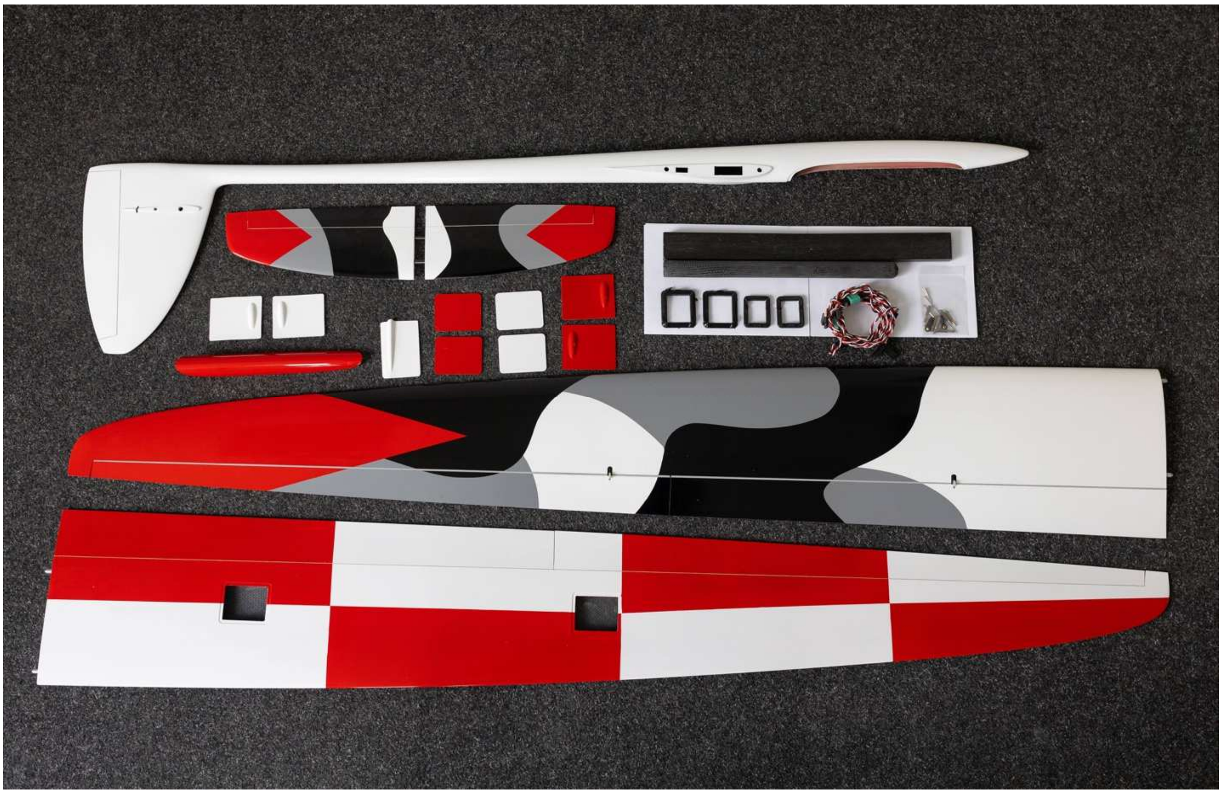
# Corsa 108”


Pic by Jogvan.

A high-performance model glider for slope soaring, designed by Dr. James D Hammond and brought to you by Aeroic Composite Aviation Products.

Thank you for purchasing the Corsa. Developed from the successful Schwing 88, the design requirement was to extend the flight envelope of the previous design and also deliver a high performance versus cost. The model has gone through rigorous development and testing by some of the best pilots in our sport. We hope you enjoy it whether you like to fly the right way up or not!

Corsa is a high-performance sports model and so deserves really careful installation just as you would with a top end competition model. Just like the latest breed of racers it’s very slim and only just big enough to fit all the components.



Corsa Instructions.

To complete your model, you will either have to obtain the following from your distributor or supply your own:

Radio tray – if wanted, servo connection hardware, and ballast.

