

Building instructions

Twinspeedy

Order No. 1319/01

Sailspeedy

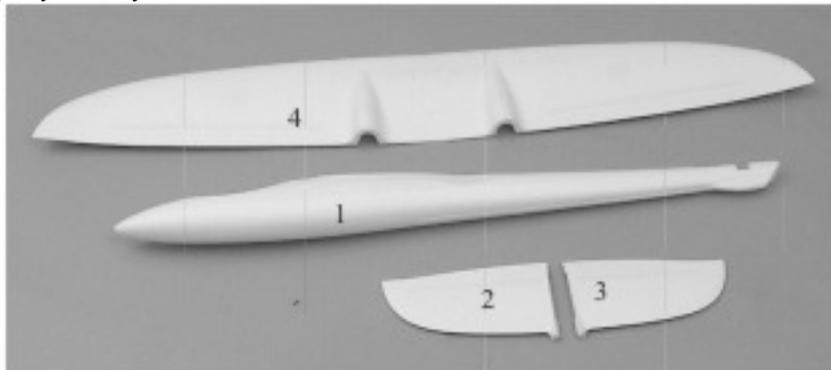
Order No. 1319/00

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This model is of very simple construction, and can be built even by modellers with little prior experience. All the parts contained in the kit are numbered, and the numbers are included in the text, the stage photos and the parts list. It is important to complete the model in the sequence described in these instructions, and to allow all glued joints to harden completely at the end of each stage before resuming construction. We at “aero-naut” are unable to monitor the methods you use to build the model, and for this reason “aero-naut” accepts no liability for damage or injury caused during construction or operation of this model.

Flying this model successfully requires a basic knowledge of model flight. If you are a beginner please ask an experienced model pilot to help you during the initial stages of learning to fly. Use 5-minute epoxy for all joints.



Extra items required to complete the model

- 1 RC (radio control) system with V-tail mixer
- 4 9 g servos
- 1 Receiver battery
- 1 Clear adhesive tape, 10 - 20 mm wide
- 1 5-minute epoxy (two-pack resin adhesive)
- 1 Speed controller (for Twinspeedy only)
- 2 Race 400 6V motors, Order No. 7000/42, or Speed 400 6V (for Twinspeedy only)
- 2 Propellers (for Twinspeedy only), Order No. 7249/08
- 1 6-cell sub-C flight battery or 7-cell 4/5 sub-C flight battery (for Twinspeedy only)

Translation for following pictures:

6	Servokabel	Servo lead
9	Schnitt	Cut
14	Kohlefaserrohr	Carbon fibre tube
	Servoschacht	Servo well
	Tragflaeche	Wing
	Schnitt	Cut
	Querruder	Aileron
	Schlitz	Slot
	Schnitt	Cut
18	Spinner cap	

Fuselage

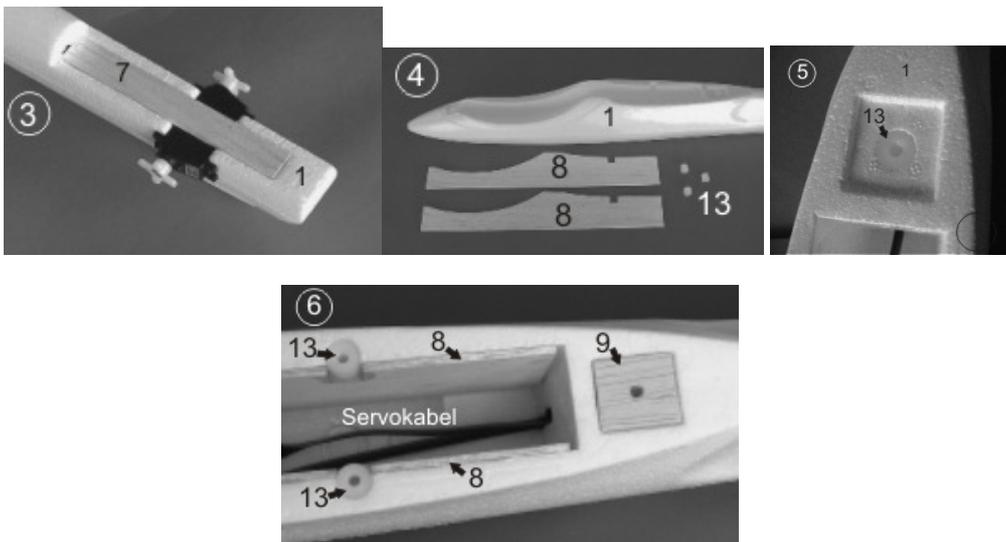
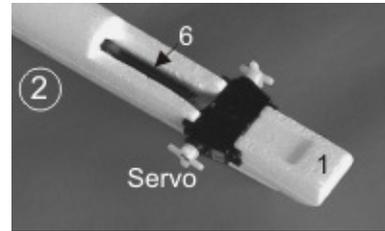
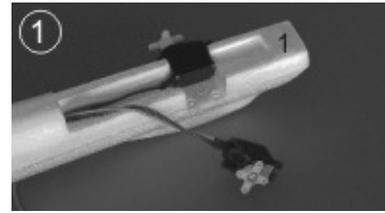
The V-tail servos are mounted at the tail end of the fuselage, and have to be extended to a length of 65 cm to reach the RC system receiver, which is housed under the canopy at the front. Please read the instructions supplied by your RC system and servo manufacturer regarding extension leads, as suppressors may be required.

