

vorgesehen für den MULTIPLEX
Brushless-Antrieb # 33 2653

Designed for the MULTIPLEX
brushless power set # 33 2653



MERLIN

BK / KIT Merlin # 21 4237

MULTIPLEX[®]

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D Sicherheitshinweise

Prüfen Sie vor jedem Start den festen Sitz des Motors und der Luftschraube - insbesondere nach dem Transport, härteren Landungen sowie Abstürzen. Prüfen Sie ebenfalls vor jedem Start den festen Sitz und die richtige Position der Tragflächen auf dem Rumpf.

Akku erst einstecken, wenn Ihr Sender eingeschaltet ist und Sie sicher sind, daß das Bedienelement für die Motorsteuerung auf "AUS" steht.

Im startbereiten Zustand nicht in den Bereich der Luftschraube greifen.
Vorsicht in der Luftschraubendrehebene - auch Zuschauer zur Seite bitten!

Zwischen den Flügeln die Motortemperatur durch vorsichtige Fingerprobe prüfen und vor einem Neustart den Motor ausreichend abkühlen lassen. Die Temperatur ist richtig, wenn Sie den Motor problemlos berühren können. Insbesondere bei hohen Außentemperaturen kann dieses bis zu 15 Minuten dauern.

Denken Sie immer daran: Niemals auf Personen und Tiere zufliegen.

F Conseils de sécurité

Avant chaque décollage, vérifiez la fixation du moteur et de l'hélice, notamment après le transport, après les atterrissages violents et après un "Crash". Vérifiez également, avant chaque décollage la fixation ainsi que le positionnement de l'aile par rapport au fuselage.

Ne branchez l'accu de propulsion que si vous êtes sûr que votre émetteur est allumé et que l'élément de commande moteur est en position "ARRÊT".

Ne mettez pas vos doigts dans l'hélice! Attention à la mise en marche, demandez également aux spectateurs de reculer.

Entre deux vols, vérifiez en posant un doigt dessus, la température du moteur, laissezle refroidir suffisamment avant le prochain décollage. La température est correcte si vous pouvez maintenir votre doigt ou votre main sur le moteur. Le temps de refroidissement peut varier jusqu'à 15 minutes s'il fait particulièrement chaud.

Pensez-y toujours: ne volez jamais vers ou au-dessus des personnes ou des animaux.

GB Safety notes

Before every flight check that the motor and propeller are in place and secure - especially after transporting the model, and after hard landings and crashes. Check also that the wing is correctly located and firmly secured on the fuselage before each flight.

Don't plug in the battery until you have switched on the transmitter, and you are sure that the motor control on the transmitter is set to "OFF".

When the model is switched on, ready to fly, take care not to touch the propeller. Keep well clear of the propeller disc too, and ask spectators to stay back.

Allow the motor to cool down after each flight. You can check this by carefully touching the motor case with your finger. The temperature is correct when you can hold your finger on the case without any problem. On hot days this may take up to 15 minutes.

Please keep in mind at all times: don't fly towards people or animals.

I Note di sicurezza

Prima di ogni decollo controllare che il motore e la eliche siano fissati stabilmente - specialmente dopo il trasporto, atterraggi duri e se il modello è precipitato. Controllare prima del decollo anche il fissaggio e la posizione corretta delle ali sulla fusoliera.

Collegare la batteria solo quando la radio è inserita ed il comando del motore è sicuramente in posizione "SPENTO".

Prima del decollo non avvicinarsi al campo di rotazione della eliche. Attenzione alla eliche in movimento - pregare che eventuali spettatori si portino alla dovuta distanza di sicurezza!

Tra un volo e l'altro controllare cautamente con le dita la temperatura del motore e farli raffreddare sufficientemente prima di ogni nuovo decollo. La temperatura è giusta se si possono toccare senza problemi. Specialmente con una temperatura esterna alta questo può durare fino a 15 minuti.

Fare attenzione: Non volare mai nella direzione di persone ed animali.

E Advertencias de seguridad

Compruebe antes de cada despegue que el motor y la hélice estén fuertemente sujetados, sobretodo después de haberlo transportado, de aterrizajes más fuertes así como después de una caída. Compruebe igualmente antes de cada despegue que las alas estén bien sujetas y bien colocadas en el fuselaje.

Conectar la batería, cuando la emisora esté encendida y Usted esté seguro que el elemento de mando para el motor esté en "OFF".

No meter la mano en la zona inmediata a la hélice cuando el avión esté a punto de despegar. ¡Cuidado con la zona de la hélice! ¡Pedir a los espectadores que se aparten!

Entre los vuelos hay que comprobar cuidadosamente la temperatura del motor con el dedo y dejar que el motor se enfríe antes de volver a despegar. La temperatura es correcta, si puede tocar el motor sin problemas. Sobretodo en el caso de temperaturas del ambiente muy altas, esto puede tardar unos 15 minutos.

Recuerde: No volar nunca hacia personas o animales.

Examine your kit carefully!

MULTIPLEX model kits are subject to constant quality checks throughout the production process, and we sincerely hope that you are completely satisfied with the contents of your kit. However, we would ask you to check all the parts **before** you start construction, referring to the Parts List, as **we cannot exchange components which you have already modified**. If you find any part is not acceptable for any reason, we will readily correct or exchange it once we have examined the faulty component. Just send the offending part to our Model Department. Please be **sure** to include the purchase receipt and the enclosed **complaint form, duly completed**.

We are constantly working on improving our models, and for this reason we must reserve the right to change the kit contents in terms of shape or dimensions of parts, technology, materials and fittings, without prior notification. Please understand that we cannot entertain claims against us if the kit contents do not agree in every respect with the instructions and the illustrations.

Caution!

Radio-controlled models, and especially model aircraft, are by no means playthings in the usual sense of the term. Building and operating them safely requires a certain level of technical competence and manual skill, together with discipline and a responsible attitude at the flying field. Errors and carelessness in building and flying the model can result in serious personal injury and damage to property. Since we, as manufacturers, have no control over the construction, maintenance and operation of our products, we are obliged to take this opportunity to point out these hazards and to emphasise your personal responsibility.

Additional items kit required for the “Merlin”:

MULTIPLEX receiving system components for the Merlin

	<i>RX-6-SYNTH IPD</i> receiver	35 MHz A+B band	Order No. 5 5876
	alternatively:	40 / 41 MHz band	Order No. 5 5877
or	<i>RX-7-DR light M-Link</i> receiver	2.4 GHz	Order No. 5 5810
	<i>Nano S servo</i>	4 x required (2 x ailerons, elevator, rudder)	Order No. 6 5120

Battery charger:

	MULTIcharger LN-3008 EQU	Order No. 9 2540
	for LiPo, Lilo and LiFe batteries (2S / 3S) and NiMH and NiCd batteries (four to eight cells)	

Merlin Tuning power set:

	Contents:	Order No. 33 2653
	Himax 2212-1180 motor, BL-20 S-BEC speed controller, 7 x 4" and 8 x 5" folding propellers, taper collet, driver and 33 mm Ø spinner	

Merlin Tuning power set, Li-Batt powered:

	Contents:	Order No. 33 3653
	As above, plus 1 x Li-Batt BX 3/1-450 (M6)	

Flight battery:	Li-Batt BX 3/1-450 (M6)	Order No. 15 7104
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Receiver battery for glider version	4 AAA / Micro cells, W-format	Not in MPX range
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Tools:

Pliers, side-cutters, screwdriver, scissors, balsa knife.

Note: please remove the illustration pages from the centre of the instructions.

Specification:

Wingspan:	783 mm
Overall length:	598 mm
All-up weight, glider, min. approx.:	265 g
All-up weight, electric, min. approx.:	325 g
Total surface area:	11.3 dm ²
Wing loading, min.:	23 g/dm ² glider, 29 g/dm ² electric
RC functions:	Aileron, elevator, rudder, motor

Like any other aircraft, this model has static limits! Steep dives and silly, imprudent manoeuvres may cause structural failure and the loss of the model. Please note: damage caused by incompetent flying is obvious to us, and we are not prepared to replace components damaged in this way. It is always best to fly gently at first, and to work gradually towards the model's limits. The aircraft is designed to cope with our 'Tuning' (upgrade) power system, but is only capable of withstanding the flight loads if it is built exactly as specified, and is in perfect structural order (i.e. not damaged). Further upgrade measures are possible, but should only be attempted if you have plenty of experience in this field, as additional structural reinforcements will be required.

Important note

This model is not made of styrofoam™, and it is not possible to glue the material using white glue, polyurethane or epoxy; these adhesives only produce a superficial bond which gives way when stressed. For most joints use medium-viscosity cyano-acrylate glue, preferably our Zacki-ELAPOR®, # 59 2727 - the cyano glue optimised specifically for ELAPOR® particle foam. At some points the extremely low-viscosity (thin) type, Zacki ELAPOR super liquid, # 59 2728, is required. If you use Zacki-ELAPOR® you will find that you do not need cyano 'kicker' or activator for most joints. However, if you wish to use a different adhesive, and are therefore obliged to use kicker / activator spray, we recommend that you apply the material in the open air as it can be injurious to health.

1. Before assembling the model

Please check the contents of your kit before you start working on it.

You will find **Figs. 1 + 2** and the Parts List helpful here.

Please do not throw away the EPS packaging carrier (speckled white), as it is the ideal support for transporting the finished model, and is required for use with the transport bag, # 76 3316. If you want to fit the completed electric version of the model in the packaging carrier, always fix the propeller with a rubber band, otherwise it may be damaged.

2. Preparation

2.1 Preliminary assembly of the servo assemblies "AQR", "AQL", "AS" and "AH",

Fig. 3

Cut down the servo output arms (with 1 mm Ø linkage holes) to the shapes shown in **Fig. 3**, then fit the output arms on the servos as shown in the drawing, after setting the servos to neutral from the transmitter - don't forget to centre the trims! The aileron pushrods are later connected to the second hole from centre (lever length approx. 10 mm) of the servo output arms.

The rudder and elevator pushrods are later connected to the first hole from centre (lever length approx. 8 mm) of the servo output arms.

Clip the rudder and elevator servos into the servo frames **44**.

We have assigned capital letters to these preliminary steps: the aileron servo assemblies are termed "**AQ**"-"**R**"ight and "**L**"eft; the rudder servo assembly is termed "**AS**", and that for the elevator "**AH**".

Before installing the servos please check that the servo output arms do not foul any part of the model. You may need to trim away a little foam around the output arms, or cut back the arms themselves, to provide proper clearance.

2.2 Preliminary assembly of the control surface horn assemblies "RA", Fig. 4

Fit the socket-head grub screws **24** in the three twin pushrod connector barrels **23**. The swivel barrels are then pushed into the control surface horns **22** until they snap into place.

2.3 Preliminary assembly of the elevator crank mechanism "HM", Fig. 5

Mount the swivel pushrod connector **25** on the elevator crank **54** using the nut **27** and the washer **26**, taking care to fit the parts the right way round. Lightly tighten the nut with your fingers (the pushrod connector must be free to rotate), then apply a drop of

glue to the outside of the nut to prevent it working loose. Fit the socket-head grub screw **24** in the pushrod connector, then place the prepared crank **54** in the bearing housing **50**. Close the housing by fitting the cover **51** using the screws **30**. Check that the system works smoothly, and make any adjustments required.

