

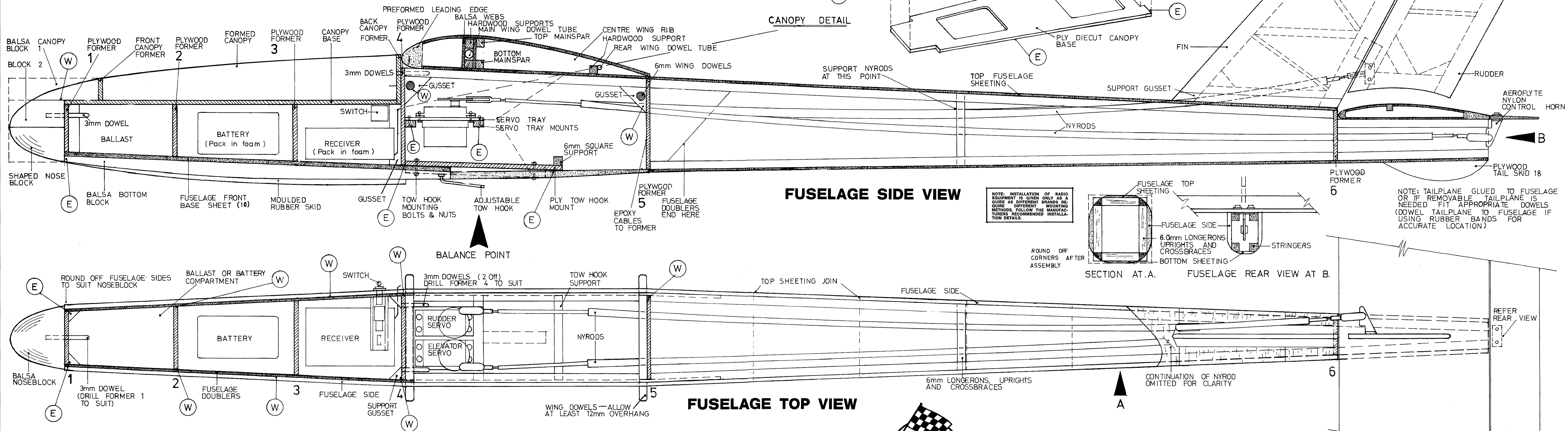
# SUPER TRIDENT

KIT NO. 168  
SHEET NO. 1

**SPECIFICATIONS**

WING SPAN	2500mm
WING CHORD	178mm
WING AREA	0.43sq.m
WING THICKNESS	12.5% (25mm)
WING SECTION	NACA 4412
TAILPLANE SPAN	715mm
TAILPLANE AREA	0.096sq.m
FUSELAGE LENGTH	1100mm
WEIGHT (WITHOUT R/C EQUIPMENT)	0.85Kg.

NOTE: CAREFULLY TRIM CANOPY TO APPROPRIATE SHAPE AND CEMENT WITH EPOXY



## AEROFLYTE SUPER TRIDENT

### Building and Flying INSTRUCTIONS

**GENERAL BUILDING NOTES**  
The Super Trident is a high performance R/C Sailplane kit, and all care should be taken in all stages of construction to ensure strength and accuracy.  
Before you start, lay out the plans, check the kit contents and read and become familiar with the instructions.

**Adhesives:** - The kit includes wood glue (C30) and balsa cement. You will require epoxy cement, and some of you may prefer building some areas with "instant" glues, but this is optional. The plans show the following recommended glue guide: - E = epoxy, W = wood glue, W All = all joints in this assembly are done with wood glue. All joints not specified can be made with balsa cements.

**FUSELAGE:** This assembly must be built squarely and true to ensure top performance, and checks should be made at all stages to ensure accuracy.

