

HIGH-END TECHNOLOGY RC

F16 for electric ducted fan



First we want to thank and congratulate you with your decision in buying one of our Kits.

The F16 puts together very easily so there is not much explanation needed.

Just look carefully at the pictures .

This is not a plane for beginners, and you should have some experience with putting together ARFs.

DATA:

Wingspan: 640 mm

Length: 990 mm

Weight: 900-1100 gram

Ducted fans 1 x 72mm

Items needed to complete:.

4 ch. Computer Radio system w/ 2 servos.

1 Electronic brushless speed controllers

1 fan-units 6904 HETFAN or MF 480.

1 480 size brushless motors e.g. EDF 2W , 3W, 4W or 2W20

Lipo battery

5 or 30 minute epoxy

micro balloons

CA Glue w/ accelerator

Velcro.

Standard tools:

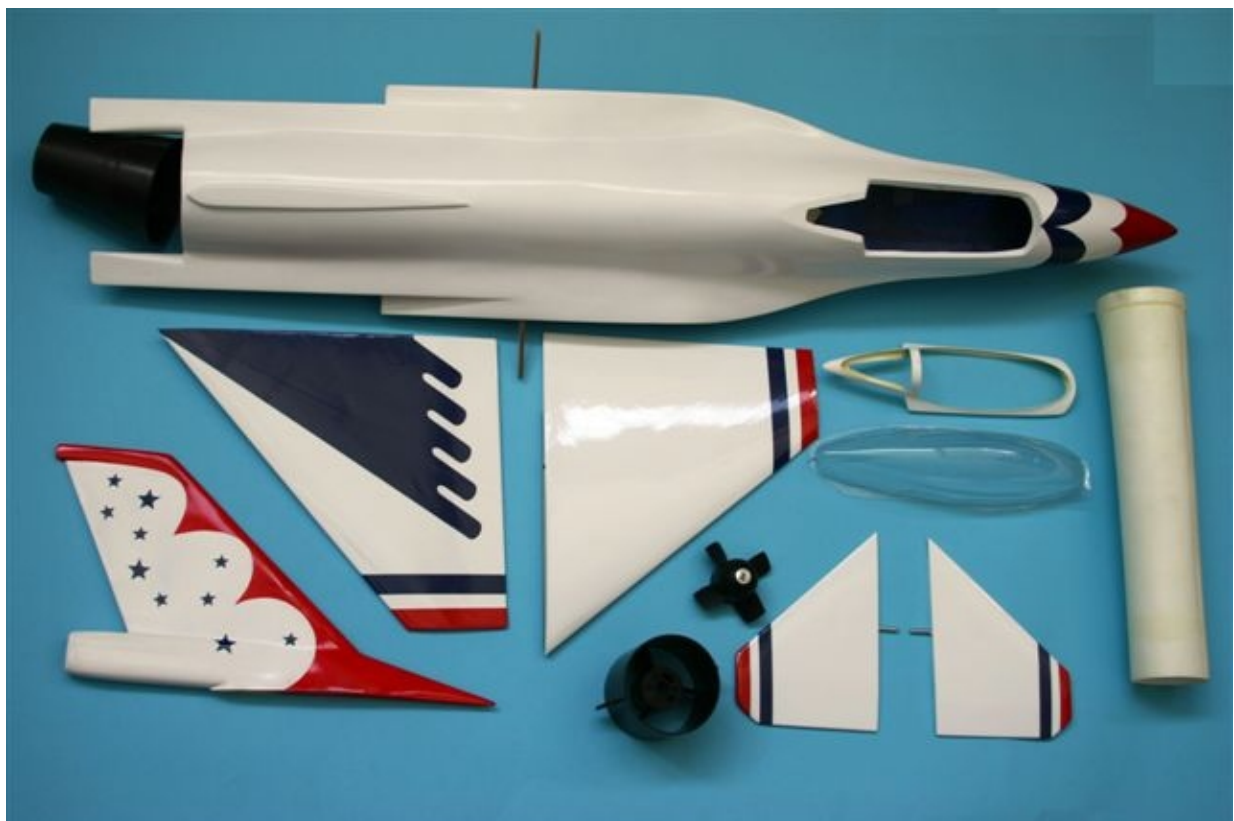
Drill or Dremel tool

Plyer/cutter

Scissor

X acto Knife

Soldering iron.



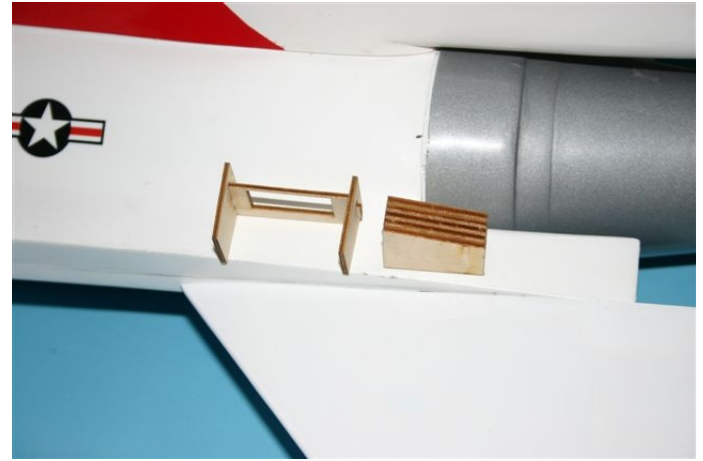
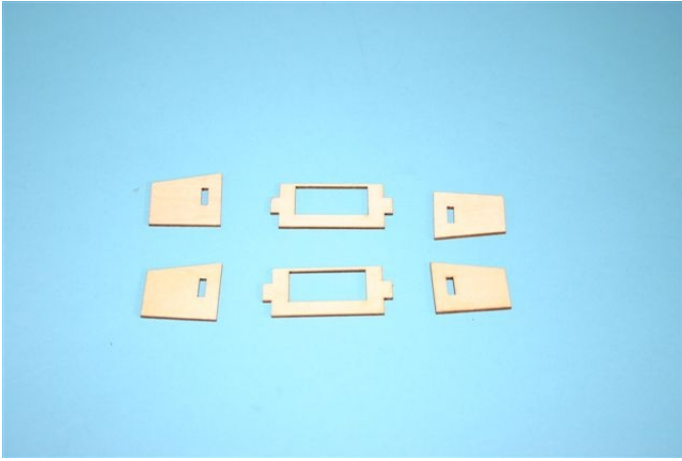
Don't get confused about the pictures in the pictures used in this manual we use 2 versions of the F-16 the Thunderbird version and the white version which we laid out ad the red/white and blue demo version.