2.4 Preliminary assembly of the two fuselage nose-cones: "Glider" and "Power-glider".

2.4.1 Glider: preliminary assembly of the glider nose-cone unit "S", Fig. 6

Fix the fuselage nose-cone **43** to the fuselage nose fairing / motor bulkhead **42** using the two screws **37**.

2.4.2 Power-glider: preliminary assembly of the power unit "AE", Figs. 7 + 8

This description covers the optional power set, # 33 2653 (this set is the perfect match for the Merlin, as everything harmonises correctly. The power unit is supplied with two different propellers: with the smaller prop the motor operates at optimum efficiency, thereby providing maximum flying times. With the larger prop the motor is operating close to its performance limit, and with a good flight battery (e.g.# 15 7104) the model then has vertical climb capability):

Screw the motor to the fuselage fairing / motor bulkhead **42** using the four screws supplied with the power set. Fit the propeller driver as shown in the drawing. Ensure that there is 1 mm clearance between the motor bulkhead and the propeller driver when the parts are in place; check that the driver does not foul the screw-heads.

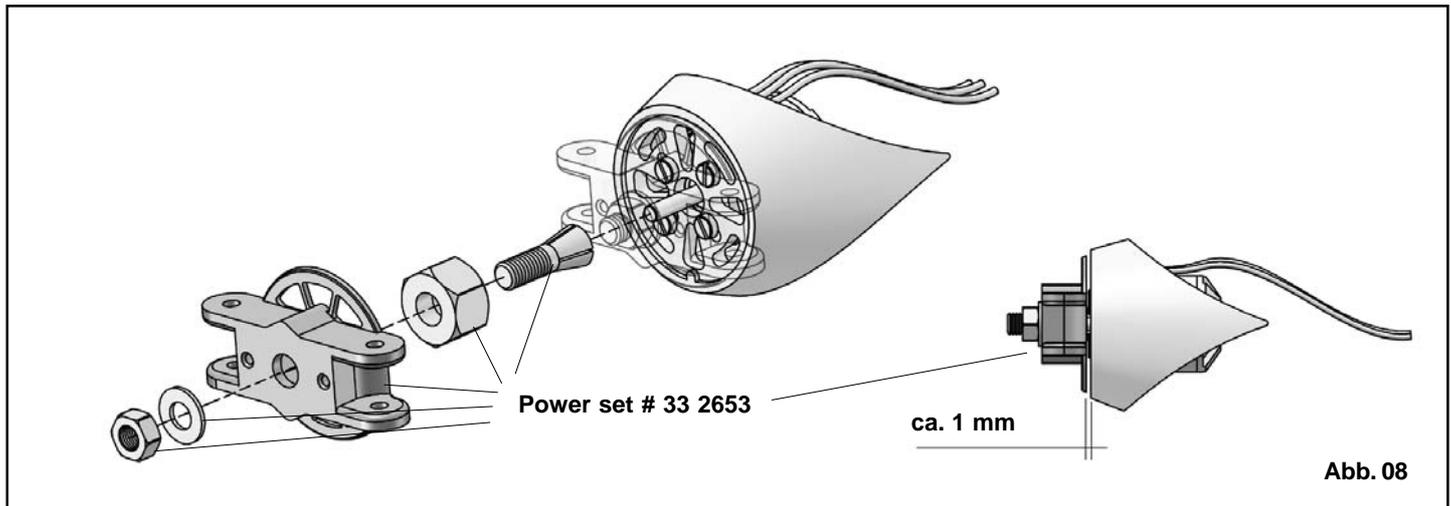
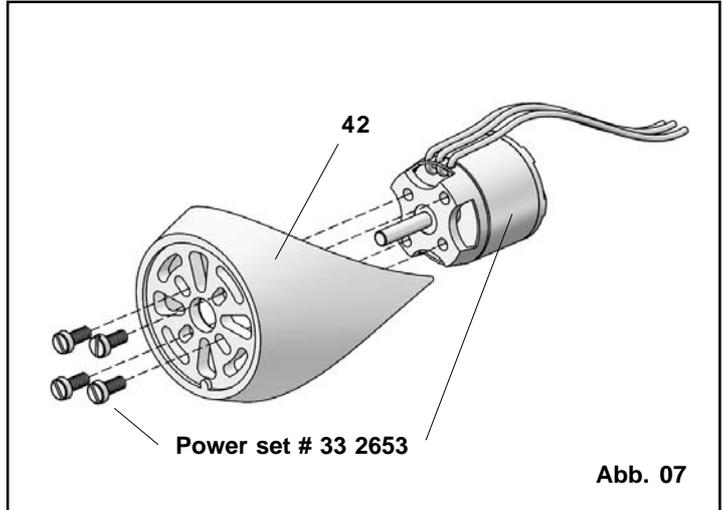
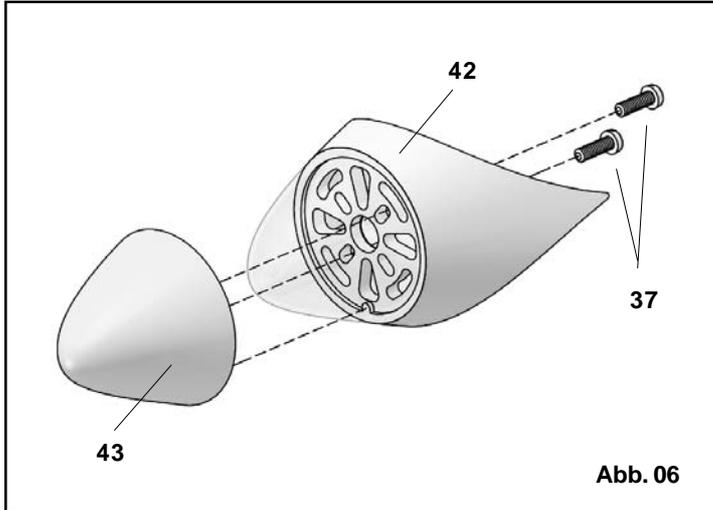
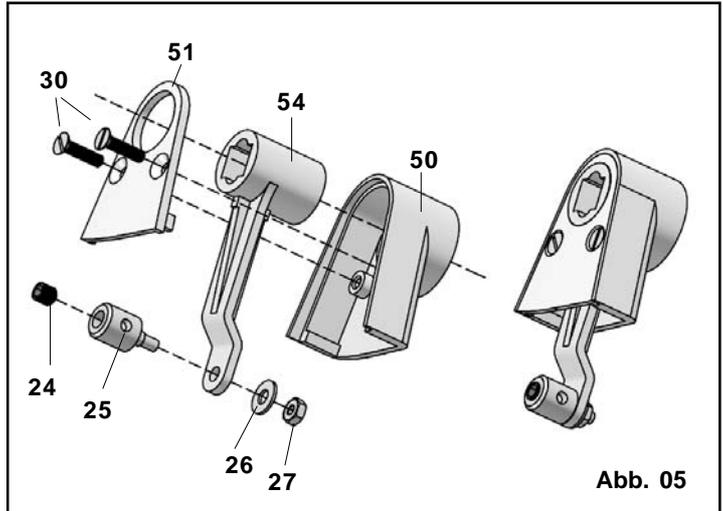
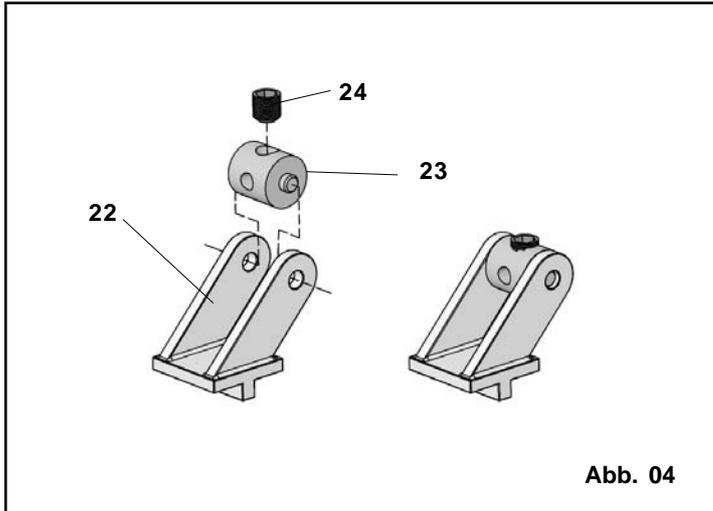
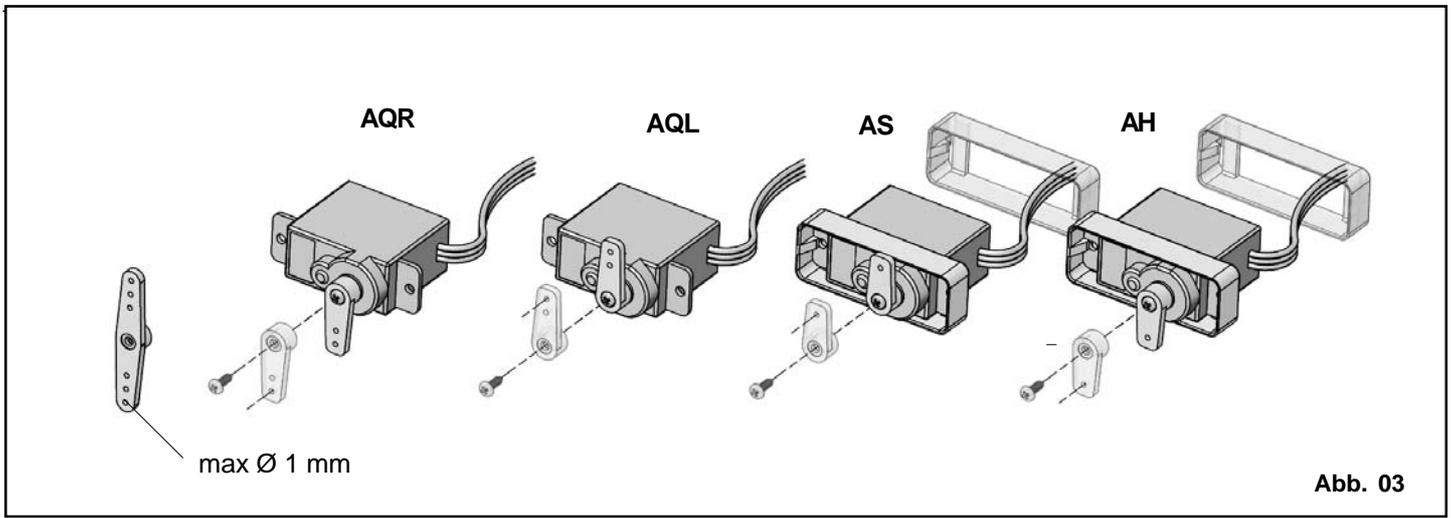
3. Completing the fuselage

3.1 Completing the "outside" of the right-hand fuselage shell, Fig. 9

Lay the right-hand fuselage shell **4** "**flat**" on your working surface (table). Cut the fuselage longeron **69** to a length of 510 mm, and glue it in the external channel in the fuselage shell, taking care to secure it along its full length. Use a cloth to wipe off excess adhesive immediately.

