Composite-Arf.com Extra 330L 2.30m

Manual Instruction for Engine Zenoah ZG62

On request of many customer and interested people we built up an Extra with the Zenoah ZG62 egine and tested it for you!

We were suprised, how well the engine together with MTW Mini Pipe TD75K is working in our Extra. The empty plane weights 20.5lbs. With the 2 blade Menz 22*12 propeller you have enough power the Imac sequences.

The engine has to be installed upside down. You only need one cutout for the plug cap in the cowling. We do not use the "HydroMount-System", because it is to heavy. The skilled builder should be able to install it himself. But we did not want to mount the engine inflexible. Therfore we are using rubber vibration damping.

We do not use the "Easystart System" and the carburator redirection. It is not that easy to install the redirection with the avaiable parts. The good thing is you do not really need all the stuff and you save a lot of weight. In the near future we will have installed it and can report to you!
If you mount the engine rigid, it is easy to mount the redirection.

Prepare the dome as it is explained in the main instruction manual.
If you are using the same former, please follow the next steps.
At the end of the manual you will find a drawing for the rigid or any other mount.

First you have to manufacture the former. Below there is a drawing with the dimensions. Also a DXF-File (Autocad, Corel) is avaiable. Use 3-4mm high-grade plywood. For fuel protection you should laminate some carbon oder fiberglass cloth on both sides, 160g/sqm should be ok. Also the former will be stronger.

Glue masking tape (20 wide) on the dome, as shown in the picture. Mark the centre of the dome on the seam. The dome is approximately 140mm wide. From the centre you meassure 49mm to the right and to the left. Mark this position, too. To find the points for the T-Nuts you have to use a set square. Hold it perpendicular to the seam, centred in the marked points, and meassure 45mm up and 40mm down to get the correct position. Have a look on the picture, if you are not sure.

Drill the holes for the T-nuts now (diameter 7.5mm). The nuts are little bit to long to fit completely in the dome. There are two possibilities to fix the problem. You can shorten the nuts or you glue small pieces of plywood into the dome behind the holes.

An approved method for securing the nuts is to fix them with CA-Glue after the former is mounted.

The hardest work is to get the rubber vibration damping into the former. The rubber is very hard, you can use a blunt screw driver to put them into the hole. Sometimes the diameter of the rubber vary, just sand the hole in the former a bit wider.

Please make sure, that all screws on the engine are correctly mounted and secured. If you want to use the Easystart-System install it now. After mounting the engine into the plane you cannot reach the screws on the ignition coil anymore.

Because we do not use the carburator redirection, you have to install the servo beside the dome. Therfore you have to extend the servo- and the controllhorn on the carburator.
You can use the spare phenolic controllhorn. Glue it with 30min Resin (Zap) to the metallhorn.

Now you can screw the engine on the former. Use "Aussensechskant" M6 screws. You can acces and retorque them after mounting with an open-end wrench. The correct distance is adjusted with 9 washers. To avoid a deep cutting into the wood, the last washer should be a bigger one.
A hint: Glue the washer up with CA before mounting them. It's easier to get them into position!

Screw now the unit to the dome. Use the allen screws, again with 9 washers for the correct distance.

Instead of using washers you can make aluminium stand offs. 9 washers are ca. 15mm long. The supporting surface should have a bigger diameter to get a better "Krafteinleitung".

Put on the cowling now. If you take off the plug cap the cowling will fit. Check the distance between the cowling and the hub. The easiest thing is to mount the propeller. Depending on how much you impact on the rubber damping maybe it is neccessary to correct the distance.
By touching the cowling you can find the position of the spark plug. Mark this position und mill out a hole, that fits the plug cap. During this step you can mill also the cooling holes as shown in the picture.
A cut out for the choke you can drill also if required.

The header is purchased from MTW, too. They have the correct meassurements for this plane, so you can order the header from them. First mount the canister to the header. For screwing on the engine you need M5 "Aussensechskantschrauben". Use only Lock-Nuts, because of the vibrations a normal nut would become loose.

The throttle servo has to be mounted on left side of the dome. If you use a carburator redirection you have to mount the servo somewhere in the fuselage. The servo horn has to be extended with the phenolic horn also. Do it as it is explained in the main instruction.
Glue the standard servo mount (same as in the wings). Cut 2*3mm plywood pieces, glue them together. And then, as shown on the pics, glue the mount on the plywood. Screw the servo to that mount and find the correct position for it on the dome. When you find it, mark the position and sand this area with a rough sanding paper. The colour should be removed. Now you can glue it with resin to the dome. To secure the mount use two screws. The linkage is an M3 all thread rod. The ball link is mounted under the servo horn, the clevice to the throttle horn.

In our Extra we use a single batterie pack with 5 cells (Sanyo RC2400mAh).
To get the correct CG-Position the pack is mounted with some cable ties on top of the dome. The CG is then between 105-110mm behind the leading edge on the tip rib. For more nose heavy adjustment, mount the batterie on a plywood plate closer to the engine, same as for the DA 50 in the main manual.

Please read carefully the instruction of the maunfacture before running the engine. The cooling cut outs in the cowling are big enough to allow a constant air flow.

For the classics Imac-style Aerobatics we recommened a Menz 22*12 Two-blade propeller. With this propeller vertical climbs with snaps and what ever are no problem and very powerfull. The enigene turns, meassured during the very rich first engine runs, 6000 Rpm. The sound is very pleasant. For 3D you should use a prop with less pitch. A Menz 22*10 is fine. The Rpm will be higher and the engine is faster accelarating. Some other props we are testing at the moment. We will public them soon.

For more power you can use a tuned pipe. But you have to move the rudderservos and the reciever to a different position. If you are using a tuned pipe, use the carburator redirection, the fuselage air intake and the easy start system. All the stuff will help you to adjust the correct CG.