**FUSELAGE ASSEMBLY:**  
Start by making a left and right hand fuselage side as follows:- Lay the fuselage side front and rear sections down and slide the joining edges together. Make sure the top edge remains straight, and white glue the mil ply doublers (left and right) in their locations - clamp or weight this assembly until fully dry, and then lightly sand to ensure all edges are clean and square.  
From the plan, mark the position of formers 4 and 5, and white (wood) glue them in place squarely on the left hand fuselage side. When dry, locate, fit and cement on each side the 6mm square balsa longerons (stringers) and uprights as follows - at the top of each side, a longeron goes from behind former 4 right to the back of the fuselage, at the beginning of the tailplane area. Another smaller piece then goes from behind former 6 to the rear. On the bottom, the longeron goes from the front of former 5 to the rear of the fuselage. One upright is fitted and glued as shown between the wing and tail area. When dry, lay the two sides on the plan top view, fit the plywood towhook mount in place to locate at the bottom of former 4, and at the bottom of the fuselage sides and epoxy glue the former 4 joint.

Keeping the formers square, white glue the formers to the right hand side and allow this assembly to dry. When dry, fit and cement the 6mm square tow hook support in place, and (if using) the servo mount rails. Also drill the sides and fit and cement the wing dowels and their scrap balsa gussets on the inside of the fuselage (cement the gussets in place before drilling). White glue the triangular gussets in place in front of former 4. From the plan, mark the locations of formers 1, 2 and 3 on each fuselage side. Break out the fuselage front base sheet (part 10) and from the plan, mark on it the locations of formers 1, 2, 3 & 4. Place the fuselage assembly on the part 10 which has been pinned in place on the top view, and block up the back of the fuselage so that the sides can be glued to the part 10, and the formers can be located and glued in place. Epoxy the two triangular support gussets in place behind former 1 and after checking that this assembly is still square, allow to dry.

When dry, pull together (over the plan) the two rear fuselage halves, and fit former 6 and the crossbraces and cement in place. Note the rear of the fuselage is open to allow for the elevator controls.

At this stage, fit the nyrod outer sleeve supplied in place (drill former 5 suitably), and allow sufficient sleeve at the rear and servo end for later trimming, but do ensure the sleeve for the elevator control is trimmed about 43mm short of the rear of the fuselage. (This is difficult to trim off after assembly complete). Epoxy these cable sleeves in place at former 5 and 6, and support and epoxy at the cross brace.

Next fit the bottom nose block in place, mark and cut the towhook slot, and glue the block in place. At this stage fit the adjustable towhook, mark, drill and mount the T nuts of the hook, and remove. Mark the 4.5mm thick bottom filler block for the tow

hook and after filling the triangular gap formed (see plan side view) with scrap balsa, glue this block in place so that the rear edge is in the centre of the bottom of former 5. Fit crossgrain pieces of 1.5mm balsa sheeting 75mm wide for the top and bottom sheeting and cement in place.

**FIN & RUDDER**  
This assembly is built over the plan from the 3mm x 12mm, 3mm square, and 3mm x 6mm strip supplied. Take care to build flat and avoid warps or twists. When dry, cut slots and fit but do not cement the 3 hinges in place, rounding off the edges to allow for the rudder to move at least 25 degrees in each direction.  
Pin (do not cement) the two triangular support gussets to the fin, and trim and shape these supports to suit. Fit the assembly in place on the fuselage, trim one support to clear the rudder control cable and then cement the supports only to the fuselage top sheeting. When dry remove the pins and lift the fin assembly out - this can now be sanded, covered, hinges and control horn fitted, and when ready for final assembly slid and epoxied back into the supports.  
Check that the fin assembly sits squarely to the fuselage - correct if not so.

**TAILPLANE**  
Build by pinning down on the plan the 6mm square balsa leading edge, the formed trailing edge, the centre bottom sheeting, and cementing in place the ribs No.42 and No.41's in the centre and the mainspar. When dry, fit the top sheeting, trim off any excess spar and fit and cement the tip blocks in place. When dry shape and sand the leading edge to an airfoil section as shown in the side view, dry shape and sand the balsa tip blocks.  
Cut the elevator to shape from the blank supplied and shape to an airfoil section. Fit but do not cement the hinges in place, and allow for movement up and down of at least 10 degrees on the elevator. (Round off mating edges).  
If you wish for transport ease to have a removable tailplane, you should cut the rubber band clearance holes, and make provision on the fuselage for hold down dowels and 2 locating dowels to ensure tailplane will locate at the same place each time.  
If you wish to fix the tailplane, it must be cemented squarely to the fuselage. but this is usually done after covering (then cut away the covering in the joint area and cement).  
Sand the tailplane and elevator assembly together, and cover as desired.