Caution: it is essential that the fuselage shells lie flat (straight) on the bench surface when the longerons are fitted, as you will not be able to correct any error subsequently! This is the stage at which you produce either a straight or a bent fuselage. Don't blame the foam parts if the fuselage ends up crooked!

Cut the aerial sleeve **67** to a length of 320 mm and glue it in the fuselage shell. Note: install the sleeve even if you are installing a 2.4 GHz system, as it stiffens the fuselage!



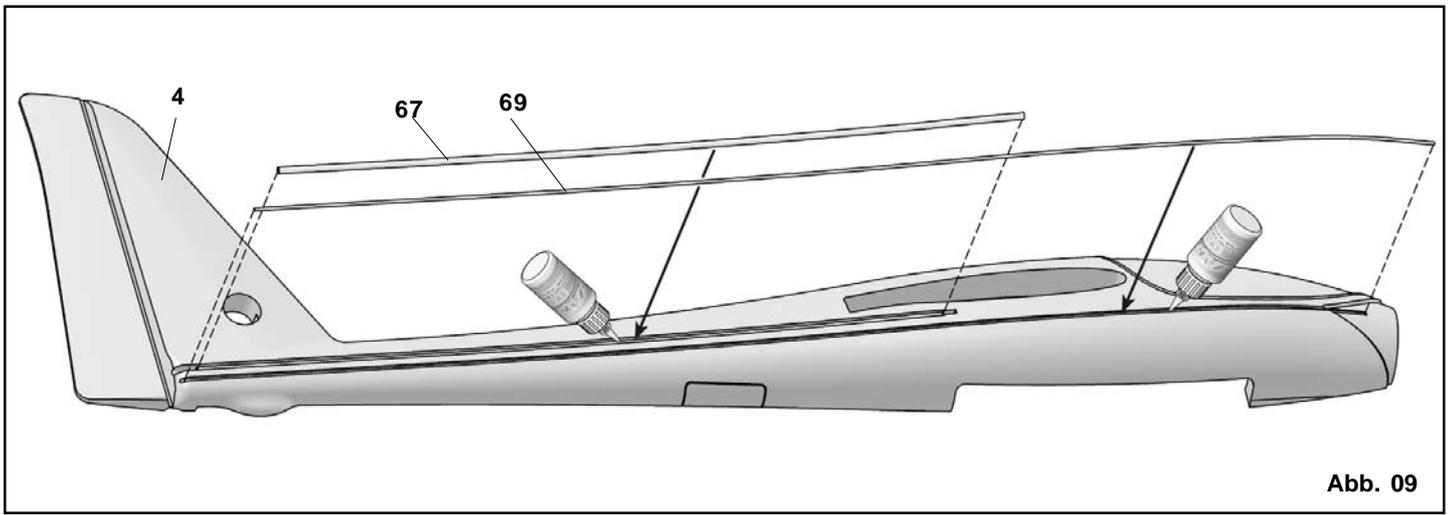


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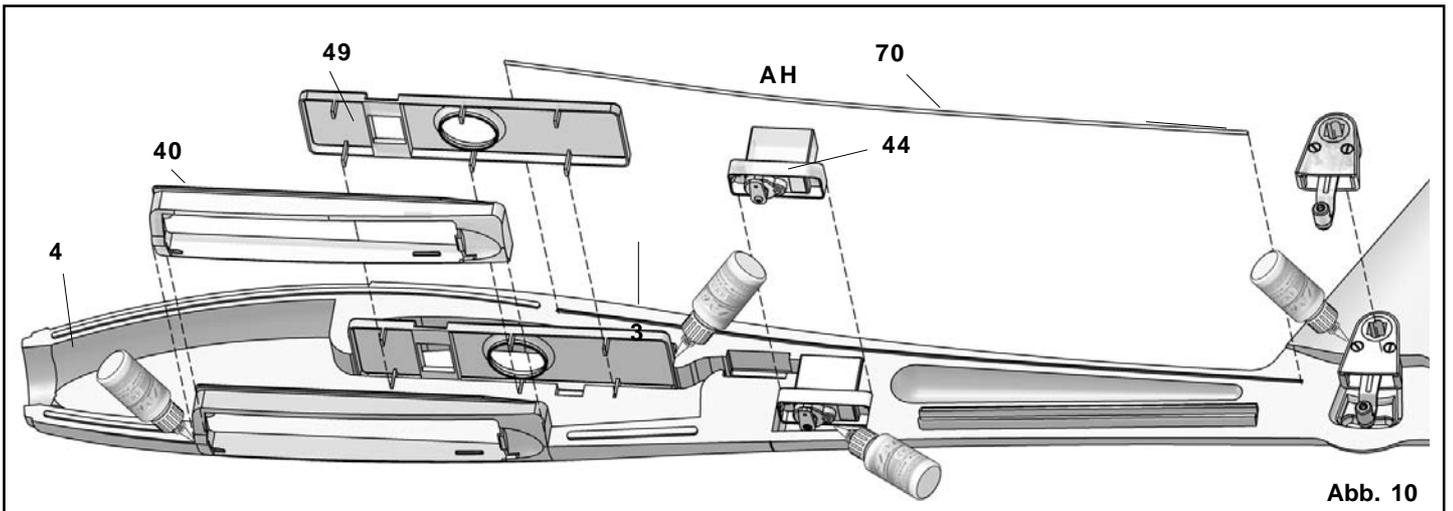


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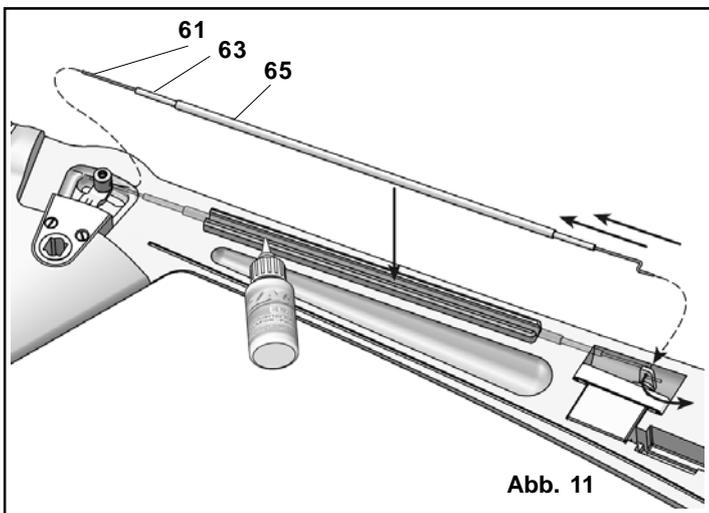


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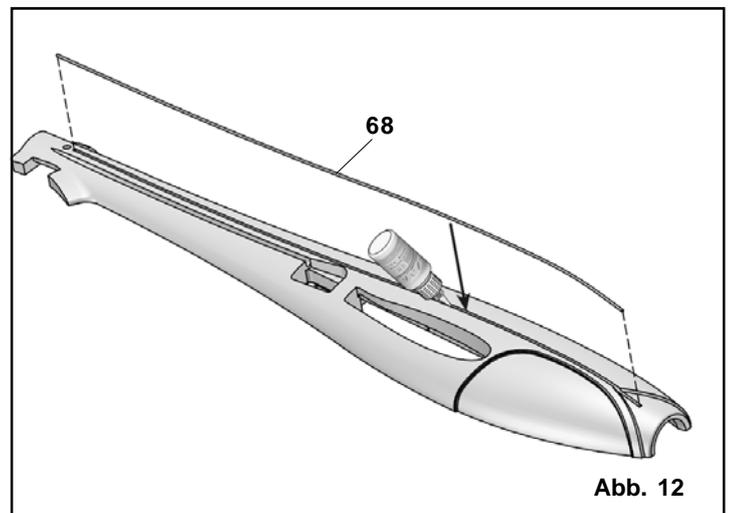


