Building manual
De Havilland Sea Venom FAW 22
(Revised version 2009)

Dear modeller,
Congratulations on purchasing the Sea Venom. The building procedure is straight forward and easy, if you follow the manual and read the instructions carefully. Being a turbine jet, the Sea Venom requires experience with the engine that is used. You should also be familiar with the use of epoxy resins and
with glassing wing skins. The choice of engine to power the Sea Venom is up to the builder , the prototype model was adequately powered by a MW54 with around 5 kilograms of thrust. The structure is developed to take todays smaller turbines, larger and more powerful turbines are no problem if the builder will
reinforce the model in some areas.
First some recommendations :
Use - if not stated different- only SLOW curing epoxy, especially when glueing
the formers into the fuselage. Do NOT use 5-minute epoxy ! Use only well known quality glues like those from " ZAP"- especially when using cyano glues.

The building of the Sea Venom requires the use of a Dremel with disc cutters, sanding barrels and other drilling tools.

It is highly recommended to follow the building sequences, especially the sequence of glueing the formers to the fuselage !

For an easier understanding , you can put out figure 1a/1b from the manual and pin it to your workshop wall.

If you should have questions or problems – please ask us. Your success is our aim !

Grumania Jet Models

1. Preparing the glass fibre parts

All glassfibre parts should be cleaned from the release wax using soap or thinners. Aggressive thinners or acetone can demage the silver painted gelcoat, so please make tests first.
It is reccommended to sand the surface of all glassfibre parts befor the assembly begins because the assembled fuselage-boom-elevator-unit is bulky. Use 400 and 600 grit wet paper to prepare the surface for later paintings. Look for an even, dull surface. More about painting the Sea Venom in the chapter " colouring".

2. The fuselage

Before the formers can be glued into place, the fuselage has to be roughened with 100 grit sandpaper at the following locations:

1. at the root rib where the fuselage meets the wings
2. at the front opening (round former No. F1)
3. at the back opening (former F4 and T) and the inside of the "sting"
4. at the positions of the formers F2, F3, and R2 (see figure 1)

To give a better access to the nose wheel mounting unit, it is reccommended to cut out the wheel doors using a Dremel cutting disc. The cut out parts will be doubled later with balsa wood to create the doors, **so make a clean and straight cut.**

Former assembly

Once again: Follow strictly to the sequence – otherwise you will have problems with the access / glueing the formers. Also see figure 2 – preparation of formers-
Start with the root ribs WR1. These have to fit as close as possible to the glass fibre skin, so trial fit and sand the ribs until a perfect fit is achieved.

Mix a thick paste of epoxy resin* to glue the ribs in place. To thicken the resin you can use micro ballons, balsa flakes, kevlar flakes,glassfibre flakes and/ or special resin- thickening compounds.

Attention:

During the curing period of the resin it is reccommended to press the ribs against the glass skin using two or three balsa stringers between the two ribs,
wich are cut slightly oversized in length.
To achieve a strong joint you should use a generous amount of epoxy and
extend the excess material in a large radius between rib and glass skin . This practice takes place from now on when connecting formers to glass fibre parts.

** Attention: epoxy resins can be hazardous and cause allergic reactions. Wear protective gloves or use special skin protection creams like " Arretil". Do not touch your mouth or eat when working with epoxy resins. Allow an air circulation in your work shop(opening the window) . Keep epoxy resins and other hazardous glues out of reach of children and follow the manufacturers instructions.*

The fuselage should rest in an upright position until the epoxy resin has cured.
The procedure for all the formers is the same . Trial fit it, and sand it, if needed. **It is important that the former rests in the fuselage without any tension i.e. the former must not deform the fuselage in anyway!** The former is then tack glued to the fuselage using cyano glue. If there are areas where the former does not touch the fuselage, do not press the glass fibre against the former when tack glueing – the space is later filled with the formerly mentioned method of finally glueing the formers in place (epoxy paste)
See figure 2

Former F2 is the first to be fitted to the fuselage. But first drill the marked positions for the wing plug- ins, start with a smaller hole and then sand it until the aluminium tube has a tight fit (sand paper around hardwood dowel) .
Test the perfect fit of the former

Attention : the formers are not 100% symmetrical, so there are two possibilities

to put in the former. The former should be marked with "left & right" when the perfect fit has been achieved.
The position for F2 is 1mm in front of the wing plug in tube. The upper portion of the former, frames the front of the engine hatch opening.

The next former is F3 wich is 1-2 mm behind the rear engine hatch opening, and right angled to the longitudinal axis of the fuselage.
F2 and F3 may need a slight trim at the point where it meets the root rib, depending on the excess epoxy that connects the glass with the rib.
Both formers can be epoxied to the fuselage at one time. Put both aluminium tubes through the fuselage and check the perfect fit again, then let the glue set (upright position reccommended) .
Mark the positions for the air intakes and carefully cut it out to get better access to the front of F2. Make the cut outs smaller than needed and sand to the marked position.
The next formers are F4 &F1.
Attention: Before *F1 is glued in place, it should be trial fitted with the retract plate R1, the back plate R2 and the beech stringers S1.*

After the glue has set, put R1, R2, S1 and the tail- filler "T" in place and apply
epoxy paste to the joints.
Finally the cockpit frame "C2"and the front cockpit former P1 have to be glued to the fuselage in the same manner. Once again take care that the formers do not deform the glass fibre surface ! P1 sits approx. 8 mm in front of the cockpit cutout. Make a balsa filler as shown in figure 3 and fill the space between the cockpit frame and fuselage.

