

# **HIGH-END TECHNOLOGY** RC

## **Mig 29 for electric ducted fan**



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

The MIG 29 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: 940 mm

Length: 1360 mm

Weight: 2400-2600 gram

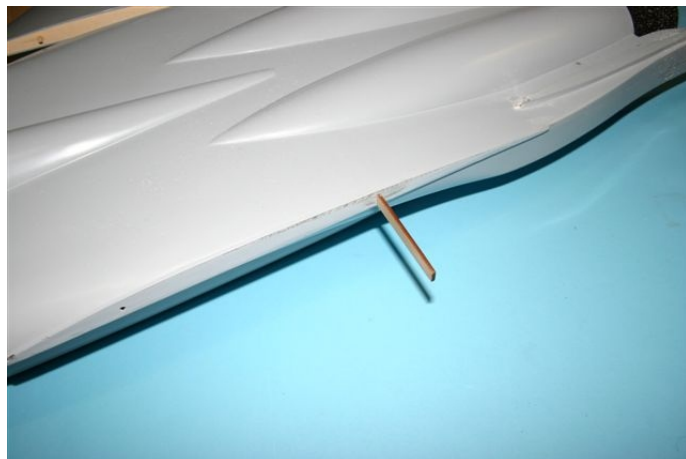
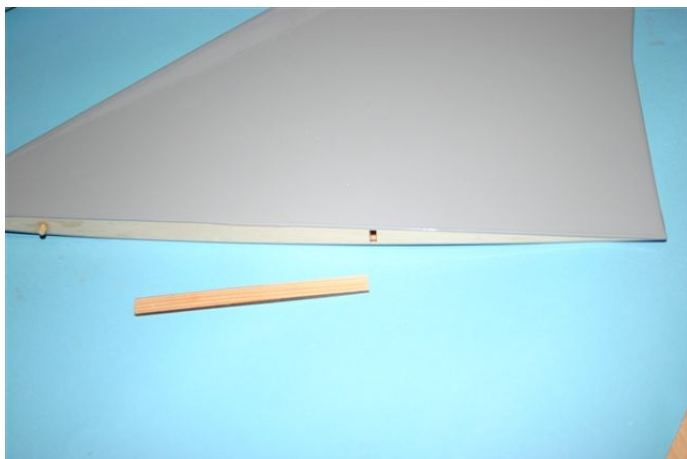
Ducted fans 2 x 72mm

Items needed to complete:.

4 ch. Computer Radio system w/ 2 servos.  
2 Electronic brushless speed controllers  
2 fan-units 6904 HETFAN or MF 480.  
2 480 size brushless motors e.g. EDF 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.





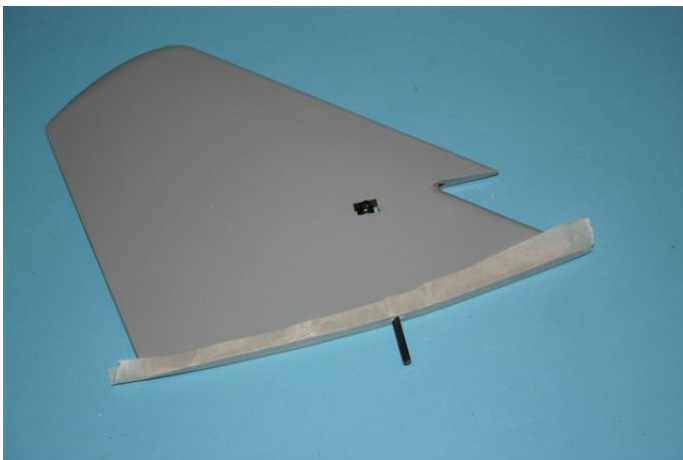
In this manual images of our F15 are mixed, so don't get confused as the build up is identical.

Fit the hardwood wing joiner in the fuselage and wing and see if the wing fit 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.