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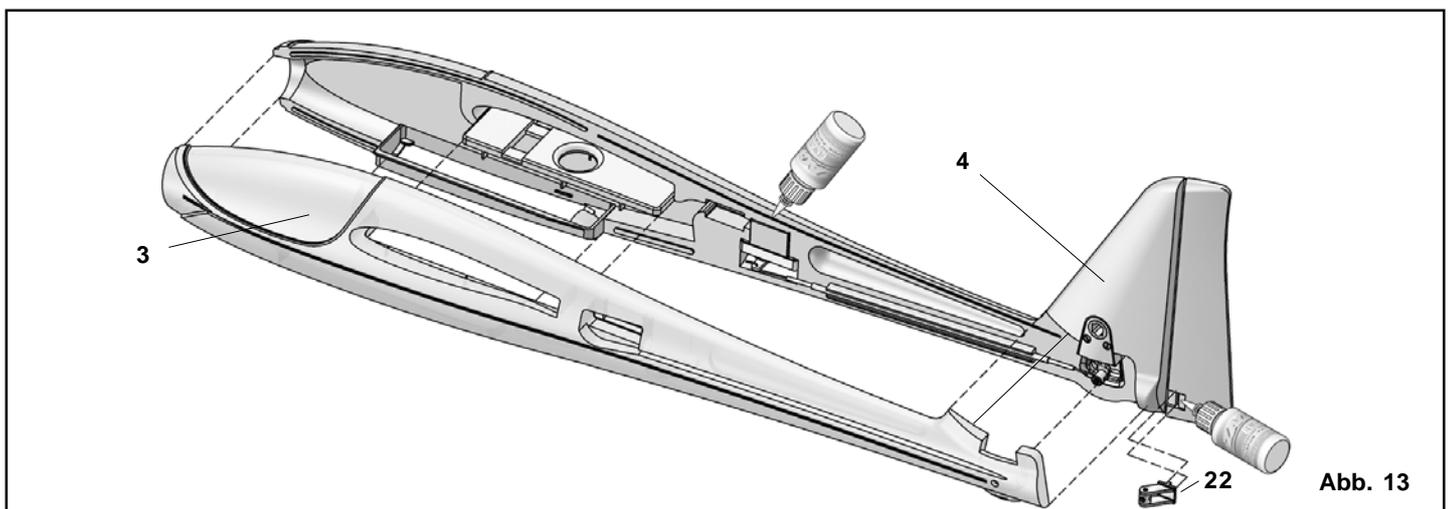
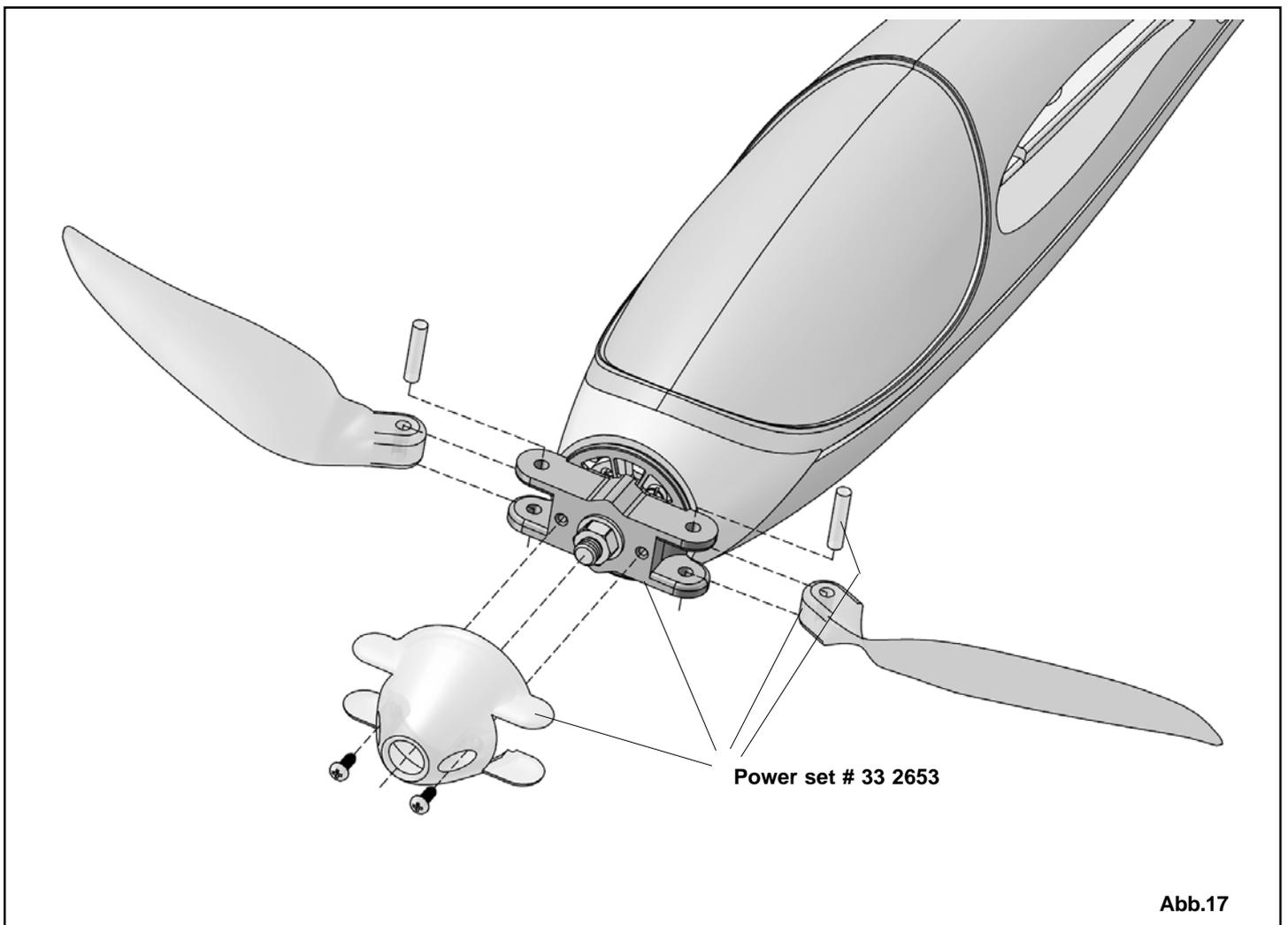
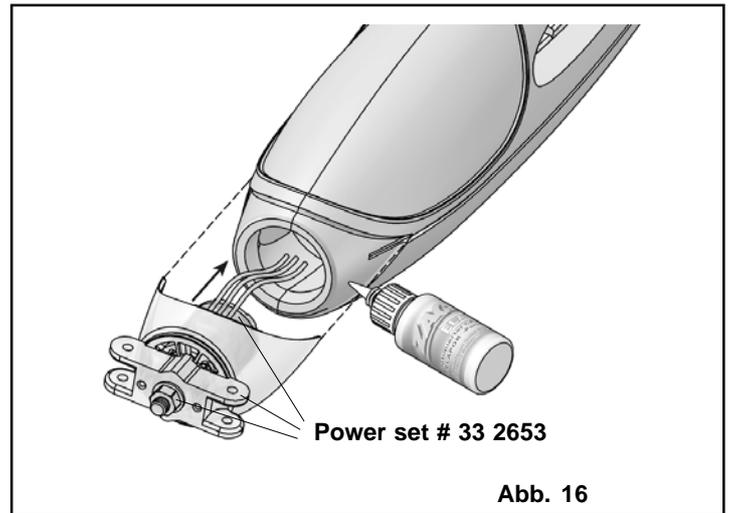
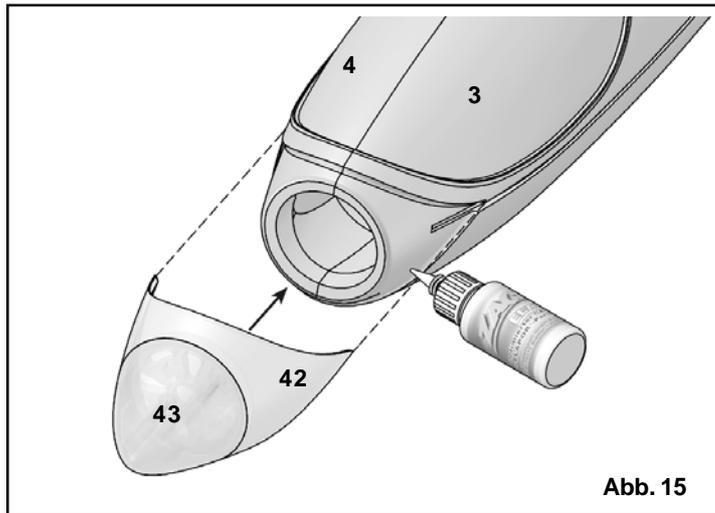
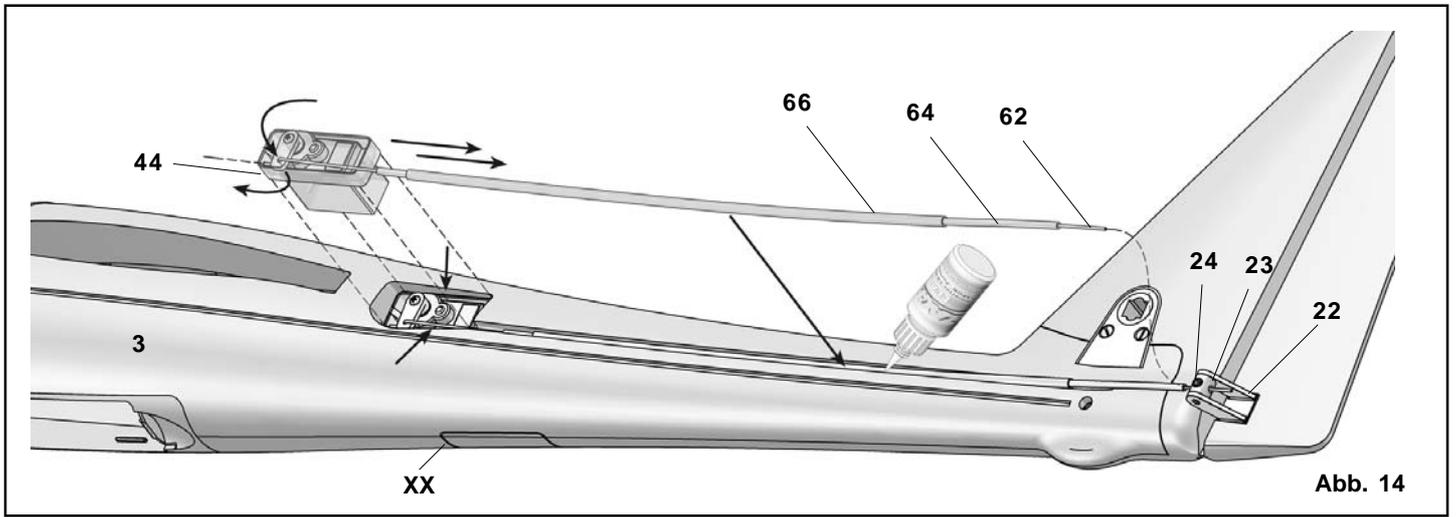


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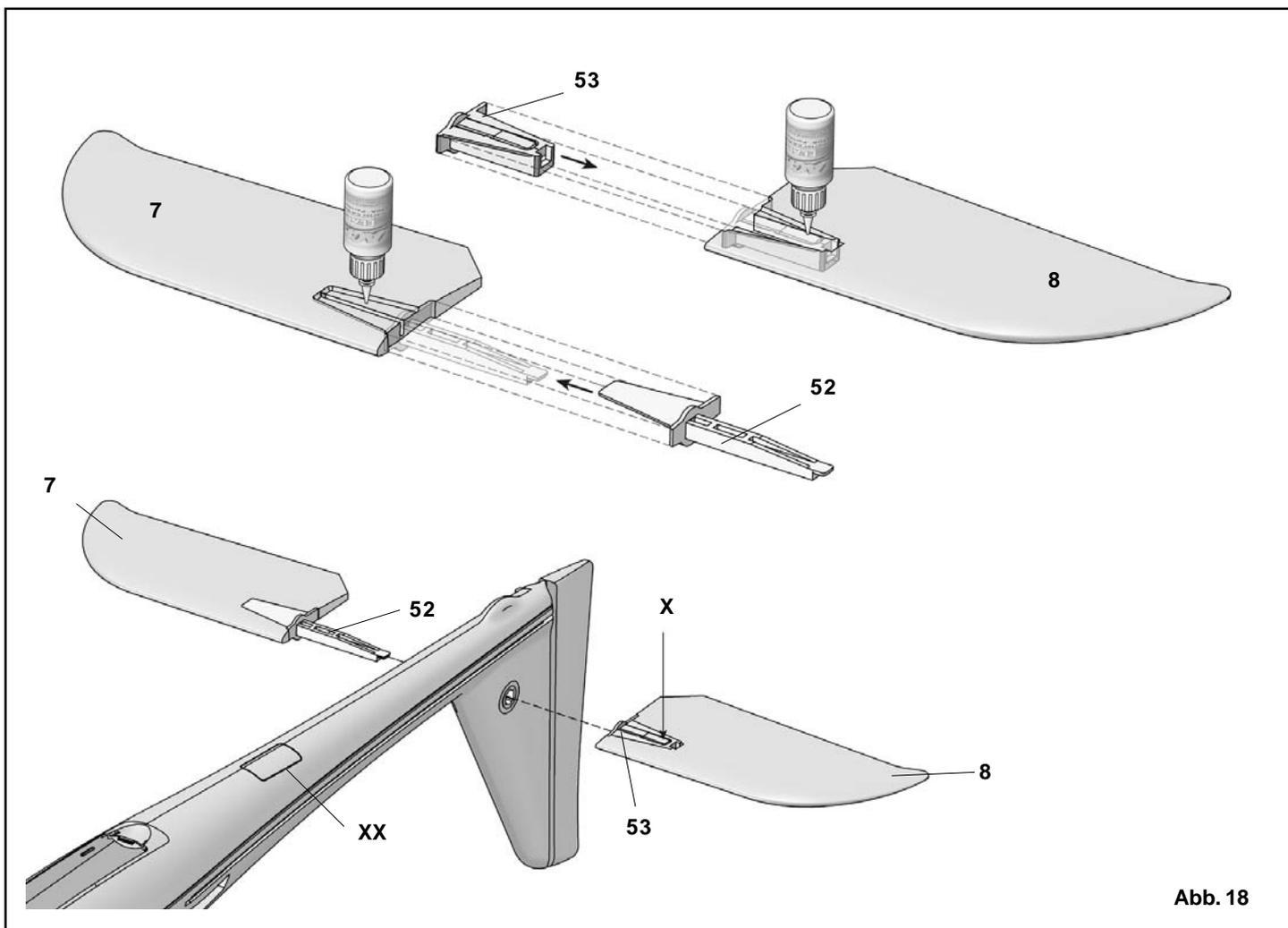