Before the formers W2 are glued in place, you need to make a template to build removable mounting plates for the turbine holder as shown on figure 4.
More about that in the chapter "Turbine "

A perfect fit of the formers W2 can only be achieved if the wing tubes hold it in place. Trial fit W2 together with the aluminium tubes passing through both root ribs.

It is essential that the aluminium tubes stay in place until the epoxy has set. The joint between W2 and the fuselage should be reinforced with some glass fibre cloth, as W2 has to take the loads from the wing during flight.

After this step, you can shorten the aluminium tubes to the correct length
(2 pieces 285 mm long & 2 pieces 225 mm long)

The fuselage is now ready

Rare picture of a Sea Venom of 809 Squadron during the catapult start. The released catapult ropes that pulled the airplane can clearly be seen in this shot. The full size Sea Venom has a hook on each wing root to take the loops from the ropes.

3 .The booms

See figure 7 and prepare 8 little plywood stiffeners as shown . Drill some 6mm holes in the stiffeners, these will be needed for the servo cables of elevator & rudder. Sand the whole inside of the front portion of the booms before you glue the stiffeners in place (100 grit sandpaper) . The locations are shown in figure 5. After the glue has set, sand the stiffeners flush with the glassfibre over lap that lies on the fuselage& wing .

As only one half of the booms is glued to the fuselage later, the stiffeners are vital !!!

The booms and the elevator are glued together now.

This requires special carefulness !

Trial fit the elevator first and sand the parts if required until the elevator fits

into both booms without tension. You should prepare a cable for the elevator servo (has to be long !), file a groove at the end of the elevator, put the cable through the groove and trial fit the elevator again in the booms, making sure that the cable is long enough. The cable has to reach the nosecone of the model as the receiver is placed here.

Before the booms can be glued together, a simple jig has to be made from
balsa stringers. The stringers (10 by 10 mm or 10 by 5) *should be straight* !
Study figure 6 before you begin to build the jig.
Cut two pieces approx. 500 mm long and two pieces100 mm long. Take the longer pieces and mark a distance of 485 mm on both stringers.
Then take one of the longer stringers and glue the shorter pieces **right angled** at the marked positions. It is important that you check the angle and the correct distance again before the jig is used.
Put the booms and elevatot together and rest it on a flat surface. Put the jig in the rudder cut outs and tack glue the jig with cyano glue.Do the same with the second stringer at the front end of the booms. Check again if the booms are right angled before you apply epoxy resin to the joint. Use a thin mix of epoxy where the gap between booms and elevator is very small. Put a thicker mix on the joint through the rudder cut outs.

REMEMBER: If you make a mistake,you can throw away three glassfibre parts !

So take time and work carefully

After the epoxy has cured, the boom section has to be connected with the fuselage.To prepare this step you need to roughen the contact surfaces on the fuselage and the overlapping part on the booms. Trial fit again while the fuselage is in an upright position. Cover the area around the joint to prevent it from excess epoxy resin, then fit the parts together again and adjust the correct fit. The joint is now tack glued with thin cyano. Be carefull when applying a thin epoxy mix with a brush
Attention: *A thin mix is needed to allow the epoxy to suck in the fine gap*

Mix some more epoxy and add glassfibre- , Kevlar - or balsaflakes to get a thick mix. Put a generous amount of this paste to the joint and make sure that
the paste creates a large radiused fillet between the boom to the fuselage.

Cut some small pieces of glass fibre cloth and cover the whole joint (three layers of 163 gram/ m2 recommended, optional carbon fibre) After the epoxy has cured, you will have no doubts about the steadyness.
The fuselage has to take all the load from the booms and elevator. Therefore
You need to make two balsa stiffeners as shown in figure 7 . Use scrap material or 30 mm balsa .
Attention: *The grain is important*
The stiffeners are an important piece of the whole construction and are a MUST !!!
Roughen the contact area shown in figure 1 and glue the stiffeners in place using a thick mix of epoxy again.

Engine hatch

The engine hatch has to be stiffened by the formers H1 and H2. Trial fit the hatch on the fuselage and mark the position for the formers.
Trick : *A nice tight fit of the hatch can be achieved , if the ends of the formers are sanded down slightly. The hatch will have a preload then.*
Finally,the hatch has to be equipped with a hatch catch at the rear and two dowels at the front.

5. Retracts

The Sea Venom requires special retract units for the main legs and is prepared to take the Grumania "Jet 1 A " units. Open out the marked cutouts on the root rib of the fuselage and drill the four (engraved) holes to trial fit the retracts.
Depending on the thickness of the root rib, you need to work out some material on the underside to allow the retract block to rest in the "open"-
position.
Put the nosewheel retract mechanism in place and make sure that the noseleg retracts rightangled into the wheel well. Screw all retracts to the model. You can put the wheels on the legs now and make a final check
(front view) . From now on the following work on the model is easier , because the model can stand on its wheels.

6. The radio

All radio components are placed in the nose. Start by glueing the nose platform N1 and the trays N2 in place using epoxy resin. It is recommended to reinforce the joint with some layers of glass cloth .When the epoxy has cured turn the cone around and mark the center of the tip. You will have to drill a hole in the center for a screw that fixes

the cone to the fuselage. Glue a piece of plywood in the cone and sink the hole.
Trick: *Use books and packing under a pen to draw a circle close to the tip, to find the center of the cone*
Glue a piece of hardwood in the cutout in front of N1, fit the cone again and mark the position for the hole through the cone.
N1 may require some sanding for a perfect fit of the glass fibre nosecone.