**CANOPY**  
Break out and identify the parts needed for the canopy detail (sheet 1 of plan). Cement the rear former to the base, and the front part-moon shaped former at the front of the base where the notched area is (check side view). Make sure these are both square, then white glue the top canopy block (No.1) to the front canopy former and the base plate. The number 2 block then white glues to the bottom of the number 1 block so that the unit drops in place over the former 1 on the fuselage as shown.  
Roughly cut out the canopy, and lay over the formers to check it's location. Trim the canopy carefully for an exact fit, then mark the shape that the front top block will be carved to match. Remove the canopy, fit the assembly to the fuselage, and locate the shaped nose block so that it mates the bottom of block number 2. Epoxy the shaped block in place, then carve, shape and sand the whole nose area (including bottom fuselage block to achieve a smooth rounded shape). Fill the two small gaps in the canopy block area with scrap wood.  
Remove the canopy assembly, drill and fit the 3mm dowels for location, mark and drill the formers 1 and 4 (ensure a snug fit for the dowels in the formers), and epoxy the dowels into the canopy parts. Round off the dowel points and check for correct location. When finally fitted, these dowels should be quite adequate for canopy hold-down, and will allow the canopy to slide forward in the event of a heavy landing when the wing moves forward on its rubber bands. You may add further locking if you wish. Do not epoxy the canopy finally in place until after the inside area has been painted etc.

**WINGS:** The polyhedral wings for this model are built in two halves, and joined at the flying field with plug-in steel wire dowels.

**WING ASSEMBLY:** - Read this section fully before starting any assembly.  
Break out and identify all wing parts, and building on a level building board, starting with the left hand wing main panel, pin in place on the plan the bottom leading edge sheeting, the bottom cap strips, the bottom trailing edge sheeting, and after checking which is the top and bottom of the moulded leading edge (see fuselage side view), pack up and locate the leading edge in place. White glue all joints (note: cap strips are cut from the 1.5mm x 6mm strip supplied). The wing centre bottom sheeting is not fitted at this stage.  
Next build the left hand tip:- pin down in place on the plan the leading edge and bottom leading edge sheeting. Under the bottom trailing edge sheet near the tip place a wedge shaped piece of scrap 1.5mm balsa. (Locate where dotted on plan) and then pin down the bottom trailing edge sheeting and bottom cap strips. This scrap balsa builds in a small amount of "washout" necessary for optimum flying performance. The scrap balsa must not be removed until after the tip has been built and dries fully still pinned to the plan. (At this stage break out all ribs No.44, clamp together and lightly sand evenly).  
White glue all of these joints, fit and cement the bottom mainspar (hardwood), ribs 44 to 50, top mainspar, ply braces 36 & 37 (ribs must be cut to suit), making sure that the No.44 rib is angled at the correct angle to mate with the main panel later. (Line up with the pin marks on the brace). Cement all joints, and fit and cement the leading and trailing edge top sheeting and top cap strips - Taper the leading edge to match the sheeting.  
When dry, remove from board, trim off excess spars and the leading edge to match the angled rib, and locate the completed tip on the partly assembled main wing panel. Blocking up the tip so that the ply braces fit exactly in position against the main panel leading edge.

Fit and cement the main panel bottom spar, and starting from the tip joint, all No.44 ribs, and the top spar. White glue the braces, then finish the centre section as follows:- Fit and cement the bottom wing centre sheeting in place. drill the ply ribs 40 (3 off) (together) with a 6mm hole at the point marked just in front of the mainspars, and with a 3mm hole at the point marked near the trailing end of the rib.  
White glue these ribs in place, angling the centre rib to the template angle shown (cut off plan and stick on card). Fit the rib webs in front of the mainspars and glue in place in all rib bays shown. Refer to the centre wing assembly diagram and fit and epoxy glue the tubes supplied, in place, and the hardwood supports and balsa fillers and webs (1.5mm).