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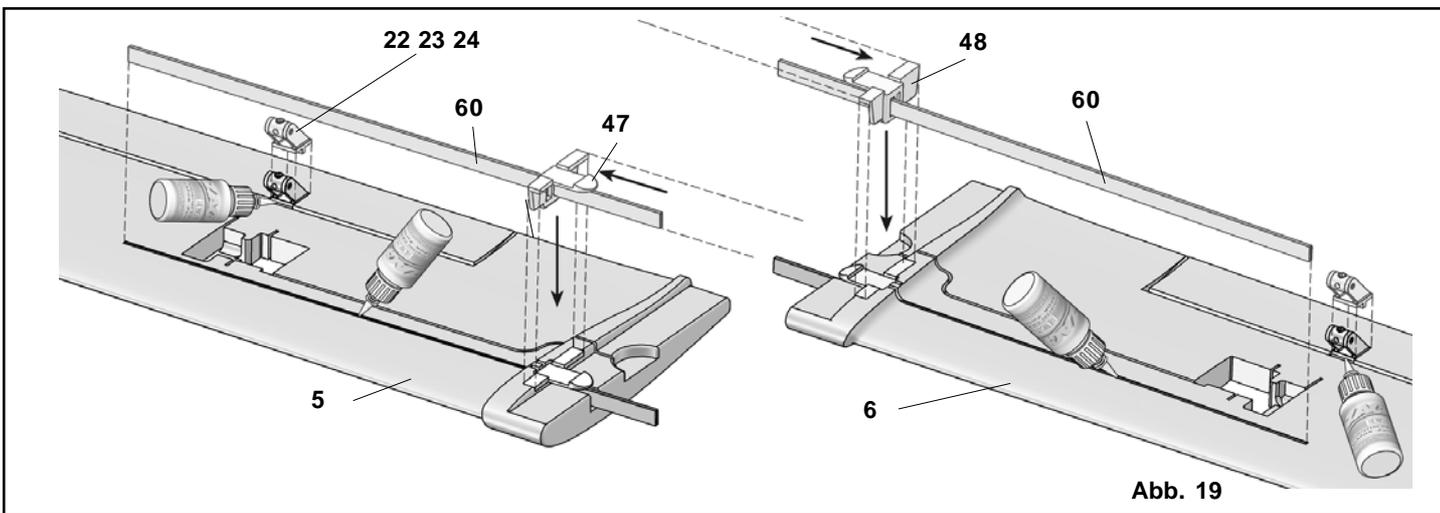


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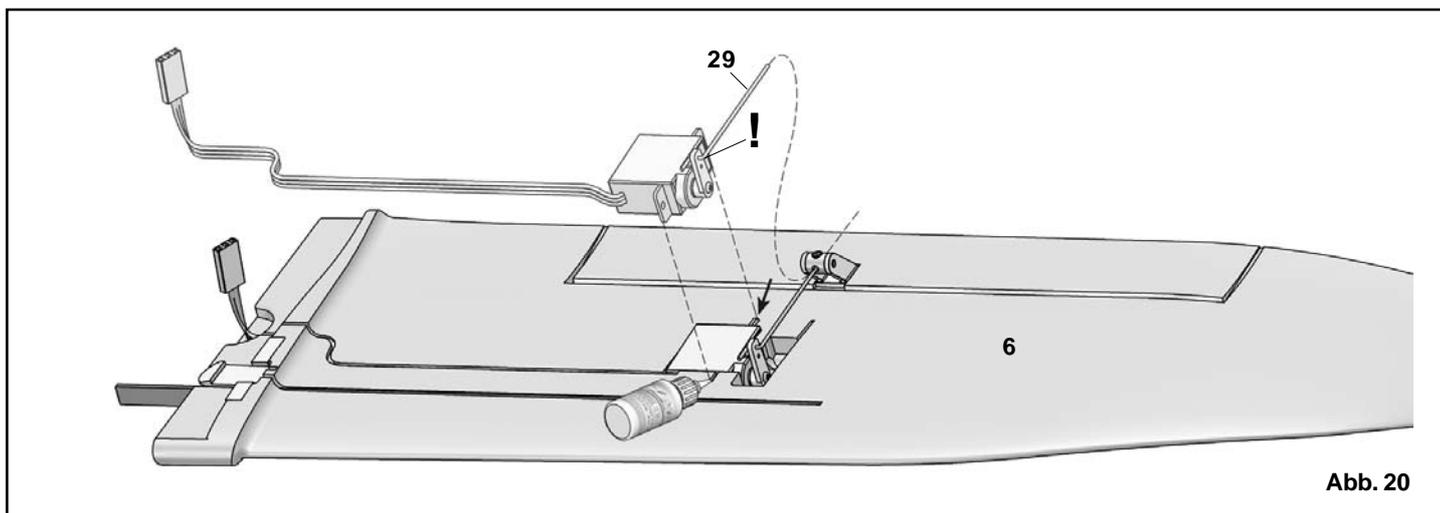
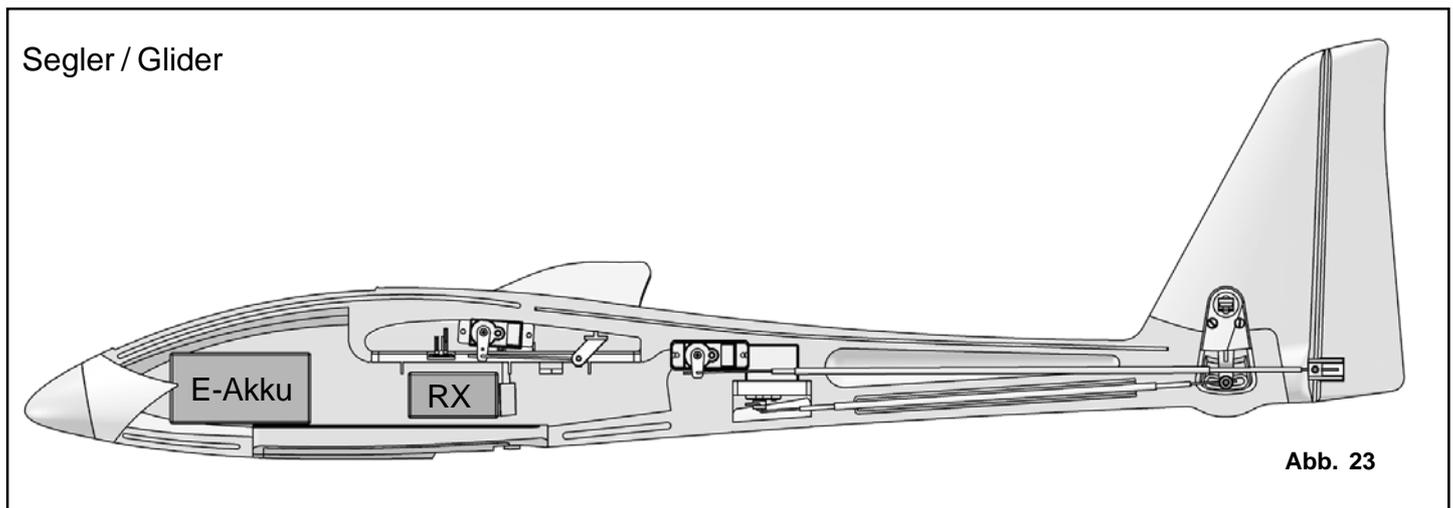
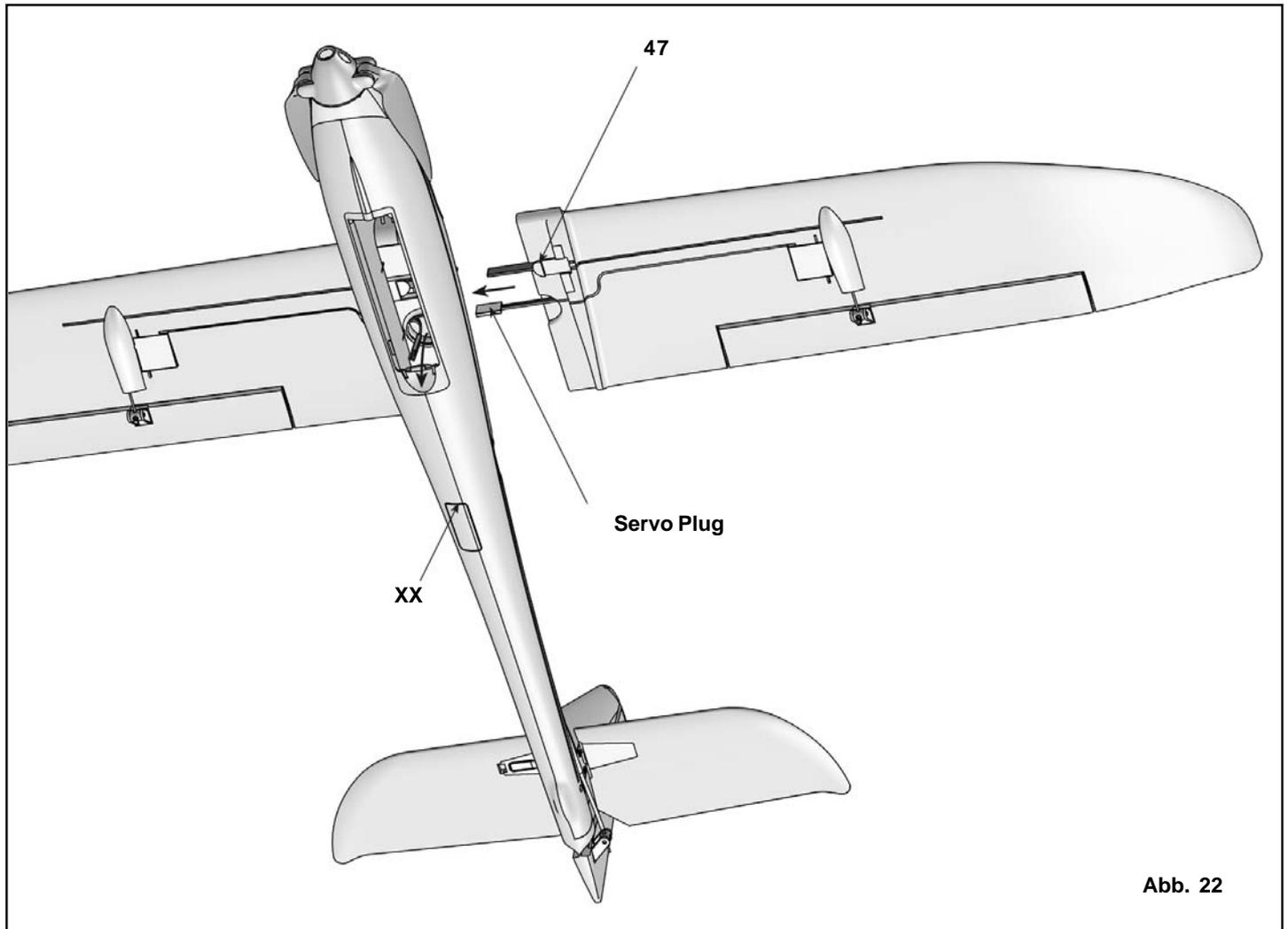
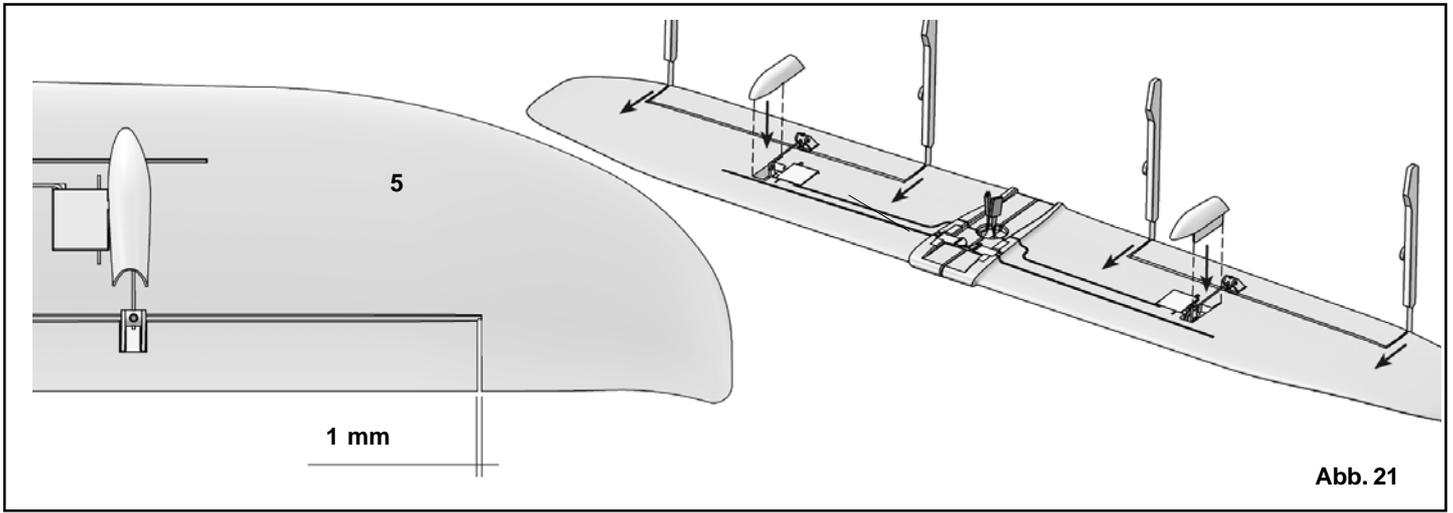