Radio placement

On top of the platform, the battery for the turbine is placed. The switches and chargeplugs for both, radio and turbine can be mounted here as well. The switches can be actuated with thin piano wires that protrude through the glassfibre fuselage behind.
The Festo –retract actuating valve is on top as well, close to the former F1.
The receiver can be placed in the cutout of the trays N2 and the receiver battery should be fastened in front of the receiver between the trays.
The engine control unit (ECU) is placed far away from the receiver (under the cockpit floor) , but this should be done later.
If you are going to use rudder servos that are placed under the rudder, the cables should be placed now as well as the cable that comes from the elevator. **Put ALL servo leads together on one side, far away from the ECU !**
For example : Rudder-, elevator- , and aileron leads on the right side, ECU and ECU- power leads on the left side. This is vital to avoid interferrence.

The permanently fitted triangular wheel door can be seen here aswell as the front details of the noseleg. The Grumania noseleg is very close to the original one.
The door is pulled shut by the retracting leg. These features can easily be copied – the leg is fitted with threaded holes to fix the triangular door.

7. The wings

Latest kits feature foam /obechi wings with ready hinged ailerons
(July 2009)

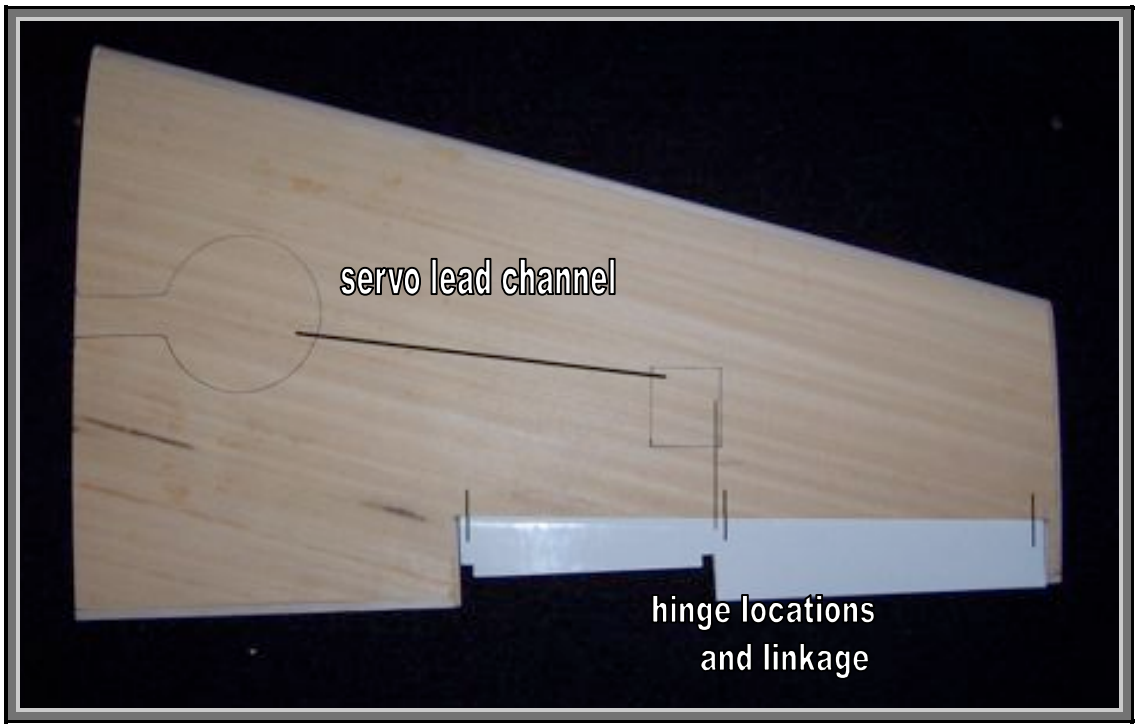
Attention : The marked wheel cutout must not be larger than drawn on the skin (There are ribs under the skin to hold the wing plug in).
Sand the foam surface in the wheel well and cover it with two layers of glassfibre **or** use balsawood to box the cutout (glassfibre reccommended).
There are distinctive wheel well covers on the full size aircraft that are extra parts in the kit.

The bulged underwing of the full size Sea Venom creates complex wheeldoors that are hard to reproduce. This feature was necessary to give space for the wheel .Extra glass fibre parts are provided to upgrade the scale appearance of your Sea Venom.

The ailerons

Attention: *The aileron trailing edge is behind the trailing edge of the wing !*

The following picture shows the "old" wing that was not prepared with ready made ailerons and servo boxes .It just explanes the principal layout.



Use a strong glassfibre horn to link the aileron. Machine a slot in the bottom surface of the aileron and epoxy the horn in place
Note: *Do not forget to roughen the glass surface*

Elevator

Cut out the recessed area on the underside of the tail plane for the elevator servo, and make a strong frame for your servo. This frame must be epoxied in using fillets to strengthen the glue joints. Place the servo arm outboard of the centre line away from the exhaust efflux. A strong servo like the Graupner JR 4421 is recommended.
Make sure that the servo is mounted to the frame without the grommets, as flexing of the grommets may induce flutter to any jet model control surface
Cover the servo with a thin aluminium "litho plate" or very thin plywood.(0.4mm-1/64th)
The control surface is hinged as described for the ailerons, but the elevator is equipped with the larger "Robart" hinges (3) .There are also nicely made hinges available from Graupner which have a defined stop. When using these hinges, you do not need to adjust the offset pivot point.
Attention : *remember that especially the underside of the elevator is in the hot zone during start up and rolling. Therefore the horn and linkage has to be generous. Use only a high quality glassfibre horn and metal servo arm !!! Do not use any glue on the linkage, solder if necessary.*

9. Rudders

If and how the rudders will be linked is depending on the builder .The following method is only a recommendation that worked well on the prototype models.