Fit the hardwood wing joiner in the fuselage and wing and see if the wing fits nicely. Start by gluing one wing panel with 5 or 30 minute epoxy. First apply some epoxy inside the wing joiner slot in the fuselage. Press the wing joiner inside the fuselage. Remove excess epoxy. Now apply epoxy in the wing joiner slot in the wing root and also apply epoxy on the wing root. Slide the wing over the hard wood wing joiner and press the wing against the fuselage. Make the leading- and trailing edge align with the fuselage. Remove the excess epoxy with a clean cloth and cleaning alcohol. When the epoxy has cured you can do the other wing panel the same way.

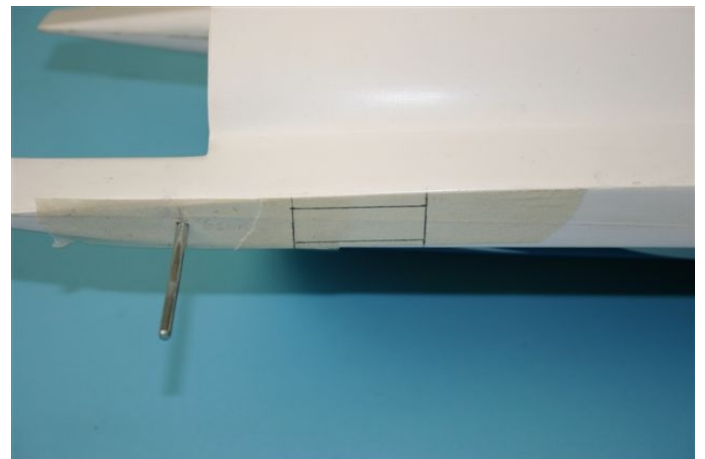
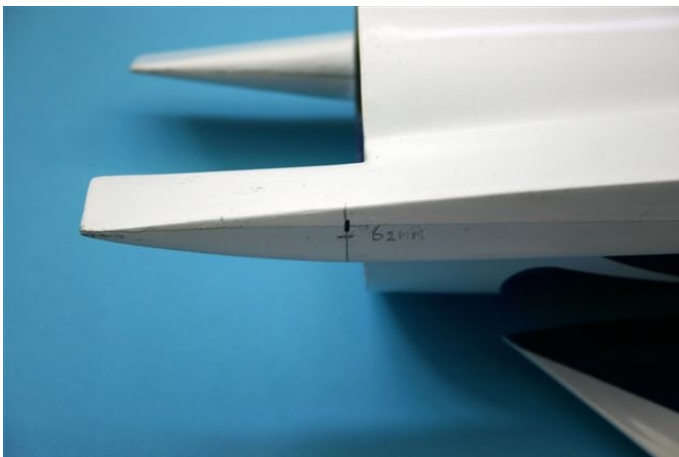


After the wings the wings are glued one. It is possible to cover the joint between the fuselage and wings with a 3-4 mm wide white trim. (Oracover).



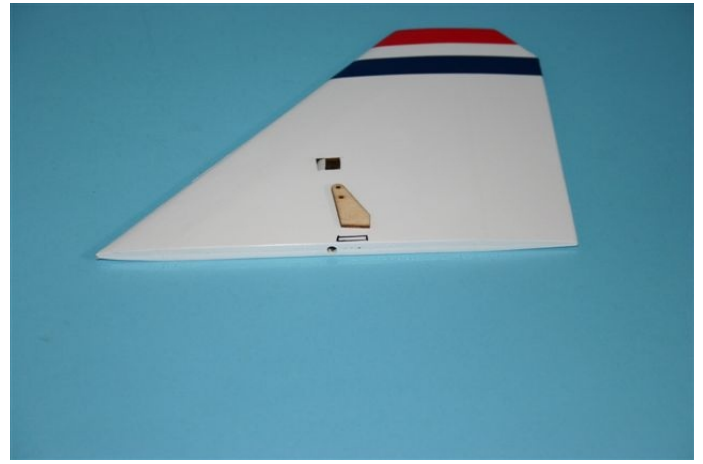
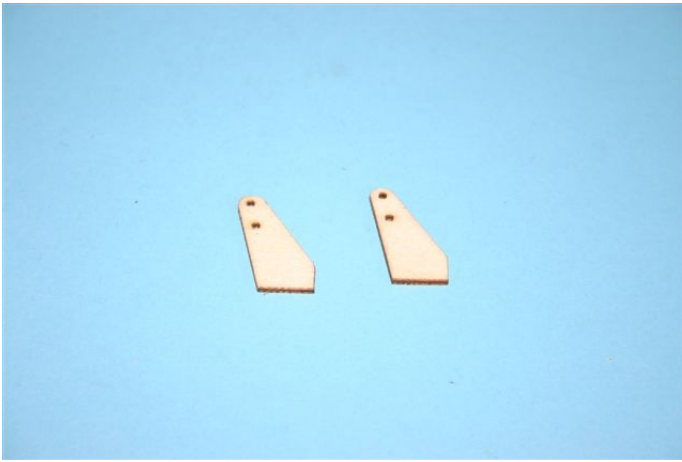
Assemble the servo-brackets, there's a high-side and a low side on the bracket, so the sides are different. The small edge on the Servo tray should be on top. The bottoms of the sides are almost square.