**Ballast Needed:**

The Corsa takes a 25mm x 10mm thick x 200mm long rectangular slug in each wing. In the fuselage it can carry 8 slugs of 19mm diameter by 35mm long. Fully loaded the Corsa can carry nearly 900g of ballast, and that should be enough for anyone.

**Hardware Needed:**

Clevises, 2mm threaded rods, 2mm lock-nuts, RDH arm adaptors (optional).

**Radio gear:**

The Corsa radio installation was designed around 10mm 'Thin Wing' servos, that can easily be installed. You may also like to consider the use of IDS servo systems, in this case the existing control horns can be used with IDS at the servo end, or alternatively can be removed and the 'spoon' type horns substituted.

Note: 13mm servos are really too big but will just fit in the flap bay with a blister servo cover (not supplied).

**Assembly Instructions**

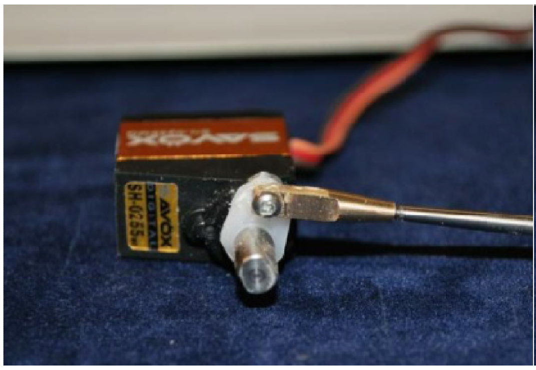
**Wings:**

The servo installation is very standard for this style of moulded glider and it is possible have a flush installation to give a cleaner wing.

Start by preparing the clevises. As manufactured, the M2 clevises are too big, they need to be slimmed down so that they will fit under the shrouds, use a Dremel (or similar tool) fitted with a small grinding wheel to do this.

At the servo end you can either use a clevis or a very neat solution is to use RDH adapters. If you intend to use a clevis at the servo end then it will need to be scalloped out so that it does not foul the servo output shaft. (Remove red shaded area)


The horn geometry allows a small arm and by using nearly all of the servo travel you will have all the recommended throws required. Mechanically, this is much better than longer arms that you have to rate down the travel and provides greater torque and less mechanical play. As a guide, you will probably need 11mm of linear pushrod movement for the flaps and 7mm of linear movement for the ailerons. Depending on the servos used, this should mean that the flap servo needs a 7.5mm arm radius and the ailerons need a 5mm arm radius.



