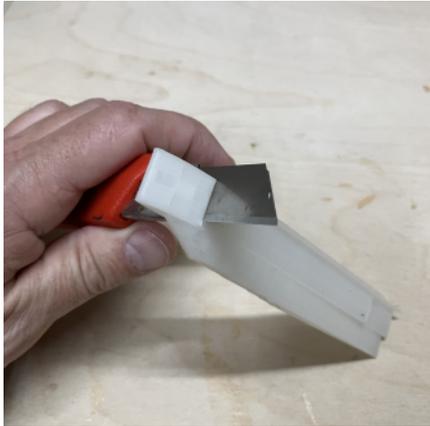


Feed the wire from the aileron servo into the channel. Install a servo arm and insert a 1mm piano wire with a Z-bend. Insert the piano wire into the pushrod connector. Make sure the servo is in neutral position. Glue the servo into the servo pocket and tighten the connector screw as shown in the photo below.



Pylons, Tanks and Bombs

The pylons are printed with supports which will have to be removed. Make a cut between the pylon and the support as shown in the photo. Then pry the support off from the opposite end.



If you want to have removable tanks and bombs, then install two 5x3 magnets in each pylon. To prevent the tanks and bombs being pushed down by wind pressure it is advisable to add a small length of filament to the pylons as shown below.



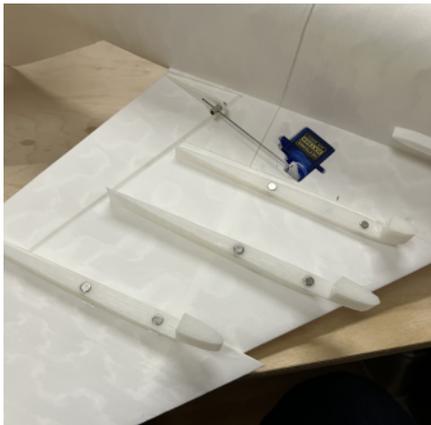
The bombs and tanks are printed in two pieces. Glue them together with cyano and add 5x3 magnets if you want them to be removable. Alternatively, they can be glued directly to the pylons.

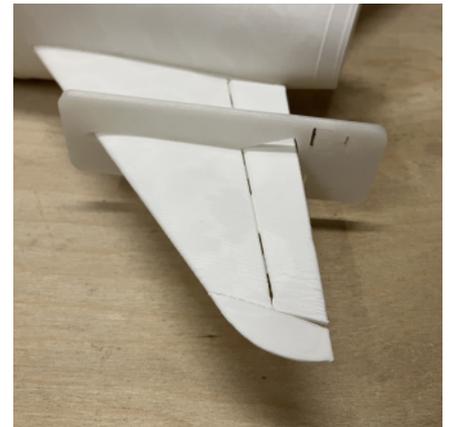
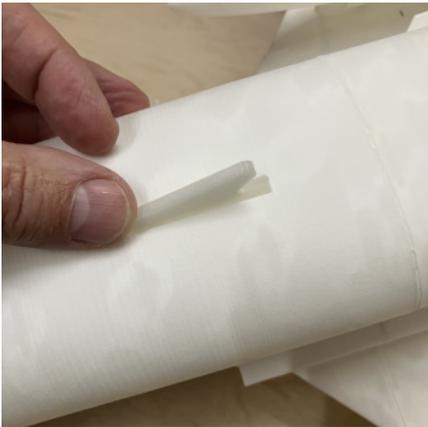


Cut 8mm long pins of filament and insert these into the holes in the pylons. Align the pins in the pylons with the holes in the wing and glue with cyano. Be careful to mount the right side pylons on the right side wing and the left side pylons on the left side wing.



Assemble the AIM Sidewinder missiles and glue them to the fuselage pylons. The missiles have a flat surface that fits the pylons. If you plan to paint your model it is best to mount the missiles after the painting process.





Balancing the model

Before first flight make sure the model balances at the Center of Gravity, CG which is indicated underneath the wings by two recesses.

To help you balance the model, a balancing cradle is supplied with the Corsair files.

Push CG_Cradle_Left into CG_Cradle_Base and make sure CG_Cradle_Left is perpendicular to CG_Cradle_Base. Repeat the process for the right side. Use the two CG_Cradle_Spacer to assemble the CG-Cradle as shown in the photo below.

Place the ready to fly model on the CG-Cradle while making sure the contact points of the cradle are placed into the pockets in the wings. Move the battery forward/backward until the model balances nicely on the CG-Cradle. Secure the battery with velcro or foam blocks.



Cockpit and clear canopy

Files are included for a version with cockpit with a pilot, ejection seat and a clear canopy. For a clear canopy you should print it from PVB filament and treat it with Isopropyl alcohol. Please note that the G-code and 3mf files for the canopy use a 0.8mm nozzle. For best results follow these steps:



- Print the canopy with a 0.8mm nozzle.
- PVB filament absorbs moisture and should be dried before use. Dry it in an oven at 50 degrees celsius for 5-10 hours or use a filament dryer.
- Print at 190 degrees celcius
- If you hear a cracking sound when printing it is a sign that the filament has moisture in it or the printing temperature is too high.
- If you have trouble getting the print to stick to the building plate, put painters tape on the build plate and adjust the Z-height of the nozzle accordingly.
- Spray the canopy with Isopropyl alcohol inside and out. Let excess IPA drain from the part while drying. Wait 15 minutes and spray again with IPA. Repeat 4-5 times.
- Let the canopy dry for 2-3 days
- Trim the canopy edges carefully with a hot knife.

First flight

Always remember: It is the airflow across the wings that creates lift. So keep the airspeed up at all times.

The A7 Corsair II model flies much like a real jetfighter. Speed should be kept up at all times and flying is all about energy management. Energy will bleed quickly if for example very tight turns are performed resulting in slow speed and in worst cases, a stall. If the Corsair model is flown in a scale like manner with gentle maneuvers and enough speed, the model will fly "Like on Rails" with no bad habits at all. Make sure your flying area provides plenty of open space as the A7 Corsair II will cover a lot of distance in a short period of time.

It is highly recommended to use a catapult/bungee system to launch the A7 Corsair II model. A catapult/bungee system will launch the model in a predictable way with plenty of airspeed at a nice angle. And it will do it again and again. Check out this [Youtube video](#) about building a simple yet very reliable catapult system.

The A7 Corsair should be launched with a pull of 5-6 kg and at a 5-10 degree upward angle. Add full power to the EDF just after the launch. Keep the wings level and fly straight until speed builds up. Do not begin a climb out straight after the launch. Get airflow across the wings before any maneuvering.

The A7 Corsair II can also be hand launched and because of the high wing configuration it is easy to get a good grip on the model. Mixing flaps into the ailerons and adding 10-15 degrees positive flaps before the hand launch can help with the launch.

Extras

If you want to hang your model on the wall, the supplied Wall Hook fits the bungee hook. Drill the holes with a 1mm drill bit and insert a piece of 1mm piano wire.

Decals for the Corsair can be printed on waterslide decal paper. Use both clear and white paper for best results.





I wish you many successful flights with the A7 Corsair II

Michael Hammer