Next to the servo bracket on the right side picture you see the pivot-block and servo bracket, they are in the approximately location. First glue the Pivot-blocks on both sides inside the fuselage with 5 minute epoxy.



Mark the position for the Pivot-rod (2 3 mm steel rods one for each side) 62 mm from the end of the fuselage . Drill a little oversized hole in the middle at the marked location. We recommend a 4 mm hole. Wait before you glue the pivot rod in place.

Put some tape on the fuselage side as in the picture and mark the location for the servo "hatch" size is approximately 35 X 12 mm. the opening should be big enough to let your servo go through. Before you cut the opening be sure that the servo bracket will fit behind. Now cut the opening with a cutting wheel on your dremel or use a sharp knife.

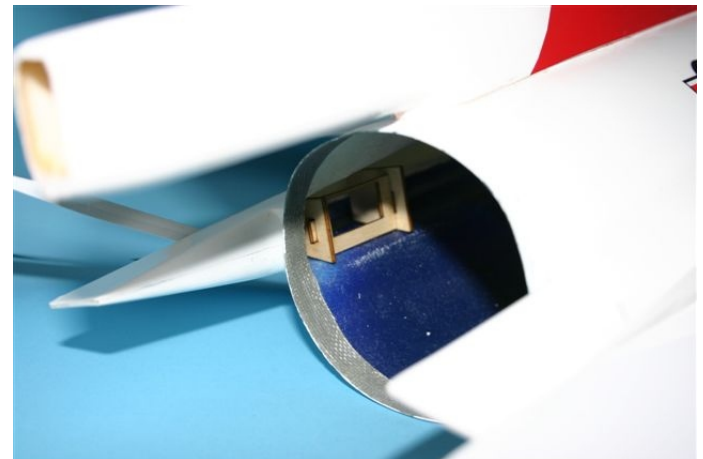
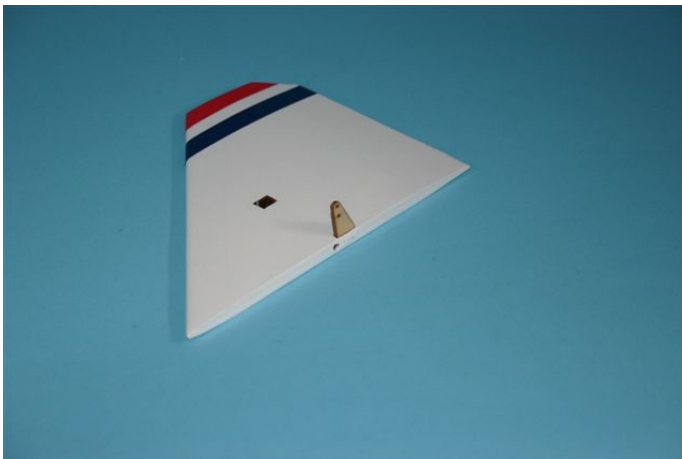


Important:

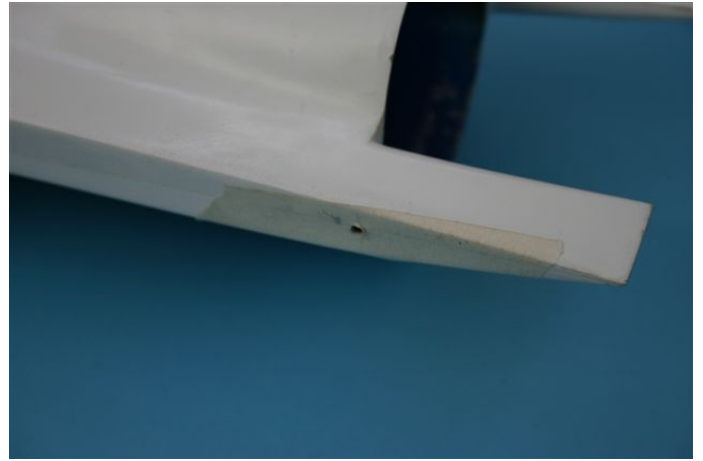
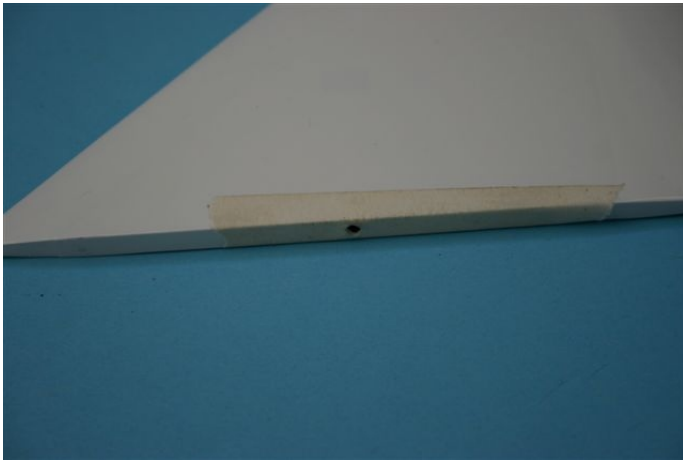
Before you glue the plywood control horn in place with 5 minute epoxy treat the surface and holes of the plywood control horn by “soaking” it with thin CA glue. This will add additional strength to the control horn.

This applies for all 4 plywood control horns.