**NOTE:** - This assembly controls the strength and accuracy of your wing and should be built carefully and neatly - all cement joints should be strong. (The use of micro balloons as an epoxy filler is recommended).

Fit the top front and rear sheeting, cap strips and wing centre sheeting and cement in place. Using the template again, angle cut any excess leading edge spars or trailing edge pieces and sand or file the tube if necessary to ensure the centre ply rib is flat and ready to match the right hand (mirror image) centre rib.  
When dry fully, remove from board, and lay flat.  
Build the right hand wing in the same manner, and when complete, bend the heavy wire dowel supplied (using a vice and hammer) to the shape shown on the plan, and the lighter wire ( pliers) to the same shape.  
Clean off any burrs on the ends, and slide the dowels into either wing, and slide the two wing halves together. If the fit is not correct, adjust the dowel (wire) angles slightly to ensure that the two mating ribs are a perfect fit.  
The finished wing relies on these ribs and the dowels for its stability, and care must be taken to ensure that the wings mate correctly.

Take the two plastic anti-vortex wing tips, identify the left and right hand, and locate the tip inner rib (off the fuselage side diecut sheet), or make out of 3mm balsa scrap. Sand the filler rib so that it fits neatly inside the plastic tip. Epoxy cement the filler ribs in both tips, and when dry, carefully sand the mating surface of the tip assembly flat and square. Fit to the correct tips, but do not cement yet - sand the balsa if needed to match the plastic tip, and set tips aside to be glued on at a later stage (usually after covering is complete or just before final painting).

Lightly sand the wing halves all over, and when smooth, cover with either Solarfilm, Econocote or similar, or silk. Finally epoxy cement the wing tips in place.

**FINISHING**  
Round off the fuselage from former 5 back if you wish as shown in the section at A, but do not cut too far into the corners and weaken the structure. Make sure the canopy, wing and tail areas of the fuselage are square and flat. (Some sanding around the canopy area can be done but lightly sand only). Smooth off and sand the bottom blocks around the tow hook area, and sand the whole assembly ready for covering as you wish. The ply tailskid can be epoxied on before or after covering or painting. Before final covering etc. fit the servos in the model in accordance with our plan or your set manufacturer's specification, and fit the nyrod inner cables in place. Starting at the rear, temporarily fit the fin, rudder, tailplane and elevator, hinges and control horns, then fit a kwik link end to the threaded rod supplied, screw in to 50% of the thread. Screw the other end of the rod firmly into the nyrod inner and assemble the link ends to the control horns, sliding the inners back toward the servo end if needed. Check for free movement of all controls, then with the rudder and elevator set at neutral, cut and fit the servo ends of the nyrods with rods and link ends so that with the servo also at neutral, there is still 50% adjustment left. Hook up your gear and check function - right stick movement on transmitter should give right turn for the model when viewed from the rear. Pulling the elevator stick towards your body should give up elevator.

Remove your R/C gear, and cover or finish the whole model as you wish. fit the nose skid supplied, epoxy the canopy to it's base and fit, mount the switch as you wish. fit wing seating tape where the wing mounts if you wish, and plug the wings together (when flying, some modellers prefer to tape this joint, but it is not essential if the joint is correctly made), and rubber band to the fuselage using at least 4 bands or rubber strip. When fitting the decals, work with minimum water to ensure a top finish. Install the R/C gear finally (pack Battery and Receiver in foam), and the adjustable tow hook (note - depending on your sanding, you may have to pack the front of the tow hook down before it is locked up to give good clearance for the towline ring).

Balance the model at the balance point, adding a small nail weight near the wing tip if necessary, adding ballast or moving the battery forward to suit, and the SUPER TRIDENT is ready for test glide and final trimming for flight. We assume most people building this model would have some previous experience, but if it is your first model, we suggest the help of an experienced pilot of R/C Sailplanes would be of great help for your early flights.



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