Abb. 20



E-Segler / E-Glider

Motor

ESC

Akku

RX

ca. 1 mm

Abb. 24

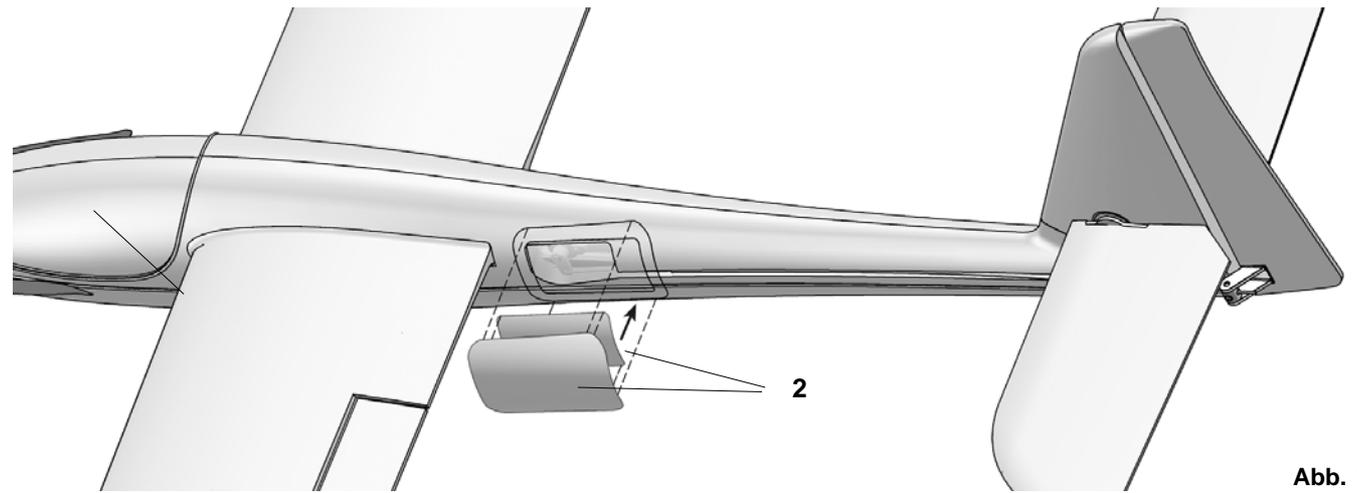


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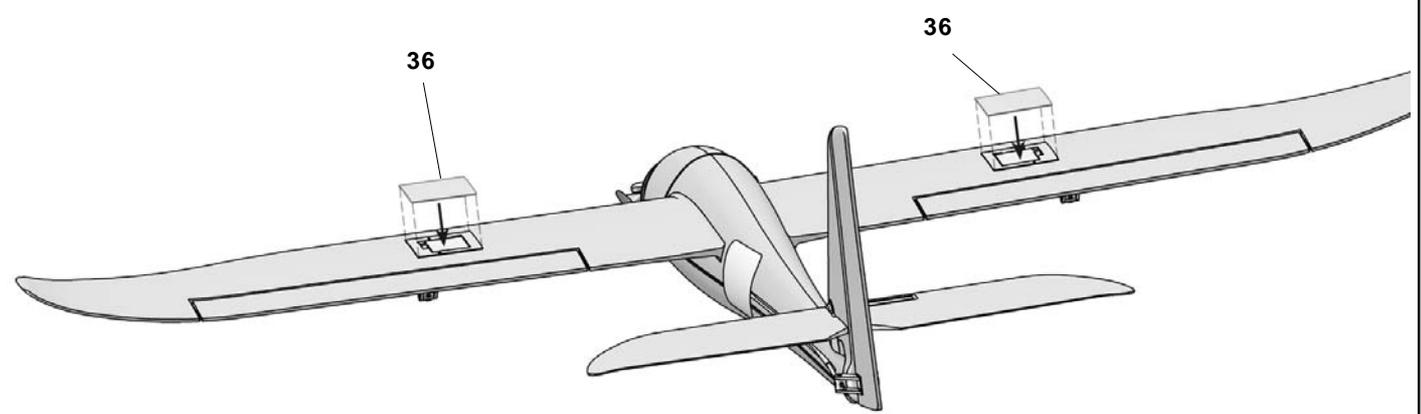
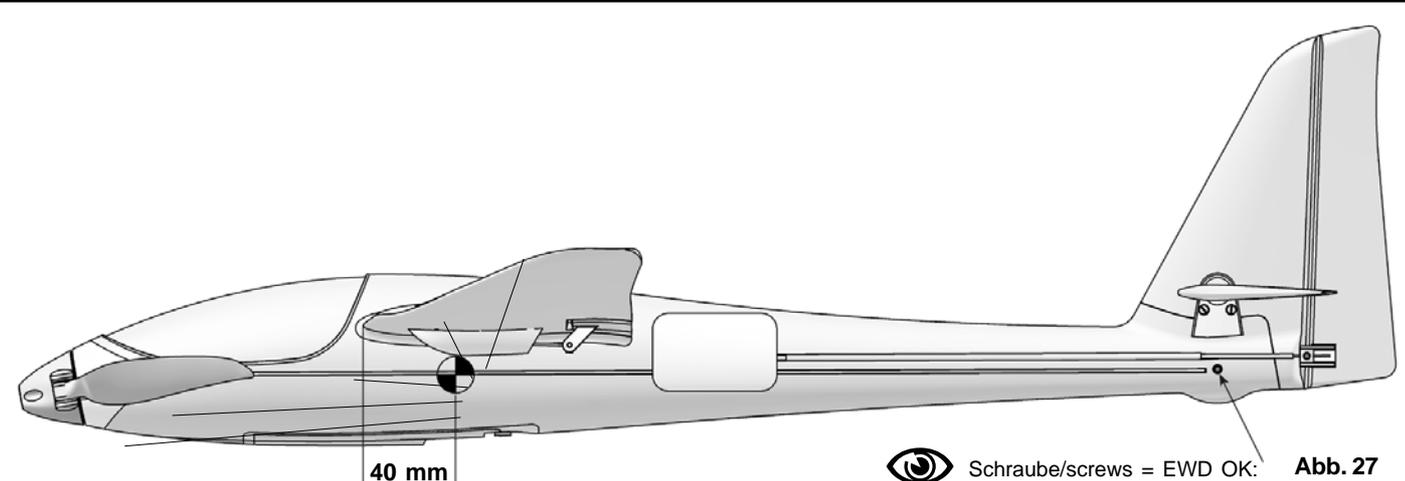


Abb. 26



Schraube/screws = EWD OK:

Abb. 27

3.2 Completing the “inside” of the right-hand fuselage shell, Fig. 10

Turn the fuselage shell over, cut the longeron **70** to a length of 276 mm and glue it in place. Now glue the wing retainer plate **49** and the fuselage hatch frame **40** in the right-hand fuselage side, and align everything very carefully.

Ensure in particular that the wing retainer plate is correctly positioned, otherwise it will not be possible to insert the wing panels later. The best method of checking the position of the wing retainer plate before gluing it to the fuselage shell is to slide the right-hand wing panel into place temporarily.

The prepared elevator servo assembly **AH** can now be glued in place: apply the adhesive to the long side of the servo frame **44** only. Deploy the servo lead towards the nose, and temporarily secure it with adhesive tape. Finally glue the prepared elevator mechanism **HM** to the fuselage shell.

3.3 Installing the elevator pushrod, Fig. 11 (see also Fig. 22)

Cut down the snake inner sleeve **63** to a length of 170 mm, and the outer sleeve **65** to 140 mm. Slip the inner and outer sleeves over the steel elevator pushrod **61**. Set the servo output arm to neutral from the transmitter, and connect the pre-formed end of the steel pushrod to the innermost hole (lever length approx. 8 mm) of the servo output arm, working from the outside. Slip the opposite end of the steel pushrod through the swivel pushrod connector **25** mounted on the elevator mechanism **HM**, and temporarily tighten the grub screw **24** at the neutral position. The outer sleeve can now be glued permanently in the channel in the fuselage.

3.4 Completing the “outside” of the left-hand fuselage shell, Fig. 12

Lay the left-hand fuselage shell **3** “flat” on your working surface (table). Cut the fuselage longeron **68** to a length of 470 mm, and glue it carefully in the fuselage shell, following the same procedure as described in Step 3.1.