Test the servos to ensure that they work correctly after they are fitted with the extension leads. Wrap clear tape round the servo leads for a distance of about 8 cm to protect them from the epoxy. Glue the two servos in the tail of the fuselage (1), run the leads through the hole in the fuselage (1) and allow them to hang down (Fig. 1).

The next stage is to epoxy the carbon fibre tube (6) in the fuselage (1) to stiffen and strengthen it.

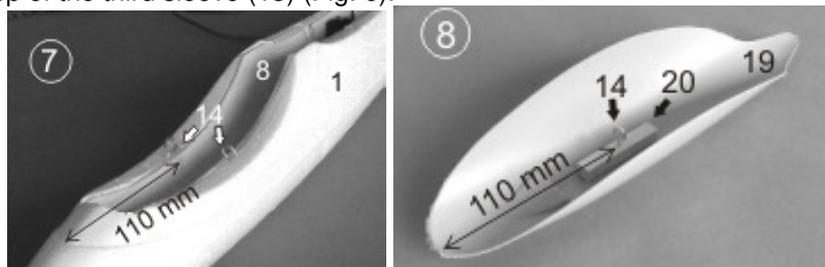
Slip the carbon fibre tube (6) into the fuselage (1) from the canopy end and position it just short of the servos at the tail end; the servo leads should be below the carbon fibre tube (6) (Fig. 2). Glue the balsa plate (7) in the recess at the tail of the fuselage (1) to stiffen it. It should fit over the two servos and the carbon fibre tube (6) (Fig. 3).

Run the servo leads forward into the cabin area (Fig. 6). Seal the underside of the fuselage by gluing the balsa strip (12) in the channel; it should end flush with the outside skin of the fuselage.



Glue the sheet balsa doublers (8) in the front part of the fuselage (1) on both sides of the cockpit recess (Figs. 4 + 6).

Three threaded nylon sleeves (13) have to be glued in the fuselage (1) to accept the wing retaining screws: one on each side of the fuselage (1), where they are attached to the balsa doublers (8), and the third in the circular recess at the rear of the wing saddle (Fig. 5). The balsa reinforcement (9) is then glued on top of the third sleeve (13) (Fig. 6).



The two ring-screws (14) can now be glued between the sides of the fuselage (1) and the balsa doublers (8): press the ring-screws (14) into the fuselage, then enlarge the holes and epoxy the ring-screws securely to parts (1 + 8) (Fig. 7). These ring-screws are used to attach a rubber band (22)

which engages in a third ring-screw in the canopy to hold it in place. Screw the third ring-screw into the balsa reinforcement (2) and epoxy it to the inside of the canopy (19), after roughening the joint surface with glasspaper. The ring-screws (14) should be positioned 110 mm aft of the front edge of the canopy.