There are many other possibilities to link the rudders(for example :pull-pull).

However, the Sea Venom flies well without linked rudders !

The prototype Sea Venoms were not equipped with regular hinges . The following method which is shown on the following pages is easy to build and worked well.

What you need is a carbon tube (diameter 4mm outside/ 2mm inside) that is cut 100 mm long. A balsa stringer that measures 2 by 5 mm has to be glued inside the rudder to move the pivot axis back. Then the carbon tube has to be glued on the balsa (see drawing) . When the epoxy has cured , file a slot

In the leading edge of the rudder through the carbon tube. This is the location for the upper "hinge" , that you make from a Robart hinge. Machine the rivet out of the hinge to get ½ hinge !

The second "hinge" is a ¼ " ply block that you glue on the elevator. Then you need to drill a 2mm hole in the block, at the bottom of the boom and on top of the rudder. The hinge axis is a 180mm long carbon rod. This rod is removable and allows an easy disassembly.

As shown in the figure, the rudder servo is placed UNDER the rudder with the servo arm operating in the gap between rudder and boom. The servo arm

has a small pin reaching into a slotted plyblock in the rudder.

The slot should have a tight fit to avoid rudder flutter.

The discribed method sounds more complicated than it is, if the principle is understood and you have the right materials , it is a fast and simple way to

get a removable rudder

Attention:

Avoid heavy linkages and heavy servos as this will result in the need of ballast or larger batteries . If you intend you build a very light model you need to save weight in the tail.

10 Turbine placement

Please keep in mind that the Sea Venom is originally developed to be powered by todays smaller turbines .These turbines produce thrusts around 50-60 newton. If you are going to use a larger turbine the thrust has to be limitted to 60 newton for safety reasons. This means, that a 80-newton turbine like the Jetcat P80 has to be limitted to around 100.000 rpm .

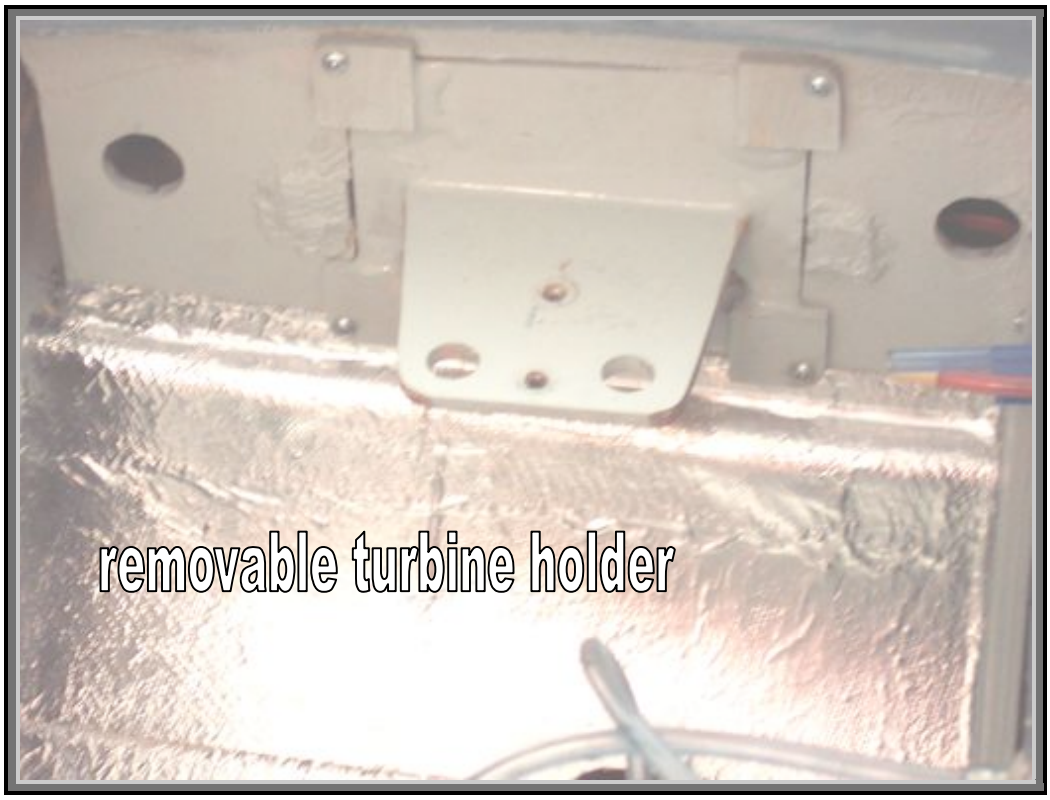
We provide stainless steel ducts for the Sea Venom. There are different types available for different turbines. The use of the correct duct is not only important to use the turbines maximum power but to avoid overheating aswell. This is a critical point !