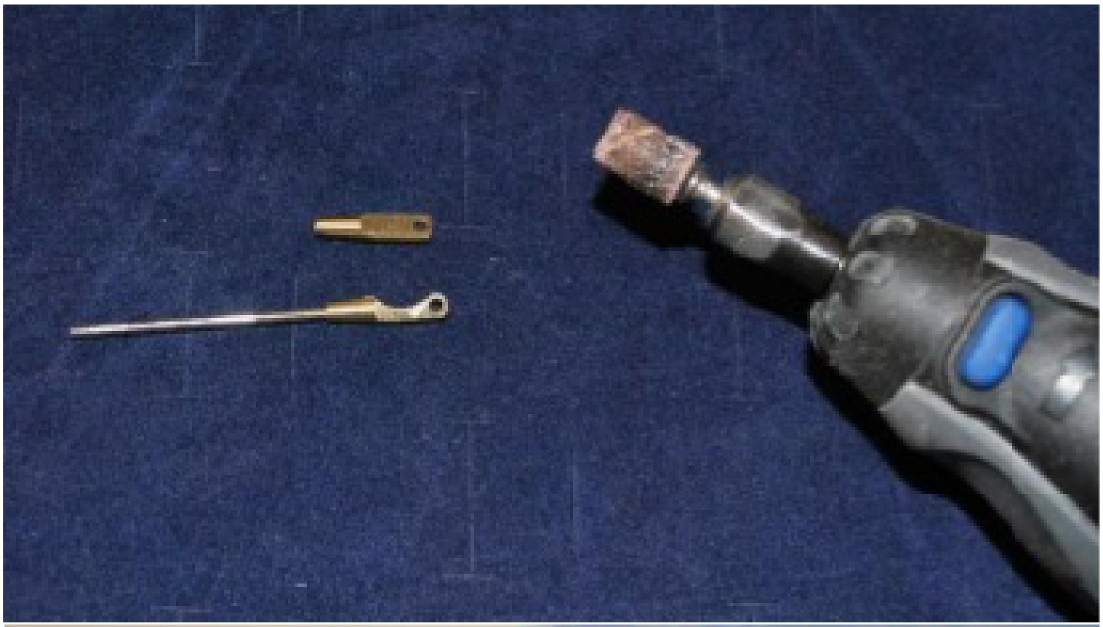

To prevent the pushrod fouling the shafts the arms are set at 2 clicks off centre for the ailerons towards the TE and one click for the flaps.

Note: These pictures show the linkages connected, with RDH brass adapters, to the servo arm **and** using a extra bearing servo kit. This requires extra clearance with the small arms required for the aileron only.

To fit brass RDH adapters: If using Bearing kit then shape the aileron RDH adapter with Dremel tool. Cyano a 2mm bolt into adapter **BUT keep turning the bolt with a screwdriver until cyano has set**. Flatten the top of a servo arm and cut and shape arm as necessary. A locknut needs to be placed on the rear face of the arm, to allow it to engage you will need to grind a flat on the servo arm spline moulding side, then bolt together and cyano a nut to the thread end. Move the assembly a few times and check that the rotation is in the RDH adapter hole and not turning the bolt.

Before you glue the servos trays in in, remember to set the output horns correctly i.e. ailerons 2 splines towards the TE and flaps one spline towards the TE.

Use coarse grit sandpaper to roughen up the bottom surfaces of the trays. If you are using 12mm wide servos then these should be installed right under the forward edge of the access cutout.



A support strap can be added. It's not critical what it's made from, thin G10 fiberglass is very good but basically anything that is about the same strength as the top skin.

Before fitting the wing part of the wiring loom, check that the loom functions properly and is correctly assigned. (Once installed it is far harder to rectify any faults) Then fit into the wing.

If you are using 10mm thin wing type servos then you should not encounter any real installation problems. Whatever servos you choose, do ensure that that both flap servos (and both aileron servos) are in the same position thus ensuring that the pushrods will be the same length.

Once the servos are glued into position measure and cut 2mm threaded rod to length. When satisfied with the operation of the wing servos, either secure the rod at each end with lock-nuts, glue or solder.


**Fuselage:**

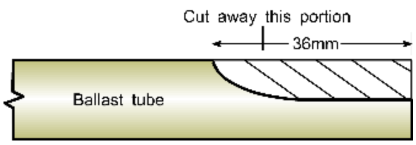
Start by making the lead nose weight. Fill a container (e.g. a small plant pot) with damp sand. Tightly wrap the fuselage nose with aluminium kitchen foil, or coat it with a good smear of Vaseline. Then insert nose and foil in sand ensuring a close fit and support. Alternatively use Plaster of Paris, or wall filler. Remove the fuse leaving a good impression to cast your nose weight.

Simply melt lead in an old pan (best done when the wife is out) and with the plant pot/sand/cast on the scales weigh out approximately 170g. You need about 165g so a bit over for shaping with a file to get a good fit inside the nose. Do not forget to flattened the tip as the inside laminate here will stick in a bit.

You may want to make a radio tray. We don’t supply them because a poll a couple of years back showed that 75% of people preferred to make their own.

The tray will need the long edges filed/sanded to a slight bevel. A test fit with the radio tray and battery will show that there should be some space too for trimming weight, you should need around 10-15g. **Do NOT glue in yet!**

Fuselage Ballast tube - If you want to use one: At one end roughen 10mm on the inside of the tube and using Cyano, glue a 10mm ply disc, then backfill the open few mm with thickened epoxy. The length of the tube needs to be long enough to fit in 8 slugs. Slug size is 19mm - 3⁄4" diameter - by 35mm long. The open end of the tube is flush with the end face of the 8th slug. Cut the tube end as shown in diagram.




Add a 10mm Plywood disc to the forward Ballast Tube End and epoxy in.