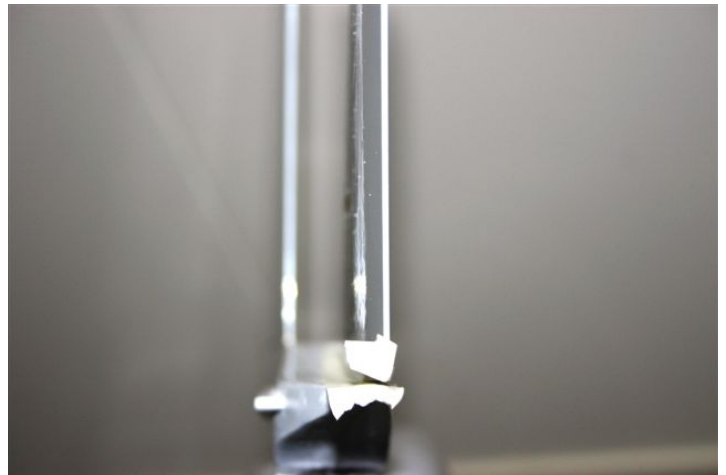




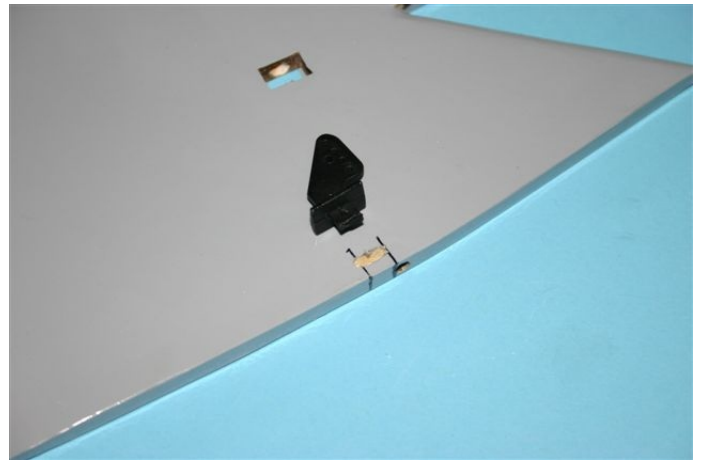
Mark the position for the Pivot-rod ( 2 3 mm steel rods one for each side) 55 mm from the end of the fuselage. Centre of the hole should be 6 mm from the bottom  
Drill a little oversized hole in the middle at the marked location. We recommend a 4 mm hole. Wait before you glue the pivot rod in place.



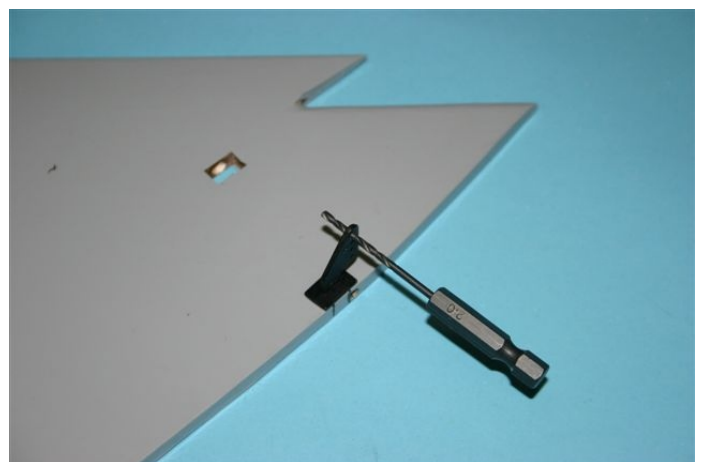
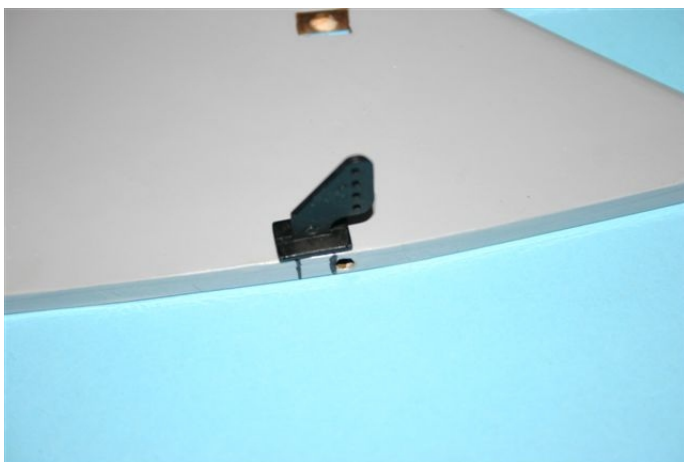
Wheel stop installed on pivot rod in gap. Notice taped edge.



Before you glue the Pivot rod in the fuselage with 5 minute epoxy put tape around the root of the Elevon. And also put tape over the fuselage side, see top right picture. Glue one pivot rod at the time, and check the alignment.