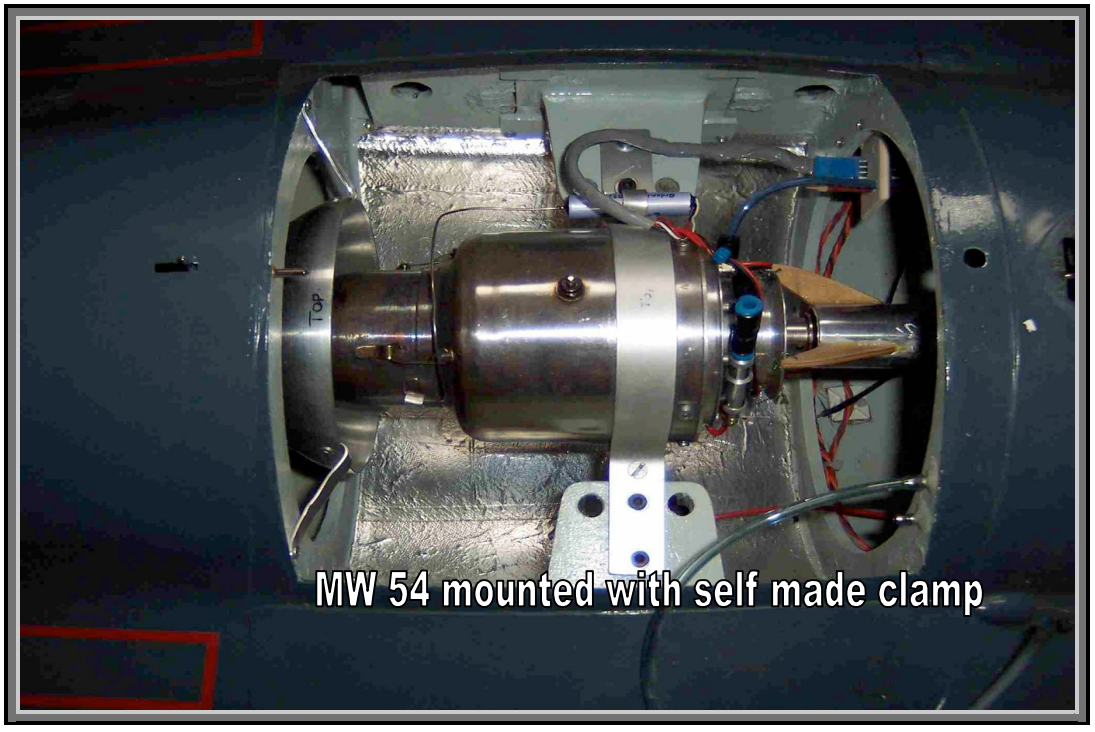
- **do not make experiments –**

As mentioned before, the prototype Venoms are equiped with removable turbine holders that are very clever. The advantage is that the space in the wing roots can be used for hopper tanks. See the following picture and figure 4 to understand the principal. The "tongues" that carry your turbine may vary in length , depending on the turbine you are using.
Note: meanwhile we have developed another turbine mounting system- ignore the following instructions.

Place the tongues in the centre of the removable ply pieces and adjust the turbine position later using packing under the turbine clamp- if needed.
It is very important that the thrust line is correct – otherwise you will burn down the elevator ! More about that in the chapter " Duct".

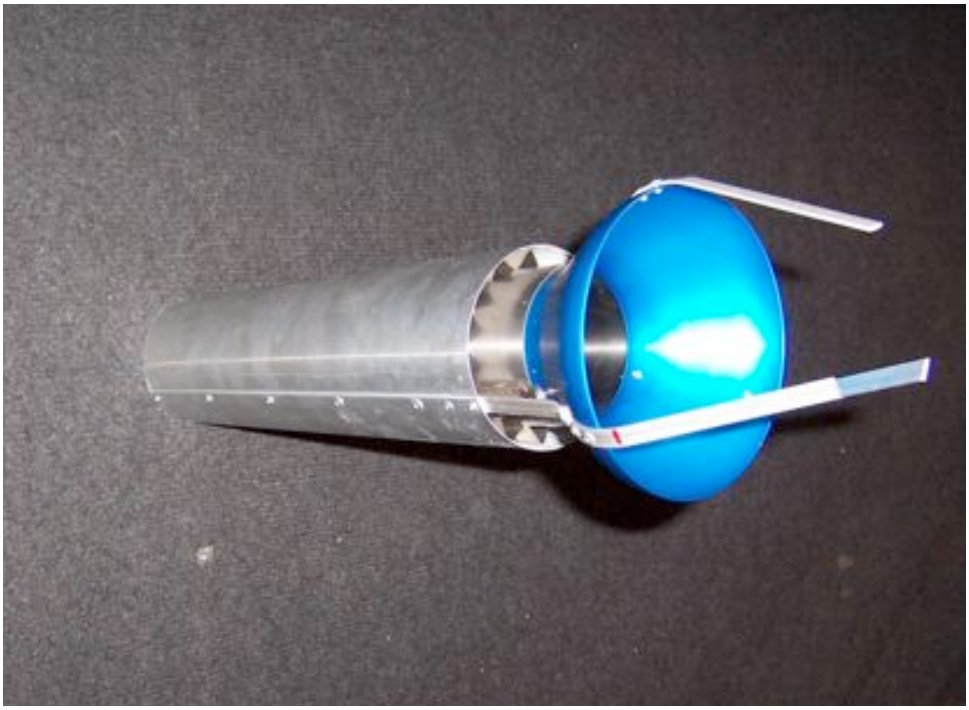
It is reccommended to install the glassfibre inlet ducts first, before mounting the turbine. Do not forget the use of a metal mesh in front of the turbine to avoid foreign object demage.
Take out the turbine again and go on with the tanks and the steel rear duct, before the turbine is finally mounted





The turbine is shown without the mesh in front of the intake. Also of interest are the two filler nipples for the tank, fixed to the main former F2, and the heat protection (aluminium foil)

OLD VERSION SHOWN !