3.5 Joining the fuselage shells, Fig. 13

Offer up the two fuselage shells “dry” (no glue), and check that they fit together neatly; it is a good idea to insert the left-hand wing panel to check alignment. When you are confident that everything fits snugly, glue the two fuselage shells together.

You will undoubtedly have noticed that the elevator servo is now “locked in”. Normally you will never again need access to the servo, but if it should develop a fault you can “get at it” by cutting open the fuselage at the point marked **XX**. Once you have replaced the servo, the new “hatch” can be fixed in place again with a few drops of cyano.

Apply glue to the joint surfaces, place the fuselage shells together and align them accurately, working smoothly and rapidly. Check that the fuselage is straight (i.e. neither bent nor twisted). Insert the tailplane and the wing panels to check alignment. If necessary, you will find that the position of the fuselage shells can be adjusted slightly for a brief period after joining, as the cyano adhesive takes a few minutes to cure completely.

Glue the twin rudder horn (RA) **22** in place after completing this stage.

3.6 Installing the rudder linkage, Fig. 14 (see also Fig. 25)

Glue the prepared rudder servo assembly **AS** in the fuselage, applying the adhesive to the long sides of the servo frame **44** only. Deploy the servo lead towards the receiver compartment, and temporarily tape it in place.

Cut the snake inner sleeve **64** to a length of 230 mm, and the outer sleeve **66** to 180 mm. Slip the inner and outer sleeves over the steel pushrod **62**. Set the servo output arm to neutral from the transmitter, and connect the pre-formed pushrod end (Z-

bend) to the innermost hole (lever length approx. 8 mm) of the servo output arm, working from the outside. Slip the opposite end of the steel pushrod through the swivel barrel **23** of the rudder horn **SA**, and tighten the grub screw **24** to fix it at the neutral position. The outer sleeve can now be glued in the channel in the fuselage.

3.7 Completing the glider / power-glider versions

3.7.1 Completing the glider version, Fig. 15

Glue the prepared glider nose-cone **S** to the fuselage.

3.7.2 Completing the power-glider version, Figs. 16 + 17

Glue the prepared power assembly **AE** to the fuselage as shown, then temporarily install the speed controller, as described in Step 7.2, and carry out a test-run (take care!) to check the direction of rotation of the motor (anti-clockwise as seen from the front). If the motor shaft spins in the wrong direction, swap over any two of the three wires between the motor and the controller.

The propeller blades can now be fitted, as shown in Fig. 17.

4. Completing the tailplane, Fig. 18

Glue the left-hand tailplane panel **7** to the “tailplane joiner with shaft” **52**, and glue the right-hand tailplane panel **8** to the “tailplane joiner with retainer” **53**.

Temporarily install the tailplane in the fuselage by pushing both panels in to the point where they engage together. To remove the tailplane, press on the point marked **X** to unlatch the retainer.

5. Completing the wings

5.1 Installing the wing spars and wing retainers, Fig. 19

Remove rough edges from the wing spars **60** and check that they are a snug fit in the wing panels. When you are satisfied with the fit, glue the spars in the wings together with the wing retainers **47 + 48**. These joints must be strong, so take care at this point! Glue the two twin horns **23** in the recesses in the ailerons.

5.2 Installing the wing-mounted servos, Fig. 20

Cut the slots in the wing recesses to accept the servo mounting lugs, and remove a little extra foam to accommodate the servo lead. Push the prepared servo assemblies **AQR** and **AQL** into the wing from the underside to the point where they lie flush with the top surface of the wing; apply a drop of cyano to the servo mounting lugs to fix them in place. Connect the two aileron pushrods **29** to the holes in the servo output arms located 10 mm from the shaft centre, working from outside to inside, then install the two prepared pushrods by connecting them to the pushrod barrel connectors **23** and the twin aileron horns **22**. Check once again from the transmitter that the servos are at neutral, then tighten the socket-head grub screws **24** to clamp the pushrods.

5.3 Releasing the ailerons, Fig. 21

The ailerons are released by cutting a slot 1 mm wide at both ends using a sharp balsa knife; these points are marked with an **X**.

Check that the ailerons move freely in both directions, then temporarily fix the servo fairings **45 + 46** to complete the wings.

6. Joining the wings and fuselage, Fig. 22

Run the aileron servo leads through the wing retainer plate and into the fuselage, so that they dangle out of the opening in the underside. The wing panels can now be inserted into the fuselage; ensure that the spars slide into the wing retainers on each side. Push the wing panels together so that the projecting tongues **47/48** engage inside the Wing retainer plate **49**. To remove the wings it is necessary to press the tongues down gently with one finger until the panels can be withdrawn.

7 Installing the RC components, checking the working systems

7.1 Glider version, Fig. 23

Install the remaining RC system components in the model in the arrangement shown in the illustration. Note that the position of these items determines the Centre of Gravity. Use the Velcro (hook-and-loop) tape **20 + 21** to secure the parts.

7.2 Power-glider version, Fig. 24

Install the remaining RC system components in the model as shown in the illustration, using the Velcro tape **20 + 21**. For the power-glider the receiver has to be installed further aft in the fuselage; check that the cables are long enough to allow the plugs and sockets to be connected outside the fuselage. The speed controller can be secured in the space under the canopy.

7.3 Control surface settings (guide only!) and initial test-run Control surface travels (measured at the widest point of the control surface):

Ailerons:	12 / 6 mm +/-
Elevator:	6 / 6 mm +/-
Rudder:	12 / 12 mm +/-
Flaps:	< 4 mm down
Spoilers:	7 mm up
Elevator trim compensation:	
Spoilers	1 mm "down"
Flaps	< 1 mm +/-
Motor	< 1 mm "down"
Centre of Gravity:	approx. 40 mm aft of the wing root leading edge
Longitudinal dihedral:	1 - 1.5°

(This setting is correct when the socket-head grub screw is visible through the hole in the side of the fuselage.)

Motor downthrust (fixed): approx. 10° down, sidethrust: 0°

Ensure that all the receiving system components are correctly installed and connected. Check the control surface settings, and the direction of rotation of all the servos. Ensure that none of the electrical leads can foul or get tangled in the motor when it is rotating (glue or tape them in place!). Check the direction of motor rotation once again (injury hazard!).

The tailplane is at the correct neutral position when you can see the socket-head grub screw through the hole in the side of the fuselage, as shown in **Fig. 27**. Before you tighten the grub screw, remember to check from the transmitter that the elevator servo is exactly at neutral (centre)!

7.4 Replacing the elevator servo

Normally the servo will never need to be replaced, but if it should develop a fault, cut along the narrow channel as shown in **Fig. 22**, and remove the "hatch" thus formed. Replace the servo, then stick the hatch back in place with a few drops of cyano. If you use a really sharp knife and work neatly, the repair will be virtually invisible.

8. Rudder servo cover, Fig. 25

The rudder servo recess can now be sealed by applying the sticker **6***. This is accomplished by cutting a piece of the decal sheet backing paper (**30 x 40 mm, rounded corners**) and placing it centrally over the appropriate sticker from the decal sheet. This "hatch cover" can now be applied over the servo well. Please ensure that the adhesive cannot possibly stick the servo output arm, and prevent it moving!

9. Aileron servo fairings, Fig. 26

The aileron servo fairings **45 + 46** can now be stuck permanently to the wing. Glue the two servo covers **36** to the top surface of the wing panels.

10. Centre of Gravity position, Fig. 27

The CG can be corrected by adjusting the position of the flight battery, and by adding a little additional ballast if required. The CG must be located exactly **40 mm** aft of the wing root leading edge (i.e. exactly coincident with the servo lead channel).

11. Preparations for the first flight

Please wait for a day with as little breeze as possible for the model's initial test-flight. The evenings hours are often ideal for calm conditions. If this is your first radio-controlled model aeroplane, look for an experienced model flyer who is prepared to help you, as it is very difficult to master the skills all by yourself. Locate the nearest model flying club or clubs and ask them for suitable contacts. Your local model shop should be able to furnish you with addresses of clubs. Our flight simulator for the PC is a very useful aid for those first steps in model flying; the simulator can be downloaded from our website **www.multiplex-rc.de** at no charge. A suitable interface lead for MPX transmitters (Order No. **# 8 5153**) can be obtained from your model shop.

12. Be sure to carry out a range check before the first flight!

Just before the flight, charge up the transmitter battery and the flight pack using the recommended procedures. Ensure that "your" channel is not already in use before you switch the transmitter on. Ask your assistant to walk away from the model, holding the transmitter. The transmitter aerial should be fitted but completely collapsed. Your assistant should operate one of the functions constantly while you watch the servos. The non-controlled servos should stay motionless up to a range of about 60 m, while the controlled one should follow the stick movements smoothly and without any delay. Please note that this check can only give reliable results if the radio band is clear of interference, and if no other radio control transmitters are in use - even on different channels. If the initial range check is successful, repeat it **with the motor running at "half-throttle"**. There should be no more than a very slight reduction in effective radio range with the motor turning. If you are not sure about anything, please don't risk a flight. Send the whole system (including battery, switch harness and servos) to the Service Department of your RC system manufacturer and ask them to check it.

13. Important points prior to the first flight

Glider

A test-glide can provide a useful pointer to the model's trim: hold it at shoulder-height and push it forward firmly into any breeze. If the model veers to one side, apply opposite rudder trim to correct it. If one wing hangs down, you need to correct the aileron trim.

Flying at the slope

Ridge soaring is an extremely attractive form of model flying. Flying for hours on end in slope lift, without needing any outside aid for launching, must be one of the finest of modelling experiences. But to fly out over the valley, search for a thermal, "milk" the lift to the limits of vision (take care: the model is small!), bring it down again in a continuous series of aerobatic manoeuvres, and then to repeat the whole show - that must surely be the last word in model flying.

But take care - there are dangers for your model lurking at the slope. Firstly, in most cases landing is much more difficult than at a flat field site. It is usually necessary to land in the lee of the hill where the air is turbulent; this calls for concentration and a confident, high-speed approach. A landing on the slope face, i.e. right in the slope lift, is even more difficult. Here the trick is to approach slightly downwind, up the slope, and flare at exactly the right moment, just before touch-down.

Electric flight

The electric-powered version gives you the maximum measure of independence: from a flat field you can reach a sensible height

(around 50 to 100 m) about ten times from a single battery charge, whilst at the slope you can use the motor to get you "back home" if the dreaded downdraft appears (downdraft: the opposite of a thermal, forcing you to land down in the valley when the lift fails).

Aerobatics

With the recommended power system the Merlin flies in a very similar manner to a hot-line electric model: it has vertical climb capability, and can carry out any aerobatic manoeuvre you can name. As such it makes a thoroughly enjoyable model even for the experienced flyer. It's a great model to keep with you at all times.