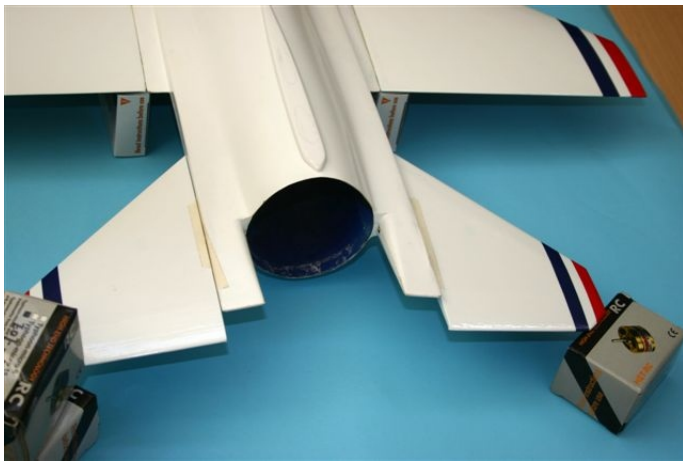
Mark the location and size of the control horn just after the pivot tube on the bottom. Now cut out the slot with a sharp Xacto-knife or use a dremel tool. Do not glue the control horn in place yet. This should be done after you have made the push rod.



Before you glue the servo brackets in place, trial fit your servo (min. 2kg torque with metal gear), 2 micro servos are necessary. Also pre-drill the holes for the servo fastening screws. Also make the pushrods first with a z-bend at each end. How to make this z-bend is explained on page 7.

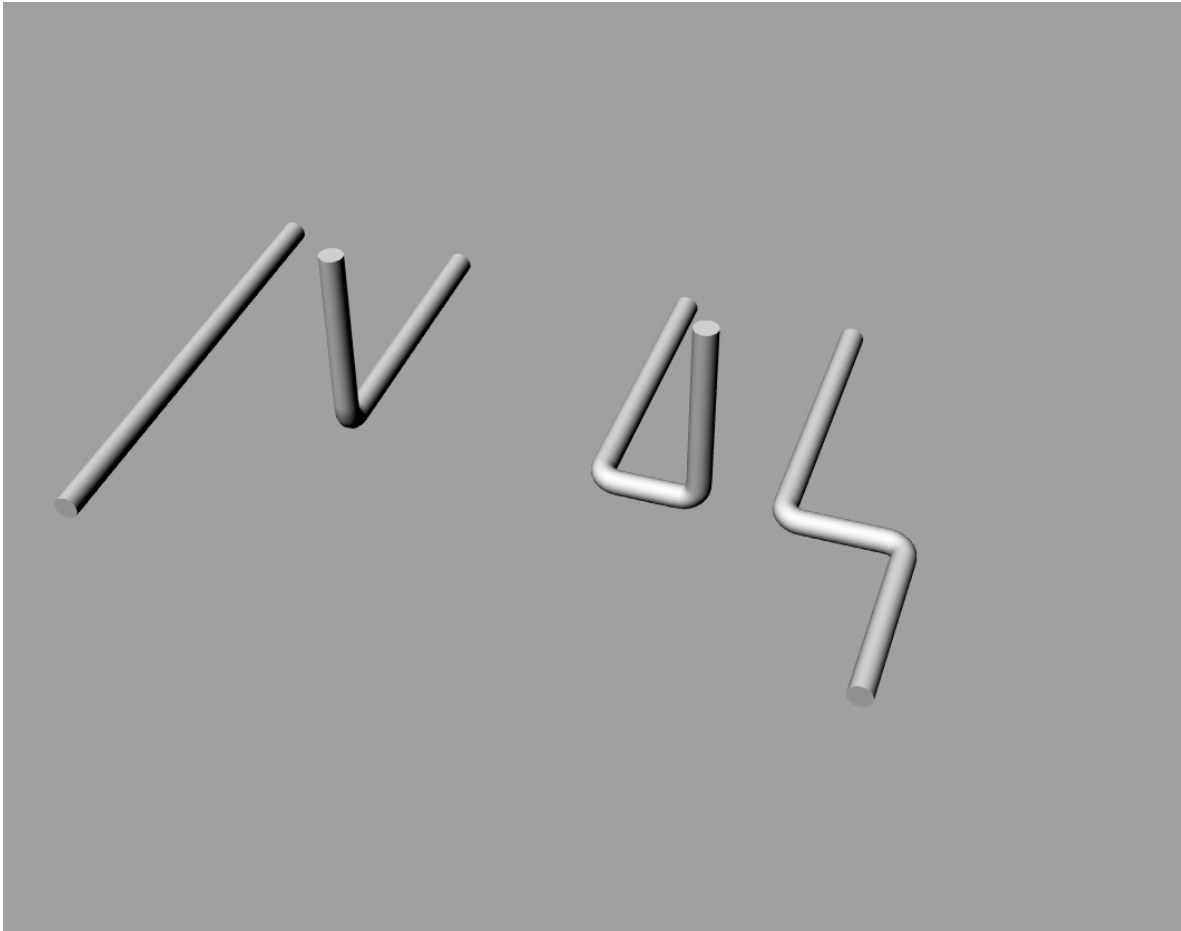


Put tape around the root of the elevon and the side of the fuselage.



Put the main wings on some brackets and make sure the main wings are level. The elevons should have a ± 10 degrees negative angle. Both tips of the elevons should have the same height from the building board. After the epoxy has cured you can remove the tape from the elevons and fuselage.

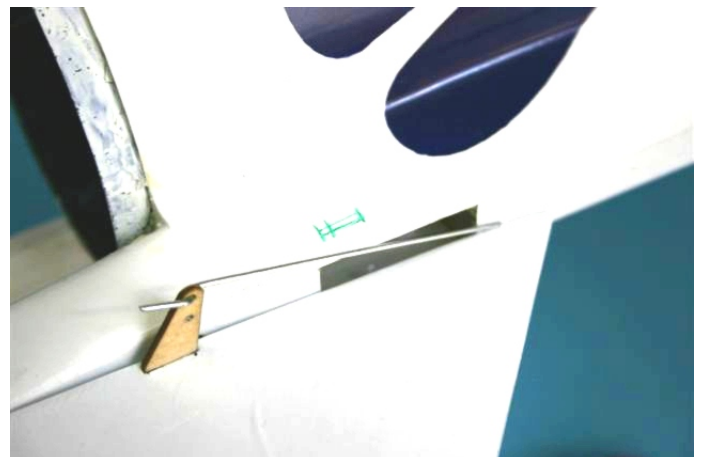
Note that the trailing edge of the elevon sticks out approximately 20 mm from the fuselage side.