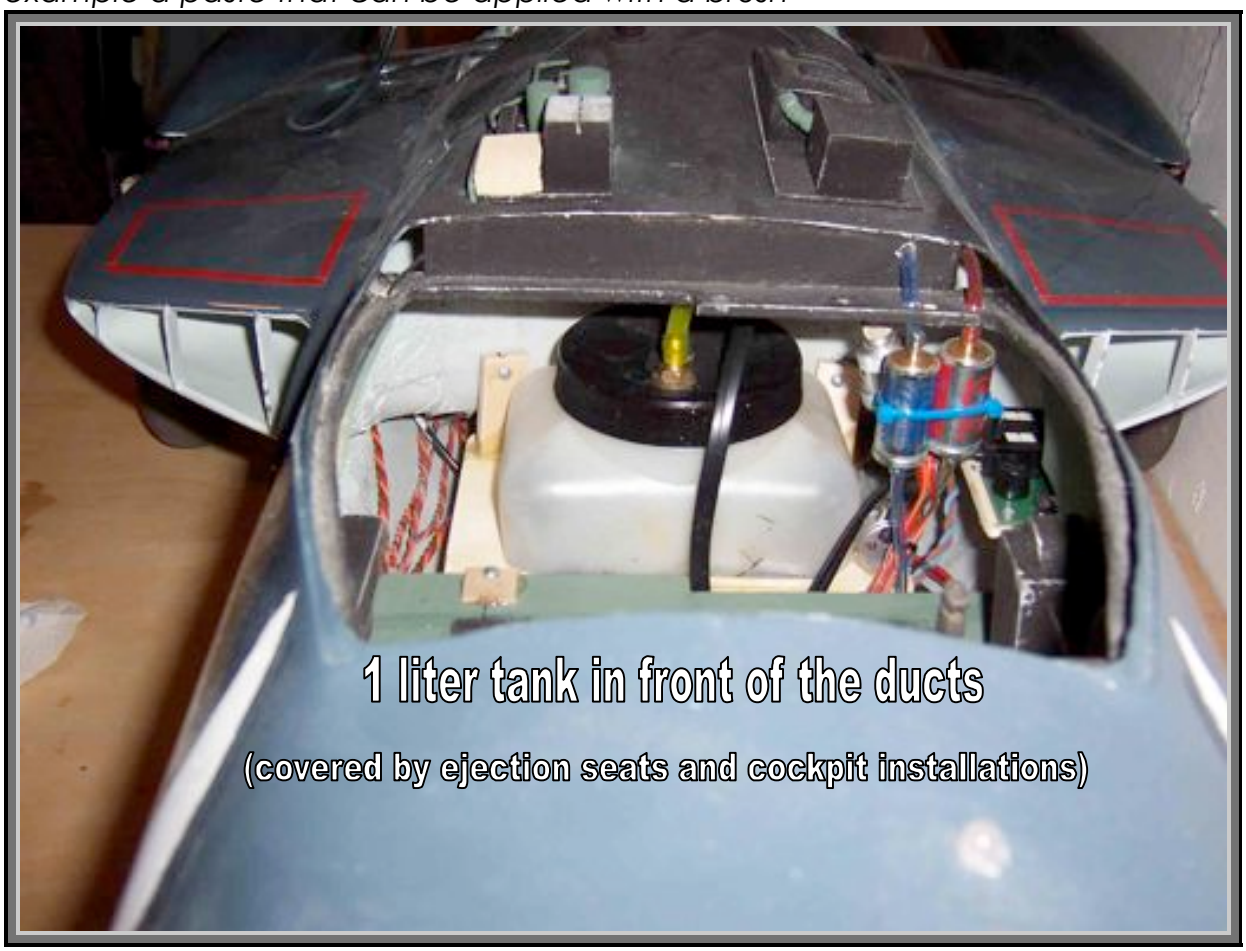


We provide the right duct for your Sea Venom. Length and diameters are depending on the turbine that is used. Ducts for other jets are available aswell.

11 Tanks

The reccommended turbines for the Sea Venom are the MW 54, Behotec J55,
Simjet 1200 , Ram or the new Artes Bee. All these turbines are in a thrust range between 50 and 60 newtons and do not require large fuel tanks. A main tank of about one liter plus one or two hopper tanks provide enough fuel for normal flight operation.
In the first prototype Sea Venom, which was equipped with the MW 54, a single tank with just one liter of fuel was used. This tank was placed in front of the ducts. Remember that a too large tank, will cause the model to be nose heavy, if this area is used to place the tank. If more capacity is wanted, the space in the wing roots can be used. At the moment we are preparing a conformal fuel cell with 1.25 liters that is placed under the turbine (very close to the CG)
Because of its shape, it is possible to install a second one in front of the CG giving a total of 2.5 liters.
Attention : If you place a tank very close to the turbine , you need to protect it from heat.