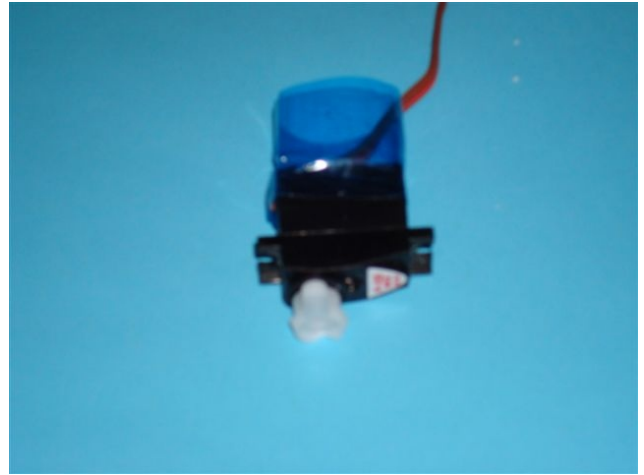
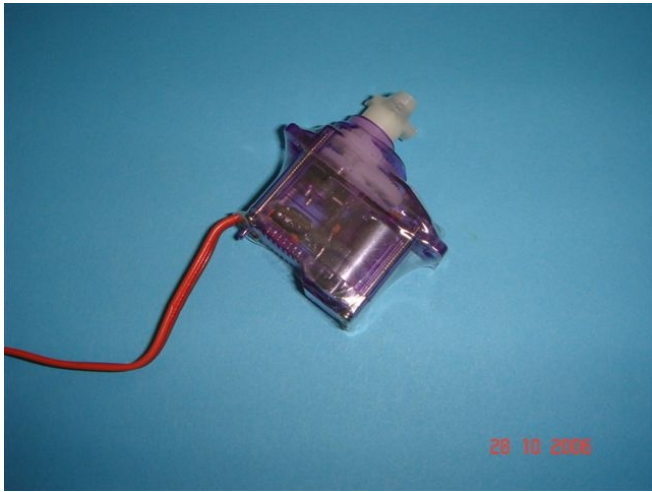
Mark the location of the control horn just behind the pivot hole, also mark the surface. Trim the tab to approximately the same thickness as the elevon. Cut a slot as in the picture for the control horn.



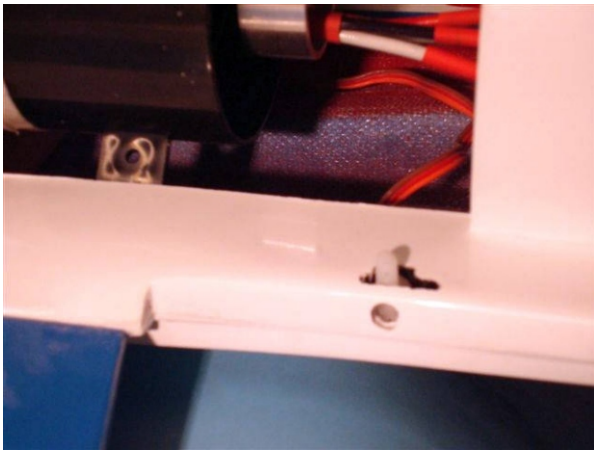
Glue the control horn with 5 minute epoxy in place. When the glue has cured make the top hole in the control horn 2mm you can do this with a 2 mm drill.



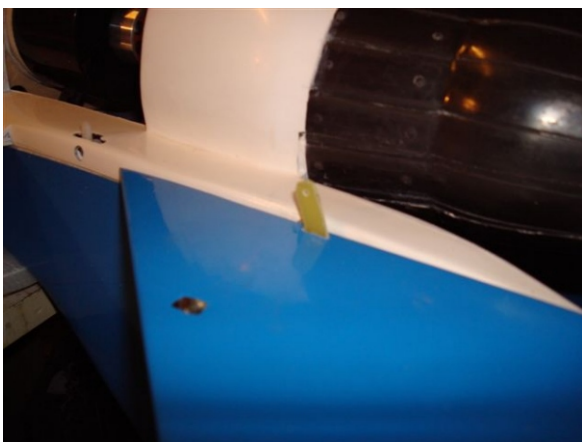
Now install the pushrod connector in the control horn, see above picture. Secure the nut with some glue so it won't come of when you're flying he plane.