This picture shows the steps how to make a Z-bend.
Steps are from left to right. You need 2 ordinary pliers.
Practice first on a scrap steel rod.

- 1 Make the straight steel rod.
- 2 Make a 90 degree bend.
- 3 Now make a new 90 degrees bend with about the thickness of the control horn as distance. As in the picture
- 4 Now twist the vertical end horizontal as in the picture and the z-bend is ready.

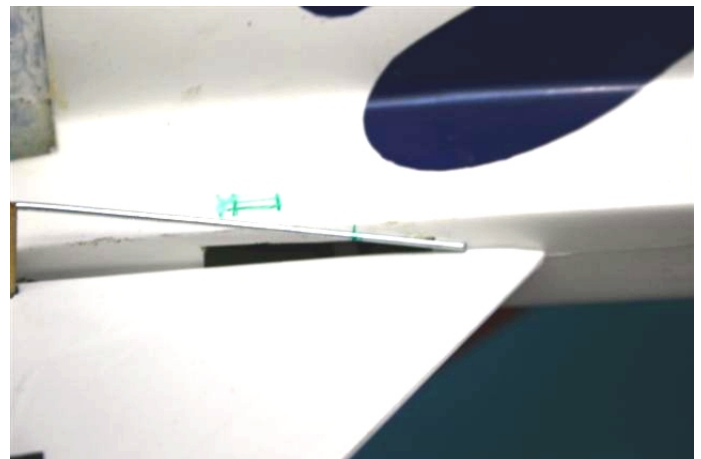
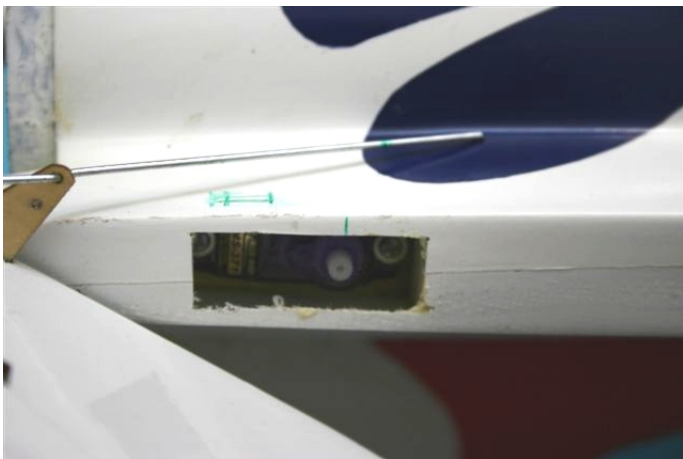
**Before you install the servos make sure the control horn is placed in the middle position.
Do this with your radio and receiver.**



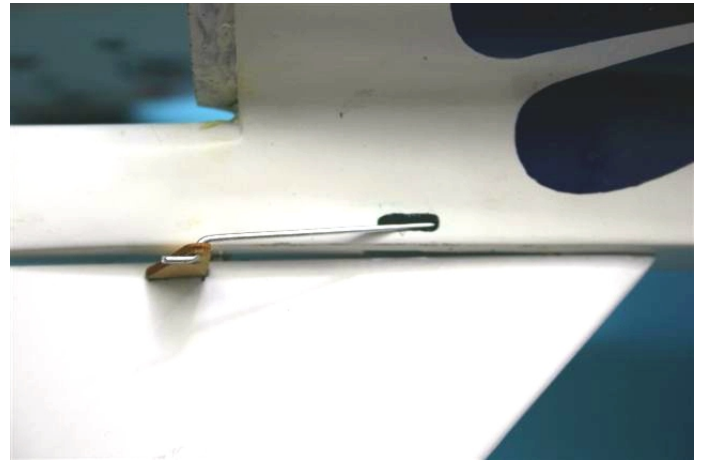
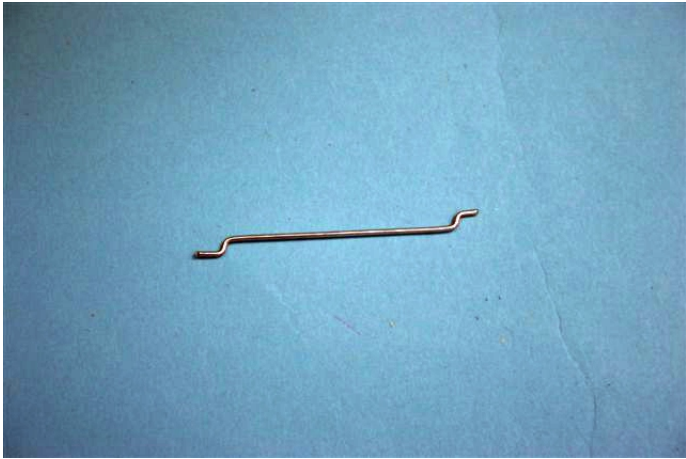
Glue the servo brackets in place with 5 minute epoxy. Wait till the glue is cured.
Stick the Elevon on the pivot rod (**with the final installation of the Elevon us should add the supplied Washer to act as a spacer between the elevon and fuselage.**) The plywood control should not be glued yet in the elevon.

Make a Z-bend on the supplied rod as explained on the previous page.

Insert the pushrod in the plywood control horn.
Mark a slot where the pushrod will enter the fuselage. This slot will be located close to the edge of the fuselage. (See next page)



Mark the position of the servo pinion (servo control-horn) on the fuselage.
Now transfer this position with a marker on the pushrod (elevon in app 3 degrees up position.)



Notice the 2 opposite z-bends, this is what you pushrod should look like.

Cut the slot with a dremel tool or a sharp knife. At the marked location see above picture.

Take out the plywood control horn; secure the servo to the servo bracket. Cut the servo horn so that only the hole nearest to the servo middle stays on. Now insert the Z-bend in the servo horn and install the servo horn on the servo. Run the pushrod out of the fuselage as shown in the top right picture.