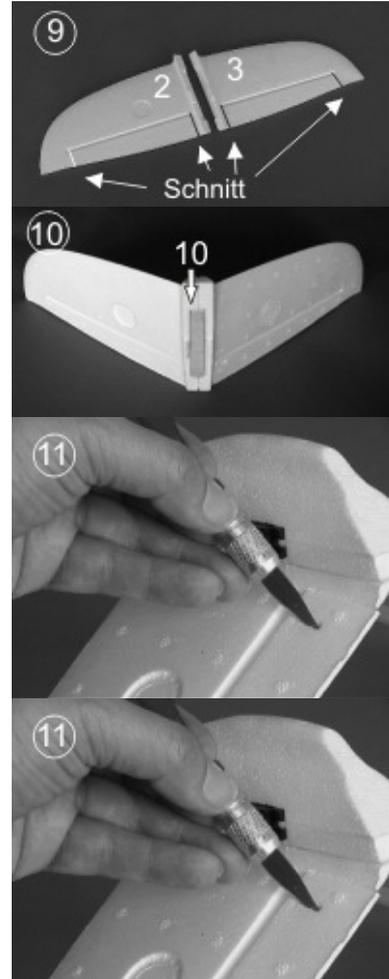
V-tail

The two V-tail panels (2 + 3) feature a channel on the underside. To release the control surfaces cut from both ends of the channel (left and right) to the trailing edge using a sharp knife, (Fig. 9).

The hinges are formed by two or three overlapping strips of adhesive tape, applied along the top surface of the tail panel for the full length of the channel (2 + 3). The tape must extend to a width of 12 mm on the fixed and moving panels.

Epoxy the two V-tail panels (2 + 3) together and glue the balsa stiffener (10) in the recess on the underside (Fig. 10).

The next step is to glue the V-tail assembly to the tail end of the fuselage. Cut a slot in the V-tail control surfaces (2 + 3) to accept the GRP horns (16) (Fig. 11); the horns (16) must be parallel to the servo output arms (Fig. 13). Roughen the joint surface of the horns with glasspaper. Connect the short pushrod (17) to the servo output arm and the GRP horn (16) (Fig. 12), and epoxy the horn in the control surface. Take care to produce strong glued joints.



Wing

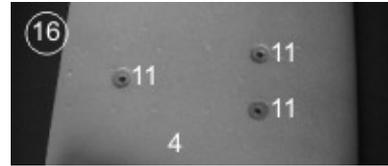
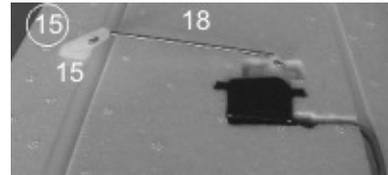
The first step here is to glue the carbon fibre tube (5) in the wing (4) to act as a spar. Sand the tube lightly beforehand to obtain a strong joint, and remove all traces of dust (Fig. 14).

The servo leads must be extended to a length of 45 cm to reach the receiver, which will be installed in the fuselage under the canopy. Check that the servos work correctly once the leads have been extended.

Connect the long pushrod (18) to the top end of the servo output arm; you may need to open up the hole to 1.3 mm Ø, depending on the servo. The servos can now be glued in the moulded-in recesses in the wing.

Connect the horn (15) to the pushrod (18) before gluing the horn in the slot. Sand the joint surfaces of the horn beforehand to obtain a strong joint (Fig. 15).

Caution: take care not to allow epoxy to run between the wing and the aileron, as the channel represents the aileron hinge line, and must be kept free.



The aileron hinge takes the form of two or three overlapping strips of adhesive tape applied to the top of the wing, over the aileron hinge line channel, joining the aileron to the wing. Note that the tape must extend to a width of 12 mm onto the wing and aileron.

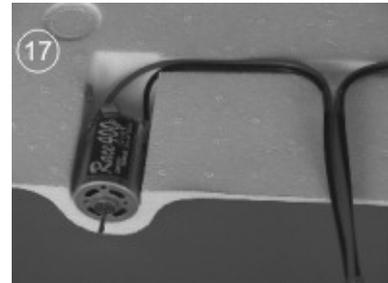
When the glued joints have set hard, release the ailerons from the wing by cutting from both ends of the hinge line channel to the trailing edge of the wing (Fig. 14).

Run the servo leads along the carbon fibre tube (5) to the wing centre, and apply strips of wide adhesive tape over the channels. Epoxy the sheet balsa discs (11) in the recesses in the top surface of the wing (Fig. 16). They act as reinforcements for the wing screws used to secure the wing (4) to the fuselage (1).

