

Acro Master



Baukasten / kit

21 4215

MULTIPLEX[®]

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Ersatzteile / Replacement parts **24**

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 "ARRET".
- ☺ 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 sujetos, 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 hope that you are satisfied with the contents of your kit. However, we would ask you to check all the parts **before** you start construction (using the Parts List as a guide), as **we cannot exchange components which you have already worked on**. If you find a part is not acceptable for any reason, please take it back to your supplier (model shop), as he is your first port of call. After checking, he will send the part or the kit to our Quality Control department. Please be sure to include the purchase receipt and a brief description of the fault, otherwise we cannot process your complaint.

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. 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 required:

e.g. MULTIPLEX <i>Micro IPD</i> receiver	35 MHz A-band	Order No. 5 5971
alternatively:	40 MHz	Order No. 5 5972
MULTIPLEX <i>RX-7 Synth DS IPD</i> receiver	35 MHz A-band	Order No. 5 5885

MULTIPLEX <i>Nano S</i> servo	(2 required for ailerons)	Order No. 6 5120
<i>Tiny-S</i>	(2 required for rudder and elevator)	Order No. 6 5121
Servo extension lead	(2 required for aileron servos)	Order No. 8 5031

"AcroMaster" power set, HiMax HC 3516-1130 Order No. **33 2631**

Contents:

- 1 HC 3516-1130 motor
- 1 11 x 5.5" APC propeller
- 1 5 mm Ø collet propeller driver
- 1 speed controller, e.g. Castle Creations Phoenix 45A

Flight battery:

MULTIPLEX flight battery, e.g. LiBATT 2100 mAh - 3200 mAh, 3 cells (maximum load approx. 40 A)

Adhesive: cyano-acrylate

Use any type of medium or thick cyano-acrylate adhesive ("cyano", "CA"). Do not use styrofoam cyano. Epoxy adhesives produce what initially appears to be a sound joint, but the bond is only superficial, and the hard resin breaks away from the parts under load. White glue is entirely unsuitable. However, hot-melt adhesive from a glue gun ("HM") is a very useful alternative - especially for mounting servos.

Tools:

Scissors, balsa knife, combination pliers, long-nose pliers, cross-point / slot-head screwdrivers (for servo output arms).

Specification:

Wingspan	1095 mm
Overall fuselage length	1150 mm
All-up weight min.	920 g
Wing area	36.6 dm ²
Wing loading (FAI) min.	25 g / dm ²
RC functions	Aileron, elevator, rudder and throttle

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

Important note

This model is not made of styrofoam™, and it is not possible to glue the material using white glue or epoxy. Please be sure to use cyano-acrylate glue exclusively, preferably in conjunction with cyano activator (kicker). Use medium or high-viscosity (thick) cyano ("CA") for all joints. When gluing Elapor® parts always spray one face with activator, and allow it to air-dry until the surface looks "dry" (takes about two minutes). Apply cyano glue to the mating surface, then place the parts together and immediately position them.

Please be cautious when working with cyano-acrylate adhesives. These glues can harden in seconds, so don't allow them to contact your fingers or other parts of your body. Always wear protective goggles to guard against eye injuries. Keep these materials well out of the reach of children.

1. Before assembling the model

Please check the contents of your kit.
You will find **Figs. 01 + 02** and the Parts List helpful here.

Note: the control "snakes" are supplied in the following lengths, and will need to be cut to final length:

2 off 3 / 2 Ø x 480 mm snake outer sleeve
2 off 2 / 1 Ø x 500 mm snake inner tube

2. Preparing the control snakes

The first step is to cut the snake outers and inners to the lengths stated below. To cut the sleeves, place them on a hard surface and roll them to and fro under a sharp balsa knife, so that they are grooved all round. They can then simply be broken off.

3 / 2 Ø snake outer sleeves
54 = 480 mm 55 = 400 mm

2 / 1 Ø snake inner tubes
56 = 500 mm 57 = 420 mm

The short pieces of sleeve left over are not required for the model.
Fig. 03

3. Completing the snakes

Prepare the control snakes by slipping the inner tubes **56 / 57** into the outer sleeves **54 / 55**, followed by the steel inner rods **52 / 53**. Parts **54, 56** and **52** are required for the rudder, and parts **55, 57** and **53** for the elevator.

4. Preparing the fuselage shells

The first step is to install the **Tiny-S** servos for rudder and elevator in the fuselage shells **3 + 4**. Place the servos in the recesses and apply a drop of thick cyano or hot-melt glue to secure them. **Fig. 04**

The servo output arm extensions **43** are used to produce

the large control surface travels required for 3-D aerobatics. However, they are also useful for "normal" aerobatics, as the holes are the correct size for the pre-formed snake inner rods. To fit the servo output arm extensions **43** cut off the raised collar around the central hole in the original output arm, and fix the parts together using the standard retaining screw and the locating screw **49**, as shown in **Fig. 05**. Don't over-tighten the screws, or the threads will strip!

Carefully lay the fuselage shells down flat, and connect the pre-formed end of the steel inner rods (including snake sleeves) to the servo output arms. For "normal aerobatics" use the innermost hole in the output arm extensions, and for 3-D aerobatics the outermost hole. Apply cyano to the channels for the snakes. Check once more that the fuselage shell is exactly flat (straight), then glue the snake sleeve in the channel. **Fig. 06**

5. Installing the motor mounts

Glue the two motor mounts **60** in the right and left fuselage shells using cyano. Ensure that the mounts **60** fit flush with the foam shells before you apply the glue. **Fig. 07**

6. Canopy latch

Glue the canopy latch clips **32** in the fuselage shells as shown in **Fig. 07**.