Put tape or a shrinktube around the servo

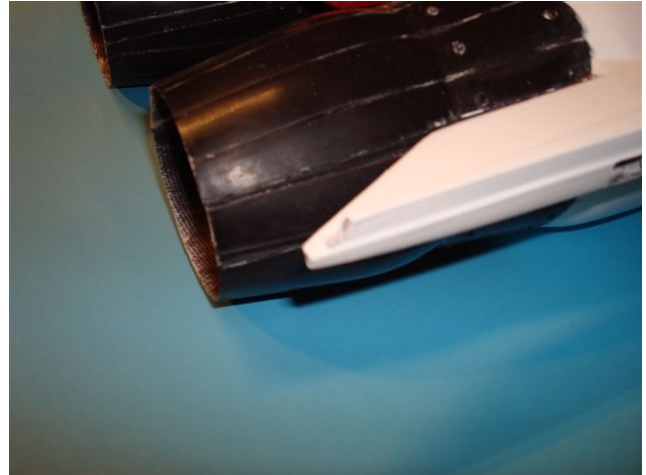


Mark a 15x 2 mm slot on the bottom of the fuselage starting 150 mm from the Pivoting rod.



Put the Stabilizer/ elevon on the pivot tube,( don't forget to place a washer between the elevon and fuselage see top picture on page 4).  
Route the pushrod from inside trough the slot you just made, and insert the pushrod in the connector mounted on the controlhorn. Check for free movement of the pushrod. Now you can glue the servo in place with 5 minute epoxy.  
Repeat this step for the other elevon.

## Vertical fin installation.



Mark the position of the trim of area on the front and back of the notch.  
Cut the front and back off with a Dremel cutter or saw. Do this on both notches for left and right fin.



## Vertical fin installation.

Trial fit the vertical fin first, you need to trim 4 mm from the front and the back of the notch to get a better fit. Mark it first and trim with a dremel cutter or saw.  
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 or 30 minute epoxy with micro balloons and apply a small ridge mixed glue along the inside edge of the vertical fin.  
You can press the fin in place. Clamp like in the picture ( F18 shown)  
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. You can make a small template to check the alignment of the fins.



## CANOPY:

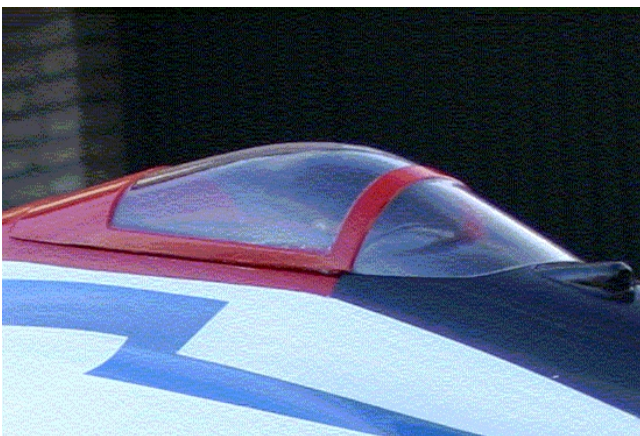
Don't get confused about the below pictures because we also show the canopy of our F104 but the steps fro the F15 are exact the same.



Get the canopy bottom , front and the back plate , place on the fuselage . secure the bottom plate with some tape. Now glue the front and back plate to plywood canopy bottom.

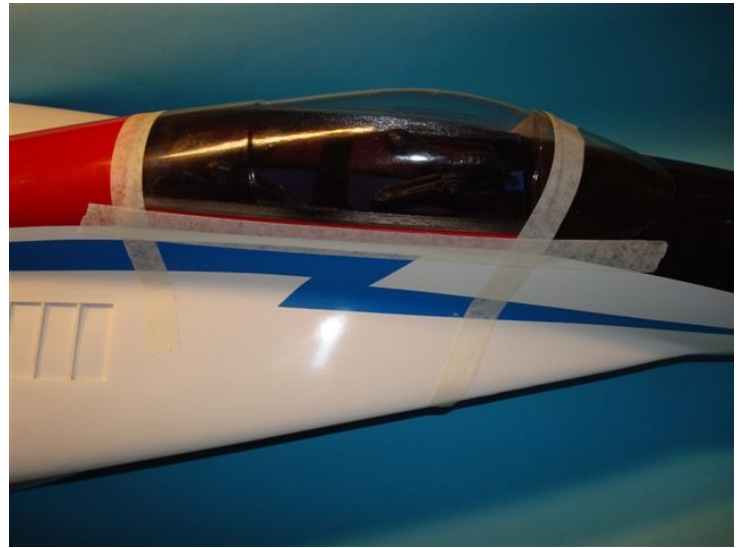


Drill a 3 mm hole trough the front plate and fuselage. Let the dowel stick out a couple of mm and glue the dowel to the plywood front former. Remove canopy frame from the fuselage. Now sand the edges of the canopy frame so that it fits within the outlines of the fuselage.