14. Safety

Safety is the First Commandment when flying any model aircraft. Third party insurance is a basic essential. If you join a model club suitable cover will usually be available through the organisation. It is your personal responsibility to ensure that your insurance is adequate (powered model aircraft). Make it your job to keep your models and your radio control system in perfect order at all times. Check the correct charging procedure for the batteries you are using. Make use of all sensible safety systems and precautions which are advised for your system. An excellent source of practical accessories is the MULTIPLEX main catalogue, as our products are designed and manufactured exclusively by practising modellers for other practising modellers. Always fly with a responsible attitude. You may think that flying low over other people's heads is proof of your piloting skill; others know better. The real expert does not need to prove himself in such childish ways. Let other pilots know that this is what you think too. Always fly in such a way that you do not endanger yourself or others. Bear in mind that even the best RC system in the world is subject to outside interference. No matter how many years of accident-free flying you have under your belt, you have no idea what will happen in the next minute.

All of us in the MULTIPLEX team hope you have many hours of pleasure building and flying your new model.

MULTIPLEX Modellsport GmbH & Co. KG
Product development and maintenance



Klaus Michler

Part No.	No. off	Description	Material	Dimensions
1	1	KIT building instructions	Paper, 80 g/m ²	A4
2	1	Decal set	Printed adhesive film	500 x 175 mm
3	1	L.H. fuselage shell	Moulded Elapor foam	Ready made
4	1	R.H. fuselage shell, incl. fin	Moulded Elapor foam	Ready made
5	1	L.H. wing panel	Moulded Elapor foam	Ready made
6	1	R.H. wing panel	Moulded Elapor foam	Ready made
7	1	L.H. tailplane panel	Moulded Elapor foam	Ready made
8	1	R.H. tailplane panel	Moulded Elapor foam	Ready made

Small items set

20	3	Velcro tape, "mushroom"	Plastic	25 x 60 mm
21	3	Velcro tape, "felt"	Plastic	25 x 60 mm
22	3	Twin control surface horn	Plastic	Ready made
23	3	Twin pushrod connector	Metal	Ready made, 6 mm Ø
24	4	Socket-head grub screw	Metal	M3 x 3 mm
25	1	Swivel pushrod connector	Metal	Ready made, 6 mm Ø
26	1	Washer	Metal	M2
27	1	Nut	Metal	M2
28	1	Allen key	Metal	1.5 mm A/F
29	2	Pre-formed aileron pushrod (Z-bend)	Metal	1 Ø x 50 mm
30	2	Countersunk screw (tailplane housing)	Metal	M2 x 8 mm
36	2	Wing servo well cover	Plastic	35 x 35 mm
37	2	Cheesehead screw, glider nose-cone	Metal	M2.5 x 8mm

Plastic parts set

40	1	Fuselage hatch frame	Inj. moulded plastic	Ready made
41	1	Fuselage hatch	Inj. moulded plastic	Ready made
42	1	Fuselage fairing / motor bulkhead	Inj. moulded plastic	Ready made
43	1	Glider nose-cone	Inj. moulded plastic	Ready made
44	2	"Nano" servo frame, upright	Inj. moulded plastic	Ready made
45	1	L.H. servo fairing	Inj. moulded plastic	Ready made
46	1	R.H. servo fairing	Inj. moulded plastic	Ready made
47	1	L.H. wing retainer	Inj. moulded plastic	Ready made
48	1	R.H. wing retainer	Inj. moulded plastic	Ready made
49	1	Wing retainer plate	Inj. moulded plastic	Ready made
50	1	Tailplane bearing housing	Inj. moulded plastic	Ready made
51	1	Tailplane bearing housing cover	Inj. moulded plastic	Ready made
52	1	Tailplane joiner with shaft	Inj. moulded plastic	Ready made
53	1	Tailplane joiner with retainer	Inj. moulded plastic	Ready made
54	1	Tailplane crank	Inj. moulded plastic	Ready made

Wire and rod, wing spars

60	2	Wing spar	CFRP flat strip	6 x 1.5 x 225 mm
61	1	Steel elevator pushrod, with Z-bend	Metal	0.8 Ø x 210mm
62	1	Steel rudder pushrod, with Z-bend	Metal	0.8 Ø x 275mm
63	1	Elevator snake inner sleeve	Plastic	2 / 1 Ø x 170mm (230mm*)
64	1	Rudder snake inner sleeve	Plastic	2 / 1 Ø x 230mm
65	1	Elevator snake outer sleeve	Plastic	3 / 2 Ø x 140mm (200mm*)
66	1	Rudder snake outer sleeve	Plastic	3 / 2 Ø x 180mm (200mm*)
67	1	Aerial sleeve	Plastic	3 / 2 Ø x 320mm
68	1	L.H. fuselage longeron	GRP rod	1.3 Ø x 470mm (510mm*)
69	1	R.H. fuselage longeron	GRP rod	1.3 Ø x 510mm
70	1	Top fuselage longeron	GRP rod	1.3 Ø x 276mm (510mm*)

* Supplied length => cut to length as required.

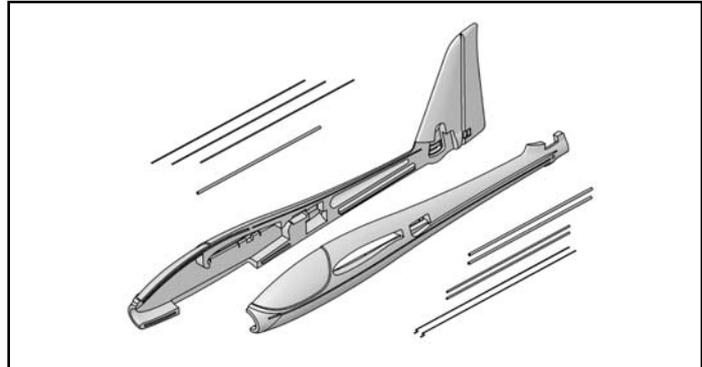
Ersatzteile
 Replacement parts
 Pièces de rechanges
 Parti di ricambio
 Repuestos

MERLIN

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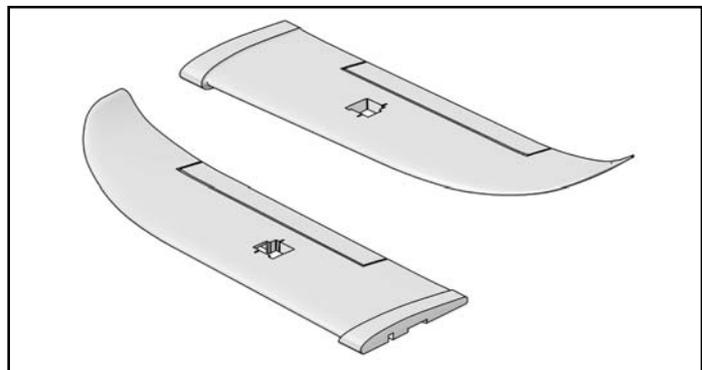
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Rumpf
 Fuselage
 Fuselage
 Fusoliera
 Fuselaje



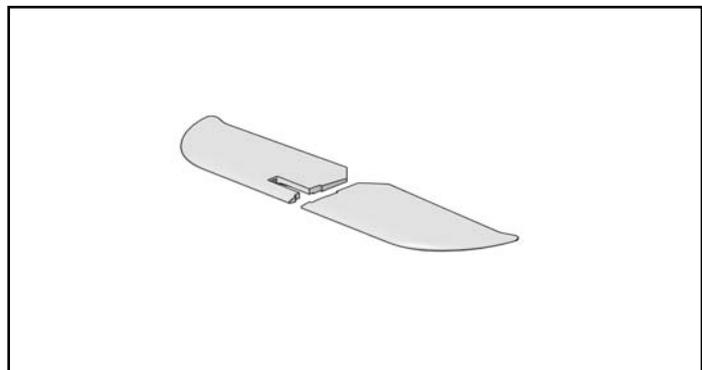
22 4101

Tragflächen
 Wing panels
 Aile principale
 Semiali
 Alas



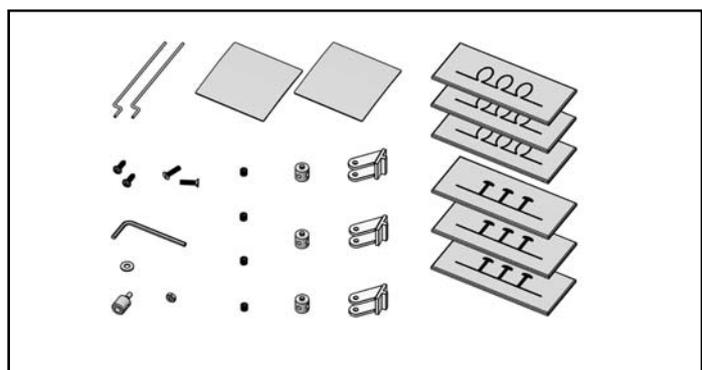
22 4102

Höhenleitwerk
 Tail set
 Kit de stabilisateurs
 Piani di coda
 Kit de empenajes



22 4103

Kleinteile
 Small parts set
 Petites pièces
 Minuteria
 Piezas pequeñas



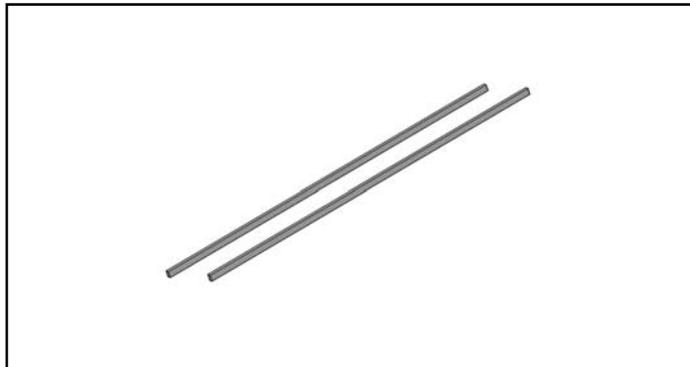
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72 3132

Holmsatz
 spar set
 carrés
 Longheroni rettangolari in carbonio
 Lunguero rectangular de carbono



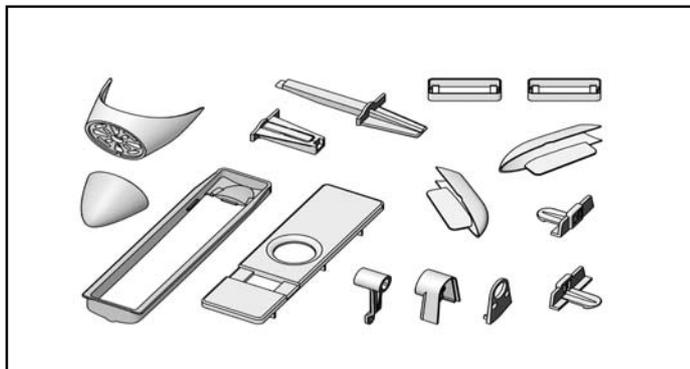
72 4551

Dekorbogen
 Decal sheet
 Planche de décoration
 Decals
 Pliego de adhesivos



22 4104

Kunststoffteilesatz ohne Rumpfdeckel
 Plastic parts set excl. fuselage hatch
 Ensemble de pièces plastiques sans la trappe du fuselage
 Parti in materiale plastico senza coperchio fusoliera
 Piezas de plástico in tapa del fuselaje



22 4105

Rumpfdeckel
 Fuselage hatch
 Trappe du fuselage
 Coperchio fusoliera
 Tapa del Fuselaje