Thin balsawood covered with self adhesive aluminium foil works well. There are also different types of heat protecting materials available, for example a paste that can be applied with a brush

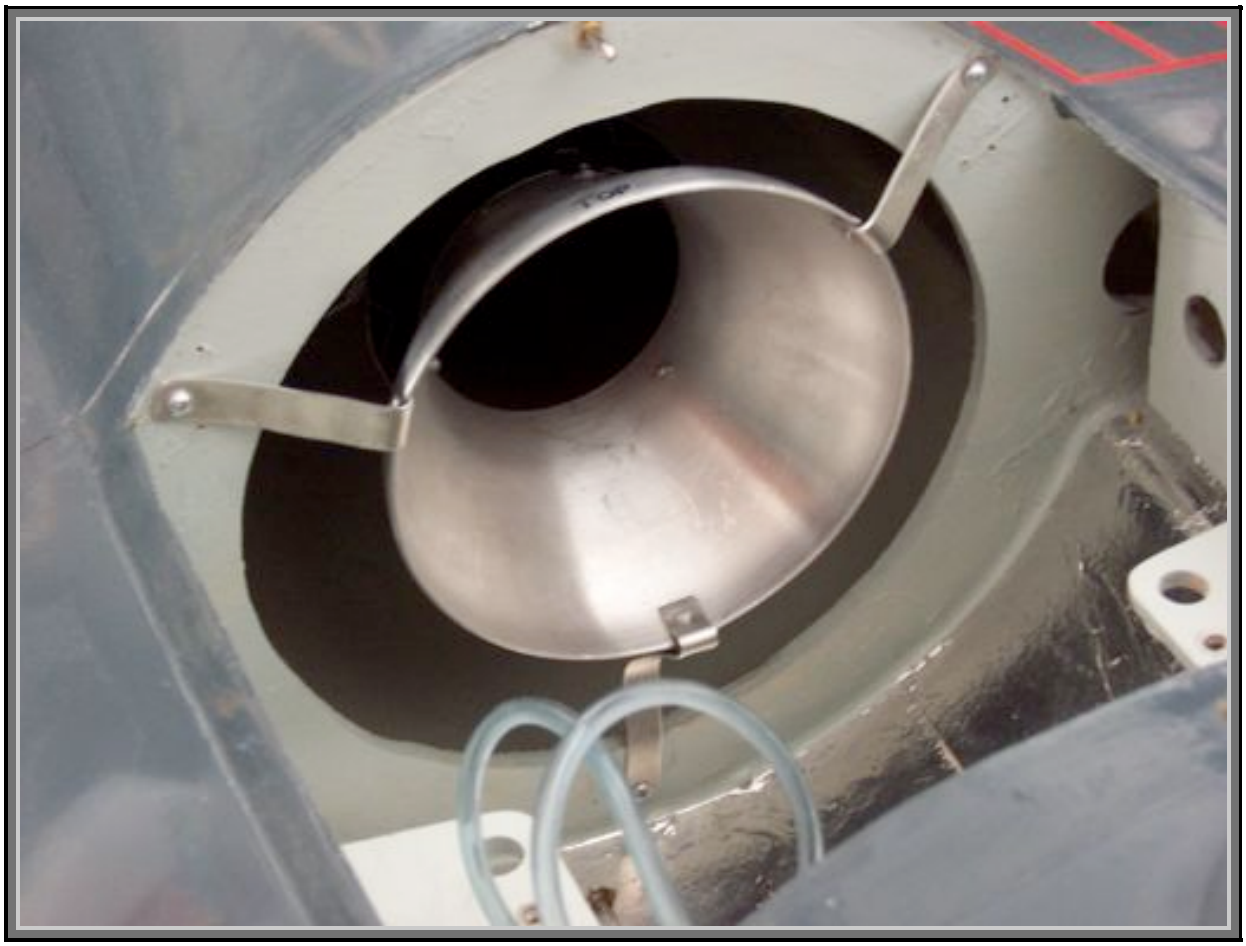


This picture shows the tank that is used in the prototype. (Meanwhile we have a conformal fuel cell available)
Kerosene and propane valves are placed on the right side. The tubing allow a visual control through the cockpit .Note the strict separation of all servo leads (left) and the power cable and ECU placement on the opposite side .The kerosene pump
(under the valves)is one of the most dangerous components to cause interference.

11 duct placement

The stainless steel duct wich is available as an extra is equipped with the mounting latches and allows a very fast installation. It is guided by the former
F4 at the end and secured with the latches on former F2.
Bend the latches as shown on the picture and screw it to former F3 using
servo screws.

Attention: *The correct angle of the thrust line is vital !!!*
If the Grumania duct is used, the distance between the ali intake and the top of the fuselage is ***38mm!*** *I.e. the centre of the inlet is at 96mm measured from the topside.*



It is important to fasten the duct first before the turbine placement is adjusted!
View from behind and center your turbine using packing under the turbine clamp.
When the duct and turbine is placed , go on with the tubings, ECU placement
and final radio placement. Use the picture (tank placement) as a guide.
The radio antenna should be far away from the pump/ ECU. Fix it on the opposite side alonside of the canopy frame " C".

12 Painting

The full size Sea Venom has been painted in many different styles, but the main colours have been :
"Extra dark sea grey" and "sky" up to 1956. At that time the colour for the underside changed to white for all following examples. The standard radome colour was black but it is known that a few Sea Venoms had dark brown radomes or extra dark sea grey ones.

Just a single one has been spotted that is coloured in silver all over but it is doubtfull that this is the original colour (not in a flying condition)

All colours are shiny, naval fighters of that period have never been painted in

matt colours. The dark grey may vary depending on the bleaching,caused by the sunlight. It is possible that the colour is much brighter than normal.