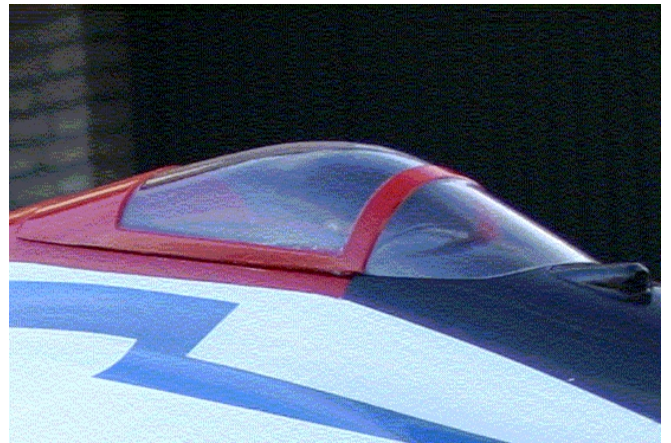


Trim the front, back and bottom edges from the ABS canopy now align it an tape it on the fuselage. Look at the above left picture how the canopy is cut

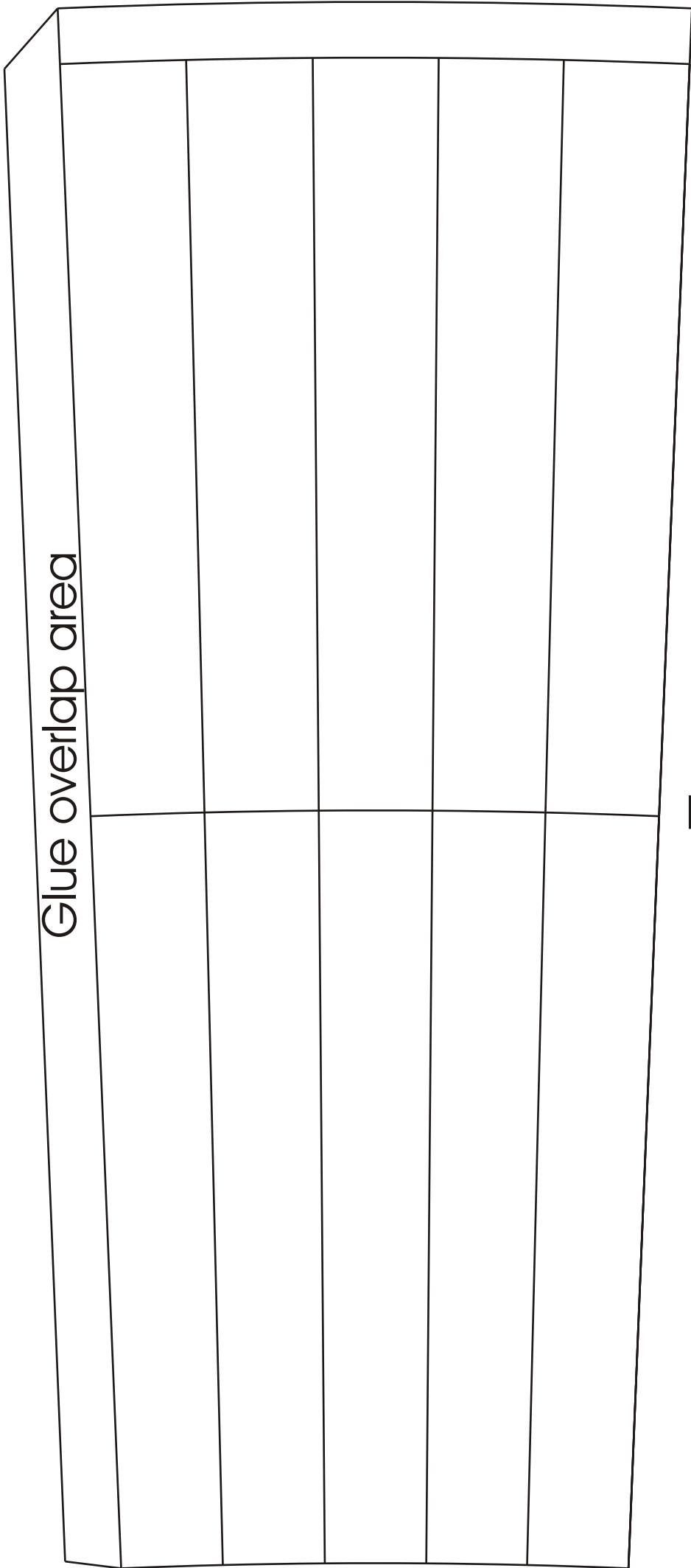




Put the Canopy floor on the fuselage, and do some last adjustments to the canopy floor and ABS canopy. Glue 2 magnets in the back edges of the cockpit floor. Also glue them inside the fuselage direct under the other