You should now add the supplied Washer to act as a spacer between the elevon and fuselage.)

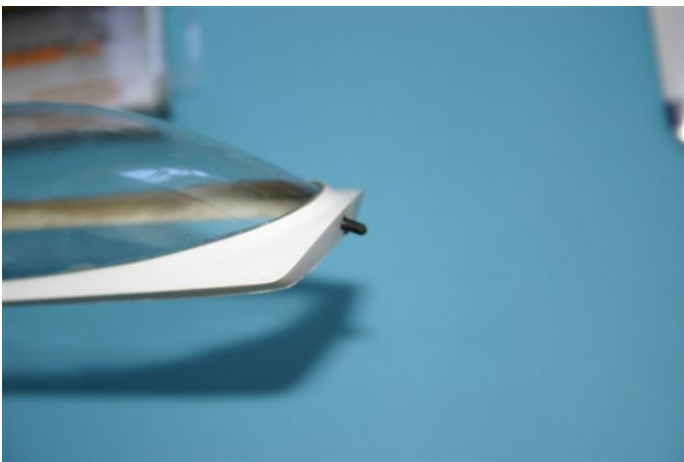
Now insert the z-bend in the plywood control horn. Glue the horn in the Elevon with thin CA glue or 5 minute epoxy. Now do the other elevon the same way.



The Gap over the servo bracket can be covered with white vinyl decal or a piece of white iron on covering.



Tape the canopy frame to the fuselage so that all sides are flush.
Drill first a pilot hole 1 -1.5 mm through the front frame (inside look at picture). Now drill a 3 mm hole same size as the supplied hard wood dowel. Push the dowel in the drilled hole, let it stick out approximately 2mm, and glue with 5 minute epoxy thickened with some micro-balloons. (See picture)

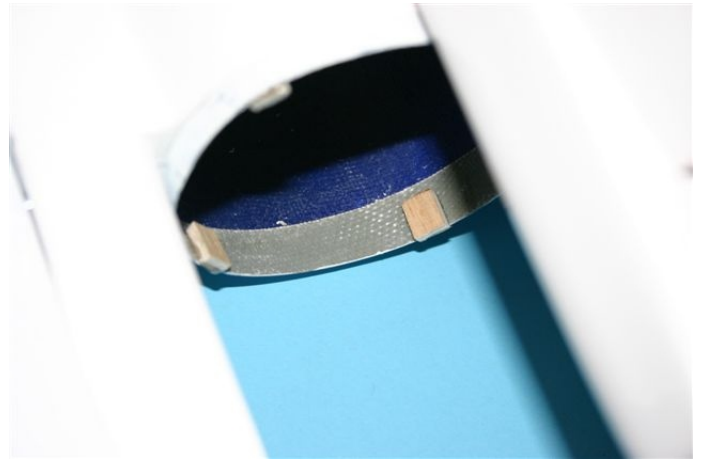
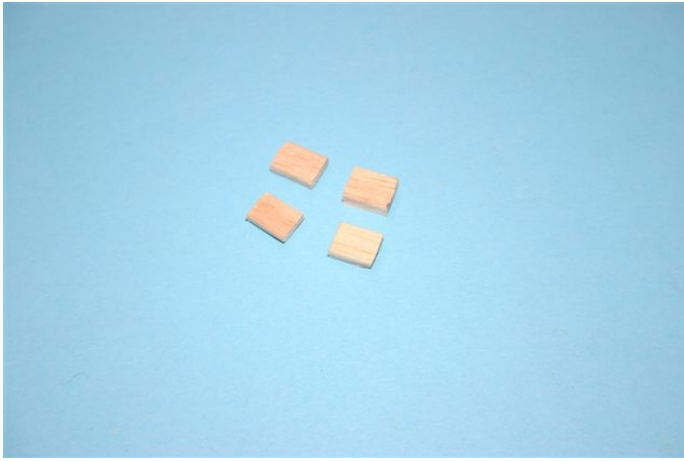


In the left picture you see the dowel coming out the canopy-frame. In the right picture you see rear-end of the canopy frame, we have supply two magnets. One magnet should be glued inside the rear-end (back) of the canopy-frame with 5 minute epoxy the other magnet should be glued inside the fuselage straight under the magnet in the canopy frame.

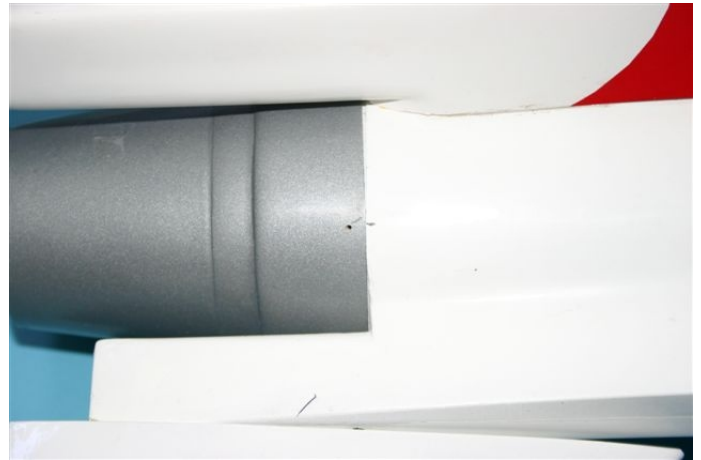
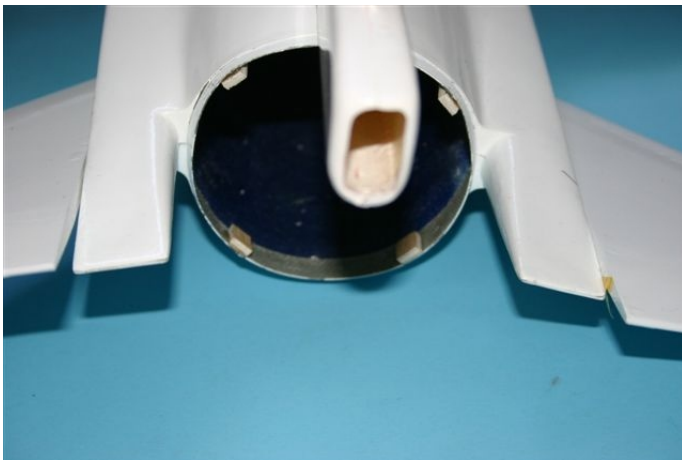


Attention: Before you trim the edges from the clear abs canopy trial fit it several times and assure that it has a good seat (fit). Make sure is does not put stress on the canopy frame.