The front end of the tube needs to be marked on the fuselage for the correct CG. With a pencil, mark on the outside of the tube the point between the fourth and fifth ballast slugs. On the fuselage place some masking tape and put a mark on it at a point 99 aft of the leading edge. When the tube is eventually glued in the marks on the tube and fuselage need to line up.

Now mark where the front edge of the ballast tube begins. The radio tray cut out for the ballast tube is positioned at this mark. The slugs insert at an angle then sit flush and slide back down the tube. **(Do NOT glue in yet!)**

Check the supplied fuselage wiring loom.  We check them at the factory but its never a bad idea to double check and we recently did actually have a dud one. Glue in the plugs, MPX greens are recommended, and site the 4 leads so that they go under the ballast tube, this will raise the front slightly. At the front of the fuselage, roughen up the areas where the radio tray and ballast tube will sit.

Rudder and elevator are installed at the rear of the fuselage in the fin so you will need a couple of extension/connection leads. With cyano glue a 2mm adapter to the rudder pushrod. In order to obtain full rudder, throw it is necessary to scallop the rudder clevis (see page 2). Then wind the clevis all the way onto the adapter, use a drop of cyano or epoxy to ensure that the clevis does not work loose in the future. Attach the clevis to the rudder control horn.

The pictures show Hyperion 9mm and 11mm servos and MKS 6100 servo. You might want to consider the use of a metal geared servo because should the gears become damaged, removal of the servo may not be easy.

Test fit your chosen servo, the position should be similar to that shown in the picture. **Ensure that it does not foul the rudder pushrod!**

Use a 2mm ball link with a 2mm tube cyanoed onto the ball. This acts as a sleeve for the 1.4mm elevator drive. You need a 4.5mm servo arm and a short pushrod with a 90-degree bend. The servo is bonded to both skins. When the epoxy is set check for a ‘bind free’ elevator operation and make any adjustments if necessary.

Extend the servo lead and route it under the ballast tube along with the rest of the loom before you glue the radio tray, etc. in place. Trying to fit the servo lead after the ballast tube is glued in will prove very difficult!!!

Final Assembly or ‘Now you can start gluing!’

Test fit the nose weight, radio tray and ballast tube to ensure that they all fit together. With the radio tray, check for servo depth, have you allowed enough room? The orientation of the servo is shown, basically you need around 6mm arms and these require control runs near the sides or they will block access to your ballast.

Slow setting epoxy will give you the necessary working time to get everything lined up and true.

Now remove the tray and tube, then glue in the nose weight. When it is set, glue in the ballast tube, remembering to line up the pencil marks on the tube and fuselage. The wires to the receiver should run underneath the ballast tube.

Finally, fit the radio tray, it should be approximately 12mm below the edge of the fuselage at the centre of the canopy area. With a methodical working you will be able to do quite neatly but do ensure a good joint to the ballast tube and fuse with the tray. It won't be doing much if not bonded properly.

With the model fully assembled add lead to balance (do not forget to check the lateral balance)

A set up guide is included on page 9 from one of our test pilots. It's quite safe, especially the CG setting. Most flyers have only varied from this setting a few mm both forward and rearward.

Corsa 108” Control setup.

CG = 99~105 mm from the leading edge – note: CG can go back as far as 107mm. Movements (Flaps/Ailerons measured from the inboard edges):

**Forza setup values:**

- Dimensions in millimeters
- Angles in degrees
- Measurements from inner edges

**Parameter: Value:**

CG *99 mm from LE

| **Position up** | **Position down** |
|---|---|
| • Ailerons +10 | -8 |
| • Elevator +5 | -5 |
| • Rudder 45º | 45º |

- Flaps +2º -80º or more if you can get it.
- Snap flap -5

**Butterfly:**

- Flap -80 º
- Ailerons +5
- Elevator -5

*Note: CG start position is 99 mm – this is very conservative. CG can go back as far as 107mm.

Please *do not* glue in all of the nose weight until the model has been flown and the CG adjusted to your preferred position.

I hope you enjoy your Corsa, it's a great fun model and will do pretty much anything you ask of it.

Happy flying!