magnets. Paint the floor in the colour you want. Now place ( after the paint has dried) a piece of plastic film (cut-open plastic bag) under the frame .  
Now you can glue the abs canopy in place with 5 minute epoxy or canopy glue.

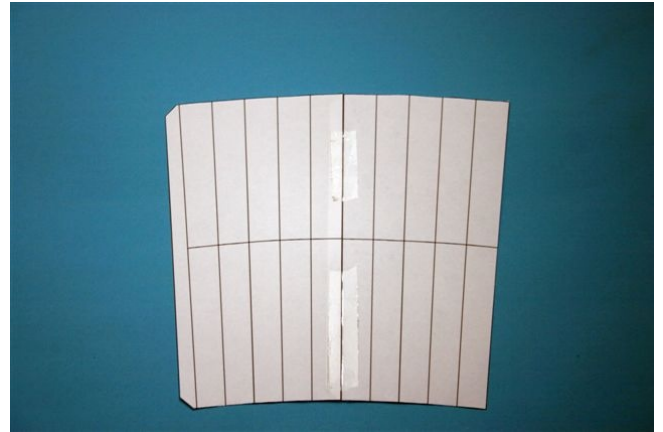
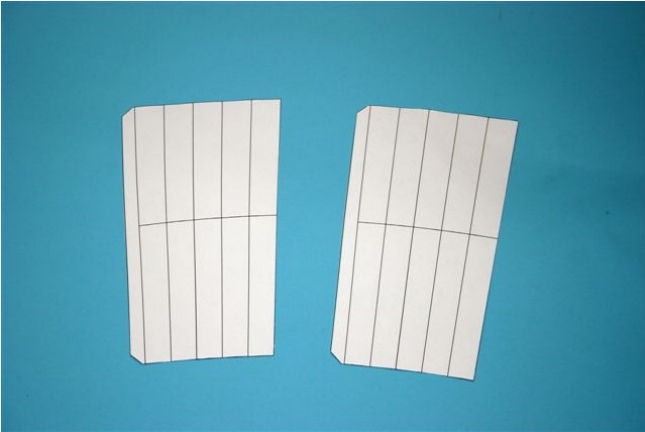


Put masking tape around the frame line on the canopy and spray paint the top. After removing the masking tape your cockpit should look like this.