Now you can glue the clear abs canopy to the canopy frame with 5 minute epoxy. Look at the above picture.



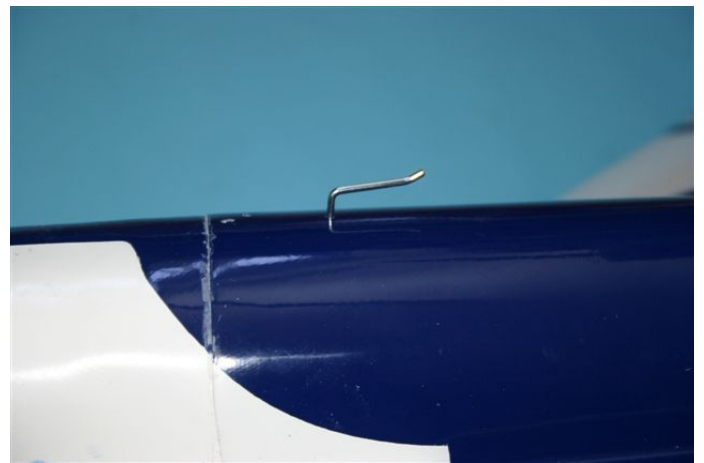
Take out the 4 small rectangular pieces from the bag with hardware and glue them in the back-ring of the fuselage with 5 minute epoxy. Look at the above picture.



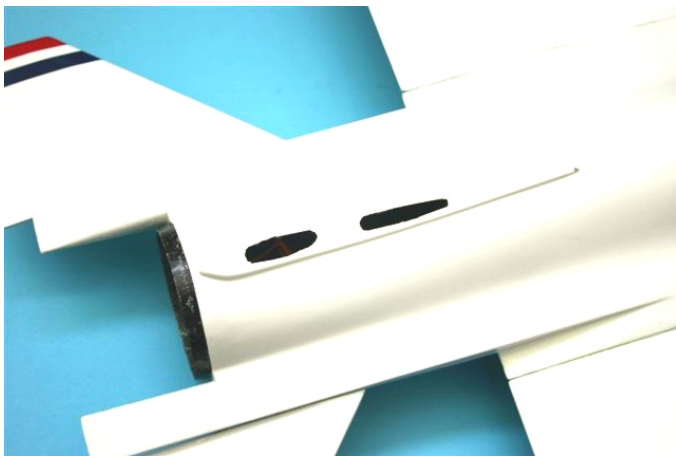
Mark the location of the plywood pieces a marker in front of the back ring as you need to drill holes through the exhaust-cone and the ply wood pieces.
So after you marked the location of the plywood pieces. Slide the exhaust-cone over the back-ring of the fuselage, and drill 4 1.5mm holes through the exhaust cone and the plywood pieces.



Now you can insert the 4 supplied screws with a Philips head screwdriver



Behind the joint a plywood block is glued in the fuselage. No drill a 2 mm hole approximately 25 mm behind the joint, this hole is for the bungee hook. Glue the bungee hook in the fuselage with 5 minute epoxy

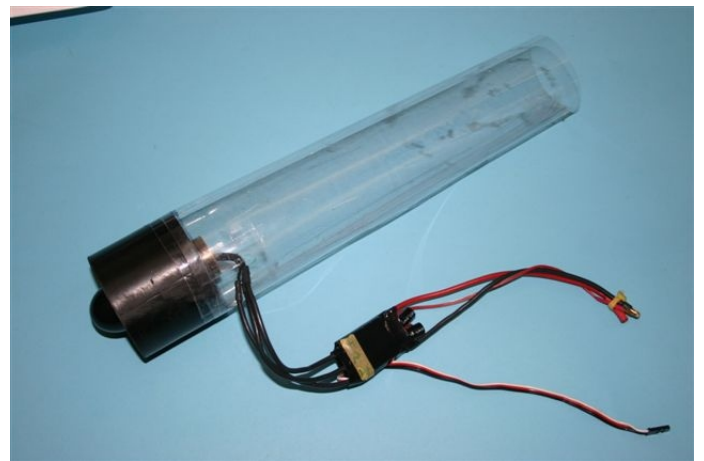


Vertical fin installation.

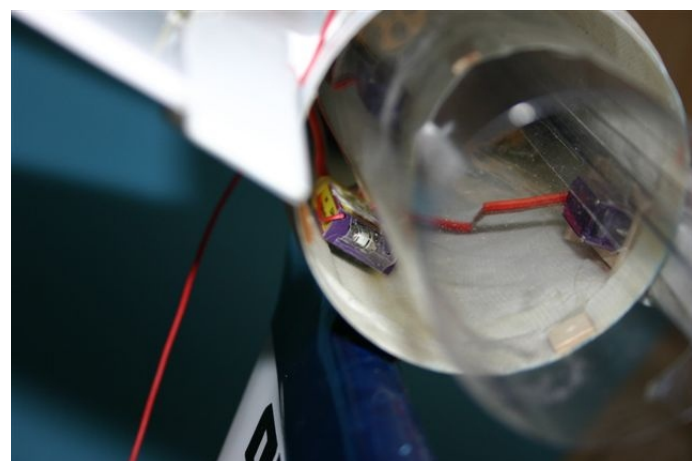
Trial fit the vertical fin first, May you need to sand some from the front of the notch to get a better fit.