Most differences on Sea Venoms are the colour separation lines and the tip tank paintings. A very nice example of nose art and in sharp contrast to most Sea Venoms is the shark mouthed, Sea Venom FAW 22 of 894 Sqn. of HMS Albion from 1960. We provide a decal set for this version, which makes the paint job very easy. Another typical paint scheme is the yellow/black striped Sea Venom. These "D-day "stripes have been applied to Sea Venoms during the Suez conflict in which the Sea Venom played an important role.

The tip tanks have been painted in many different styles; most versions looked very nice and increase the visibility of your model.

Of course, checkers and Suez- stripes take time but the whole appearance of the model changes for the better, with every detail added, and so the extra work is worthwhile!

The cockpit

A scale model like the Sea Venom, deserves a detailed cockpit.

The extra time spent on an easy to build cockpit, combined with the excellent pilot figures from " Dragon" is worthwhile.

The main components for the cockpit are cut from 1/8 balsa wood. Then some foam consoles are added. The whole cockpit can be made in one day- including the ejection seats.
Use the figures and templates at the end of this manual.

This picture gives you an impression how the assembled interior looks like.
The main colours are :" British interior green " , " cockpit grey " , and black.
All edges where painted silver to simulate weathering .Nice cushions can be made by covering pieces of foam with one or two layers of a paper tissue.
The painting with green colour will cause the tissue to wrinkle. After that, use an almost dry brush and apply dark grey highlights on the wrinkles to simulate the used look.
There are some gorgeous pilot figures available from " Dragon". The "wolfman"- F- 15 pilot fits well to the Sea Venom .
Extra realism can be achieved by the use of a glassfibre canopy frame and an opening mechanism (only for the scale enthusiast) and details like antennas or electronic & hydraulic components in the rear cockpit

The picture shows the assembled cockpit that coveres the ECU and servo leads. The tank installation and nosewheel servo are invisible as well.

There is a highly detailed plastic kit from " Aeroclub" available. Such a model helps to create extra scale details. A must for the scale fan !

Adding details

A more scale like appearance can be achieved by adding panel line details,
You should do that especially on the wing surfaces. What you need are two different paint markers (Edding No. 780 silver and a " Steadler-Lumocolor" pen in brown)
Start by drawing the silver lines. Use alkohol to wipe away the lines in some areas leaving highlights only. Then use the brown pen and draw the same lines but now only where silver lines were deleted before. You can also add very fine black lines after that. The result is outstanding and takes just a little time. You can give your model the final touch by adding dirt and dust with an airbrush.

"Who's going to make a functional wing folding mechanism ?"

15 Preparation for the first flight

When the model is completed , you should first check the CG which is 121mm to 128 mm from the leading edge at the wing root. Consider everything that goes in the air. i.e. cockpit, pilot, nosecone.
If the tank is placed in front of the CG, the model will be slightly nose heavy after take off.
Adjust the movements as follows:
Aileron : +/- 15 mm , measured at the root of the aileron
Elevator : 32 mm up, 16mm down
Nosewheel : 15 degrees both sides
Rudders : 15 degrees both sides (rudders not needed)

The model can be flown very smoothly with the given movements. If the model is noseheavy, a slight elevator trim is needed.

16 The first turbine start

If you are not familiar with your turbine, make your first experiences on a test bench – not in the model ! Make sure that the turbine runs perfectly and that the **e**xhaust **g**as **t**emperatures (EGT) are in between the limits given by the manufacturer.
As mentioned before, the use of the correct rear duct is important. It influences the EGT, the thrust and the fuel consumption. Therefore you need to calibrate your ECU again, when the turbine is installed in the model. A new calibration run has also to be made after changing tanks, filters or fuel lines.

Have always a fire extinguisher on hand, when operating your turbine ! (helper required) The most important thing during the start-up procedure is
to protect the tailplane from the hot air stream produced by the turbine !!!
NOTE. An unwanted hot-start can burn the tailplane if not protected. Use a sheet of aluminium to shield the underside of the tailplane (your local offset printer will have these " litho-plates") .
The shield must to be used for every start !

17. The first flight

When everything has been checked over again, it is now the time for the essential, flying !
The effectiveness of the nosewheel steering can be tested before you take off for the first time, but don't let the Sea Venom roll too fast – otherwise you you're in the air earlier than expected.
The start of the Sea Venom is not spectacular, just keep it straight and wait.
The model will accelerate and with full power on the engine it will take off after about 70 meters. Climb with full throttle until you have enough height to retract the wheels and trim the model. The model will react smoothly on aileron and elevator – do not expect the characteristics of an aerobatic plane.
Try different throttle positions.
Drag caused by the airplanes thick fuselage and the washout, will slow down and descend the model when you pull the throttle to idle. Therefore the descent rate can be regulated very well without the need for flaps or airbrakes. Please keep in mind that – if your turbine should shut down during the flight- do not lower the undercarriage, if you are not sure you will make it back to the runway. A safe wheels up landing in high grass is better than a brand new model with all the legs stripped off.
Such an unexpected landing or crash should be followed by a careful inspection of the model – safety first.
In following flights you can test the slow flying characteristics step by step.
You will notice that especially the slow flying characteristics separate the Sea Venom from most other jets. Both, the full size airplane and the

model are no speed machines and the model should be flown in a scale like manner.
For safety reasons, do not fly extreme aerobatic manoevers or high-speed dives followed by "full up" elevator.
We hope that you will love to fly the Sea Venom and wish you always HAPPY LANDINGS !

Grumania Jet Models

We would be very happy to publish a photo of YOUR Sea Venom on our homepage !