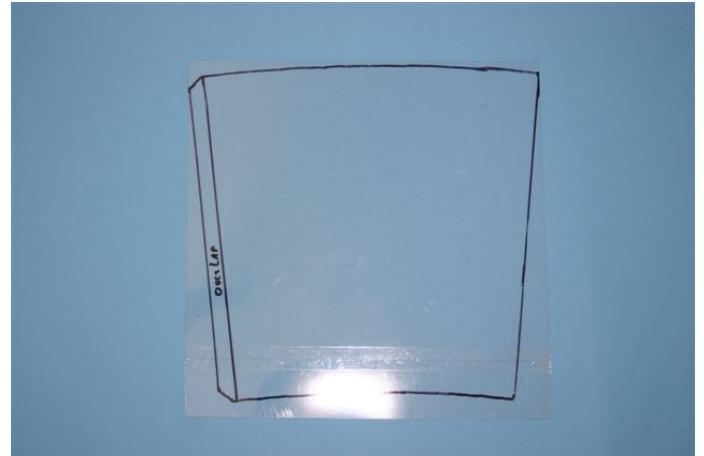


Trusttube  
template

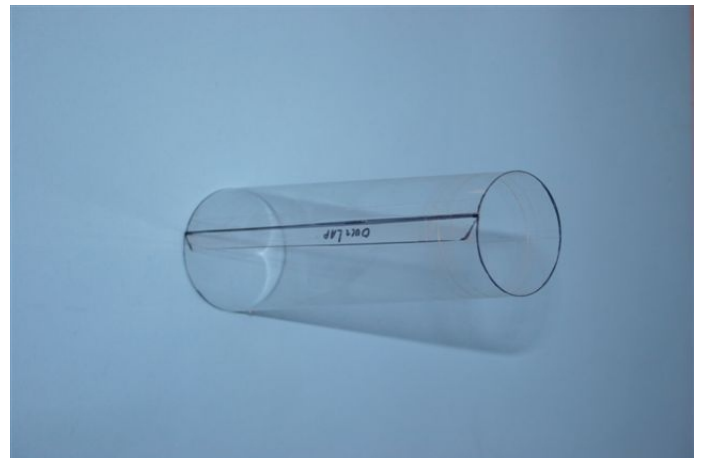
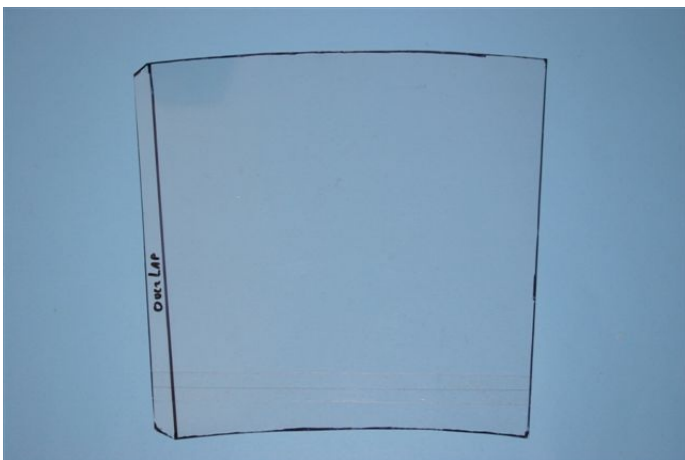
Print out twice



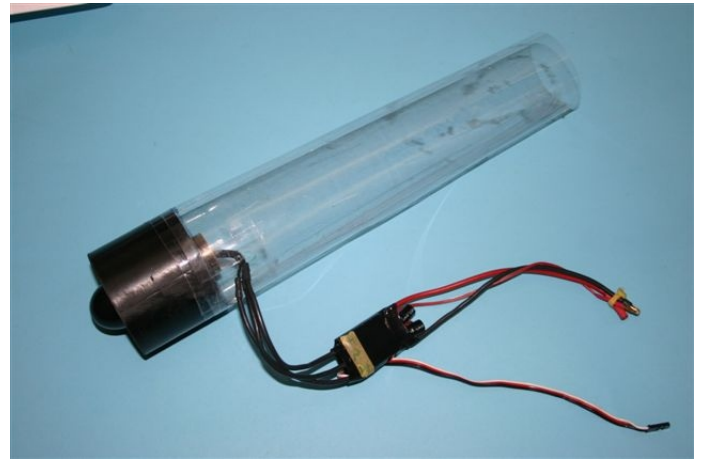
Print out the template 2 times cut them out and glue or tape them together. This template is A4 size.



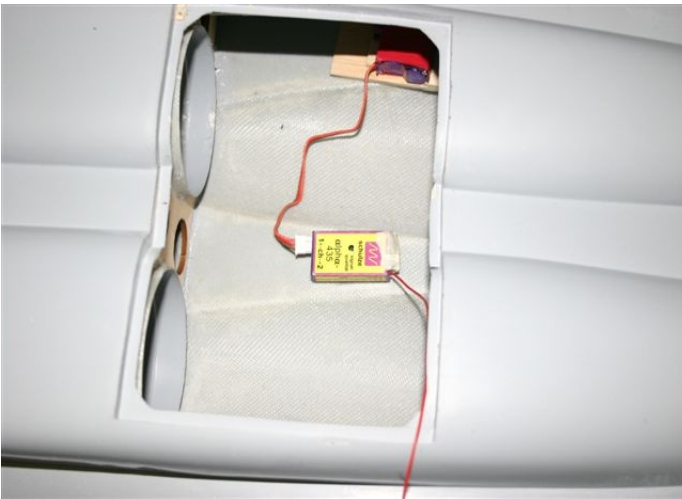
Place the template under the supplied pvc sheet and trace the outline with a marker. Do this twice as there are 2 fanunits.