Before you glue the vertical fin in place you can cut 1 or tow holes in top of the notch, see above picture. Also sand the inside area of the fin and sand the outside of the notch a little bit. When you heat up the bottom end of the fin with a hair dryer (blower) the glass-fibre will soften up a little. Now mix 5 minute epoxy with micro balloons and apply a small ridge mixed glue along the inside edge of the vertical fin.

When you have softened up the bottom sides of the Fin you can press the fin in place Remove the excess glue with a clean cloth and cleaning alcohol. Make sure the Fin is aligned and straight up. Keep the edges of the fin pressed against the fuselage with your fingers or use 2 wooden strips until the epoxy hardens.



Read the installation instruction from your fan-unit first. Install motor and ESC first. You can either install the ESC inside the thrust tube or outside. We recommend to place the ESC behind the motor inside the thrust tube. Trim off the mounting tabs from the fan-shroud otherwise the fan unit will not fit. You can use our already made fiberglass thrust tube see top left picture. Tape the thrust-tube to the fan-unit.



On the above left picture you see the 4 channel micro receiver mounted above the thrust-tube and underneath the vertical fin.

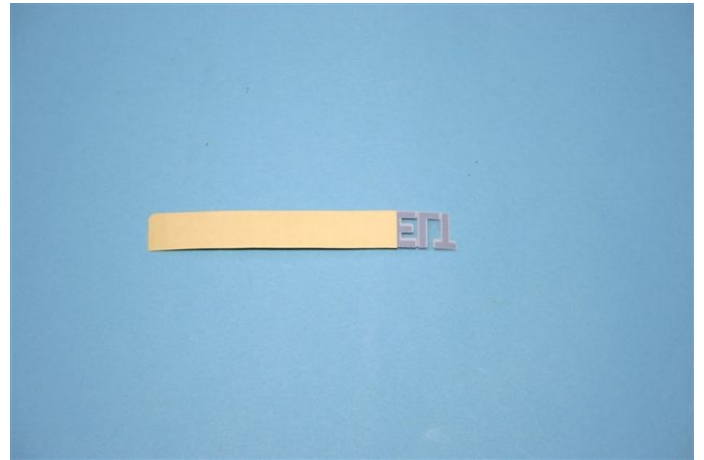
Before you install the Exhaust Cone you must trim the backend of the thrust-tube to size. Trim until the thrust tube fits tight in the Exhaust cone. Now you can secure (prevent the fan-unit from turning) by taping (clear tape) the thrust tube to the Exhaust cone.



Battery location, next picture you see the receiver antenna coming out the top end of the fin. You need to drill a hole here.



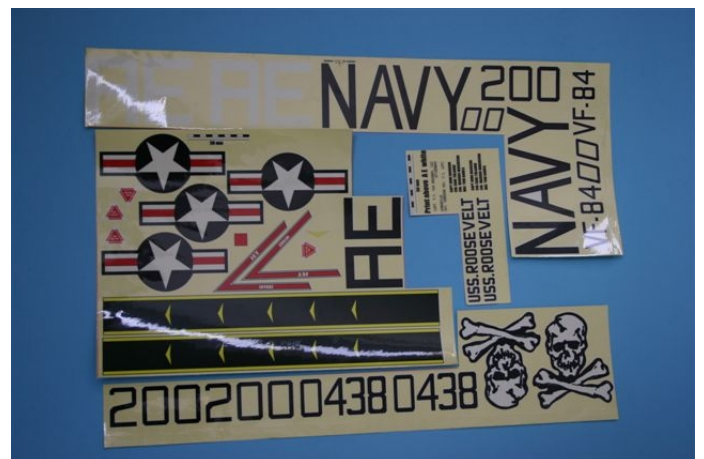
USS. ROOSEVELT



A close-up photograph of the USS. ROOSEVELT nameplate on the hull of the aircraft carrier. The nameplate is a yellow rectangular sign with the text "USS. ROOSEVELT" in bold, black, sans-serif capital letters. The sign is mounted on a dark, metallic surface. Above the sign, there is a small, white, cross-shaped object. In the background, a wooden structure is visible.



A close-up photograph of the hull of the USS Roosevelt model. The name "USS. ROOSEVELT" is printed in black, bold, sans-serif capital letters. Below the name, a faint, mirrored reflection of the text is visible on the metallic surface. To the left of the name, a yellow and black striped hazard stripe is partially visible. Above the name, there is a rectangular opening in the hull, revealing a wooden structure inside.



Do this for all the decals

Settings:

C.G. 75 mm from the leading edge of the wing.

Elevator throws 11 mm up 11mm down. Use 50% exponential

Ailerons throws 11 mm up 11 mm down. Use 20% exponential.

Set the Wing incidence, set the main wings level, the elevons must be set to 3 degrees up. This means that the trailing edge from the elevon should be set 6 mm higher than its leading edge. You can do this by placing the main wings level on two horizontal blocks. And measure the height of the leading- and trailing-edge from the elevon with a ruler.

First Flight.

Use a bungee to start the plane. Before start is good to use some up trim. After start level the plane don't attempt to turn, climb and trim the plane. The F16 can be flown very slow with a high AOT But never make turns with a high angle of attack (nose high position) You risk to drop a wing. Top speed is over 100 Mph.

You will find the airplane is very nimble but has excellent stability. Loops and snap rolls are easily obtained with adequate entry speeds.. **Just remember to land level; as to avoid damage to the plane** . Happy Flying.

WARNING!

Although the F16 is a stable airplane, it is not a trainer or first EDF airplane. This airplane is capable of very high speeds and therefore can cause serious personal injury and property damage. We strongly urge you to seek the help of an AMA approved instructor if this is your first aircraft of this type.

Please use common sense

Fly in suitable areas for a high-speed aircraft such as an AMA approved field.

High-end Technology Holland assumes no liability for the operation or performance of this product. It is the responsibility of the operator to use this product in a safe and responsible manner.