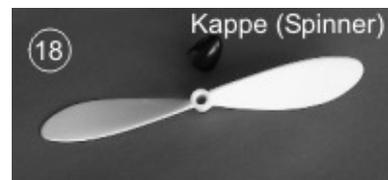
Twinspeedy

The wing of the Twinspeedy features two moulded-in fairings into which the electric motors are glued from the underside. Before installing the motors the power supply leads must be soldered to the terminals. If the motors do not feature factory-fitted suppressors, three ceramic capacitors must be soldered to each motor at this stage:

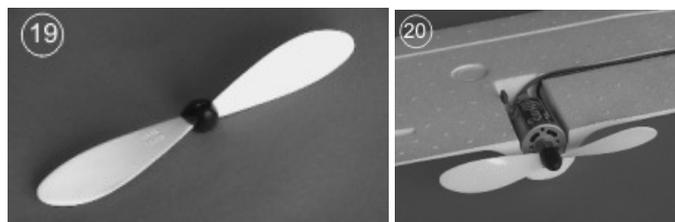
- Between the positive and negative terminals on the motor;
- From the positive motor terminal to the motor can;
- From the negative motor terminal to the motor can.



Lay the motor power cables in the channel and run them to the centre of the wing. Cover the channel with a strip of wide adhesive tape (Fig. 17).



The propeller, Order No. 7249/08, is designed for tractor use as standard and must be converted to pusher orientation. Pull off the spinner cap (Fig. 18), turn the propeller through 180° and push the spinner cap back into place. The inscription should now be on the exposed face (Fig. 19). Press the propellers onto the motor shafts as far as they will go; ensure that the inscribed face now faces the V-tail (Fig. 20).



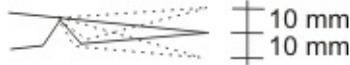
Final assembly

The receiving system and battery are installed in the area under the canopy in the following sequence, working from front to rear:

- Flight battery (Twinspeedy only)
- Speed controller (Twinspeedy only)
- Receiver battery
- Receiver

Run the receiver aerial along the fuselage under the wing and to the V-tail, and fix it to the fuselage with several strips of adhesive tape. Don't run the aerial through the V-tail, as it could become jammed in the control surfaces; instead allow it to trail freely from a point just in front of the tail.

Connect the RC system and speed controller as described in the instructions supplied with these items.



All control surfaces should be set to 10 mm deflections on both sides of neutral (centre).

Centre of Gravity

The model must be balanced correctly if it is to fly properly. The Centre of Gravity (CG) should be at the position of the carbon fibre tube (5) fitted in the underside of the wing. Adjust the position of the system components inside the fuselage until the model balances at the stated point. If this is not possible, ballast must be fitted at the nose or tail as required. To check the CG fix the wing (4) to the fuselage (1) using the nylon screws (21) and support the model at the stated point under the wing roots on two fingertips. When correctly balanced the model will hang level, with the nose slightly down.

Parts list

<u>No.</u>	<u>Part</u>	<u>Material</u>	<u>No. off</u>	<u>Size</u>
1	Fuselage	High-density foam	1	Ready made
2	V-tail panel, right	High-density foam	1	Ready made
3	V-tail panel, left	High-density foam	1	Ready made
4	Wing	High-density foam	1	Ready made
5	Wing spar	Carbon fibre tube	1	748 x 4.9 Ø mm
6	Fuselage stiffener	Carbon fibre tube	1	465 x 4.9 Ø mm
7	Fuselage stiffener	Balsa	1	110 x 15 x 2.5 mm
8	Fuselage doubler	Balsa	2	327 x 55 x 2.5 mm
9	Fuselage reinforcement	Balsa	1	25 x 22 x 2.5 mm
10	V-tail stiffener	Balsa	1	80 x 10 x 2.5 mm
11	Wing screw reinforcement	Balsa	3	12 Ø x 2.5 mm
12	Fuselage sealing strip	Balsa strip	1	415 x 5 x 5 mm
13	Threaded sleeve	Nylon	3	M4 Order No. 7329/64
14	Ring-screw	Metal	3	Order No. 7800/00
15	Control surface horn	Plastic	2	Order No. 7491/01
16	Control surface horn	GRP	2	Order No. 7491/11
17	Short pushrod	Steel rod	2	Ready made, 45 mm
18	Long pushrod	Mild steel rod	2	Ready made, 81 mm
19	Canopy	Plastic	1	Ready made
20	Reinforcement	Balsa	1	10 x 10 x 30 mm
21	Screw	Nylon	3	M4 Order No. 7769/04
22	Rubber band	Rubber	1	Order No.
23	Decal sheet	Self-adhesive film	1	
24	Instructions		1	
25	Abrasive paper		1	