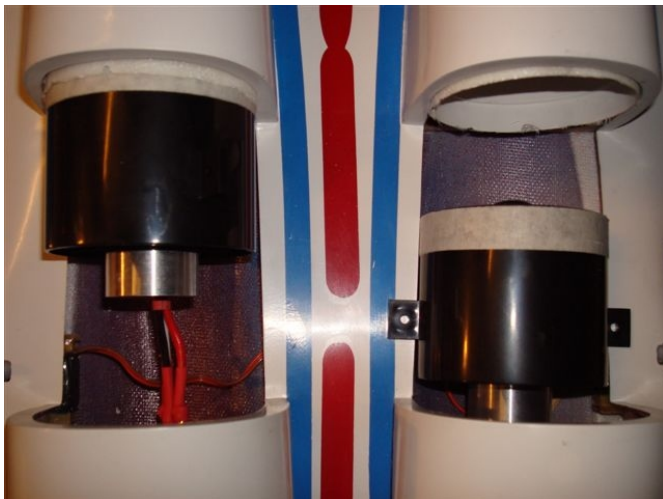
Cut out the unrolled surface for both trust tubes. Put the overlap area inside. Roll the pvc to a tube and apply outside adhesive tape. The Edge should match the innerline of the overlap area. Now you have a perfect conical trust tube.



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.



On the left picture you see the 4 channel micro receiver attached to the top of the fuselage with Velcro. You can also tape the servo wires to the top. So the wires will not be in the way when you install the ducted fans.



Before you install the fan-unit you must add some tape to the front off the shroud, so that the shroud will fit tight in the intake tube. Do this for both fan-units.

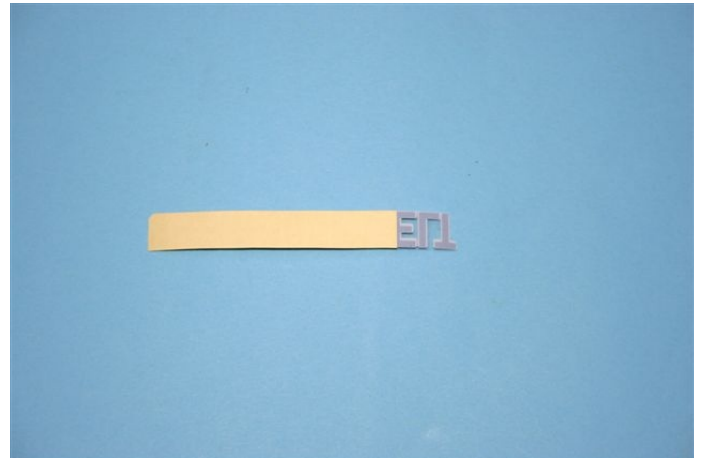


For the installation of the bungee hook you must align a ruler with the front of the bottom intakes like in the above picture, mark the middle with a marker. This is the bungee hook location.



Drill a 2 mm hole at the marked location ( the former from the battery-tray in right under here) . Now glue the bungee hook in the hole with 5 minute epoxy.

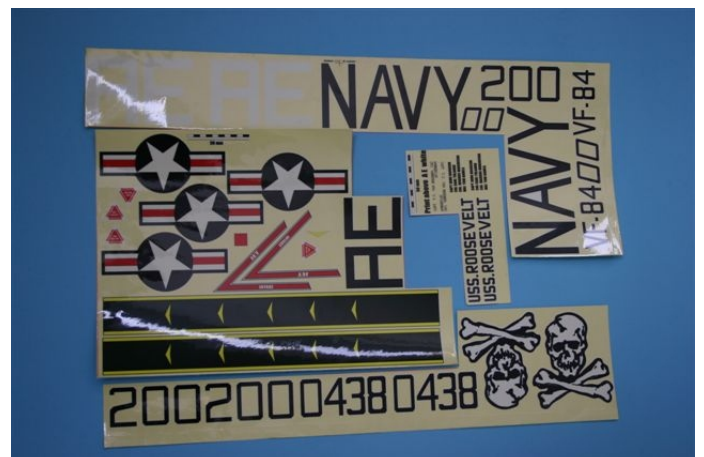
This page shows you how to apply decals ( our phantom is shown here)



Cut the decal from the decal sheet leave the protective back on the decal. Trim of 10 mm from the protective back.



Line out the decal on the area where you want to put the decal. Press the adhesive part. Check if the decal is lined out and remove the rest of the protective back.



Do this for all the decals

Settings:

C.G. 95-105 mm from the leading edge of the wing.

Elevator throws 13 mm up 13mm down. Use 50% exponential

Ailerons throws 13 mm up 13 mm down. Use 30% exponential.

Set the Wing incidence, set the main wings level, the elevons must be set to 2 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 mig 29 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.

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 Mig 29 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.