7. Joining the fuselage shells

Tape the servo leads in the fuselage so that they don't get in the way when you join the fuselage shells. Offer up the fuselage shells **3 + 4** "dry" (no glue), and check that everything fits correctly. Apply thick cyano to one shell, hold the second shell against it, and check that the fuselage is straight and correctly aligned before the glue sets. This may take up to a minute, depending on humidity. Hold the fuselage in your hands for a further two or three minutes, checking constantly that the fuselage is still straight, because the adhesive takes at least this length of time to cure. **Fig. 08**

Place the motor mount brace **62** between the rear ends of the motor mounts (a pair of pointed-nose pliers is very useful here) and secure it with cyano. **Fig. 09**

8. Preparing the tailplane

Glue together the elevator joiner components **46 + 47** on a flat surface. It is important that the parts are not twisted relative to each other.

Fig. 10

Cut slots for the hinges **42** in the tailplane **12** and the elevator **13** using a sharp balsa knife, positioned as shown in **Figs. 11 + 12**.

Ensure that the slots are in line with each other, and are exactly central. **Figs. 11 + 12**

Install the hinges "dry" and check that the elevators are aligned correctly and move freely. Dismantle the parts. Glue the elevator joiner **46 / 47** between the elevator panels **13**. Push the hinges about ¼ of the way into the elevators, apply cyano to both sides, then immediately push them into final

position. Wipe off excess glue at the pivot line. Allow the glued hinge joints to set hard, then assemble the tailplane and elevators again, but pushing the hinges only ¼ of the way into the tailplane. Apply cyano to both sides of the hinges as described previously, then push the elevators into final position. Wipe off excess adhesive immediately. **Fig. 13**

Fit the pushrod connector on the elevator horn as shown in **Fig. 14**, and lock the nut with a drop of paint or glue.

9. Gluing the tailplane to the fuselage

Offer up the tailplane to the fuselage and check that it is an accurate fit, and that it can be aligned properly. Glue it in place using cyano, and align it accurately before the glue sets hard. **Fig. 15**

10. Preparing the fin

Cut the slots for the hinges **42** in the tailplane **15** and the rudder **16** using a sharp balsa knife, as shown in **Figs. 16 - 17**.

Ensure that the slots are in line with each other, and are exactly central.

Install the hinges "dry" and check that the rudder is aligned correctly and moves freely. Dismantle the parts.

Fit the tailwheel wire **77** through the tailskid bush **45** and the rudder horn **44**, and bend the end at 90° as close to the horn as possible, as shown in **Fig. 18**.

Glue the horn **44** to the rudder, but apply the cyano to the underside only. Now cut a slot about 1.5 mm deep above the horn to accept the tailskid wire.

Push the hinges about ¼ of the way into the rudder, apply cyano to both sides, then immediately push them into final position. Wipe off excess glue at the pivot line.

Allow the glued hinge joints to set hard, then assemble the fin, rudder and tailskid wire **77** again, but this time pushing the hinges and the tailskid bush **45** only ¼ of the way in again. Apply cyano to both sides of the hinges as described previously, then push the rudder into final position. Wipe off excess adhesive immediately. **Fig. 19** Swing the tailwheel wire **77** over the rudder horn **44**, align the parts and glue the wire to the slot in the rudder, using plenty of cyano to obtain a sound joint. **Fig. 20**

Fit the pushrod connector on the rudder horn as shown in **Fig. 21**, and lock the nut with a drop of paint or glue. Glue in rudder fin **Fig.22**

The tailwheel **78** can now be fitted to complete this stage: fit a retaining collar **79** on the wire, followed by the wheel and the second collar. Apply a drop of cyano to the two wheel collars **79**.

Caution: apply the adhesive on the tip of a small screwdriver or similar tool. Take care not to glue the wheel to the axle! Fig. 24

11. Installing the main undercarriage mount

Offer up the undercarriage mount **76** to the recess in the

fuselage. Press it into place "dry", so that the locating lugs push their way into the foam, then simply glue it in place with cyano. **Fig. 24**

12. Preparing the wheel spats (replacement part No. 22 4204)

Glue the wheel spat brackets **75** in the outer wheel spat shells **19 / 20** on both sides. Fit the collet **72** and the 5 mm socket-head grub screw **74**. Close the wheel spats by gluing the inner spat shells **17 / 18** to the outer shells **19 / 20** using cyano. **Figs. 25 - 27**

13. Completing and installing the main undercarriage

Fit the inner collets **72** as shown in the picture, and fit the wheels **71** together with the assembled wheel spats on the undercarriage unit **70**. Align the parts carefully. Fit the outer collets **72**, and tighten the grub screws to fix the wheels and spats on the undercarriage.

Fig. 28

Push the undercarriage unit **70** in the undercarriage mount, make sure it snaps into place, and secure it with a drop of cyano. **Fig. 29**

14. Installing the motor

The motor must be attached to the motor bulkhead **61** in such a way that the end of the shaft is located about 10 mm beyond the front face of the bulkhead. **Fig. 30**

For most power plants you will need to fit packing behind the motor to achieve this. The kit contains a spacer ring **63** which is suitable for the recommended Himax motors (long shaft).

15. Attaching the motor bulkhead to the motor mounts

The design of the motor mounts **60** and the motor bulkhead **61** allows you to adjust the sidethrust and downthrust of the motor. When the four adjustor screws **64** are fitted flush, the mount is already installed asymmetrically; this arrangement gives maximum sidethrust and no downthrust. Make the following adjustments to set the motor thrustline at the correct initial angle. Note that we are working from the **rear** of the bulkhead.

Upper left adjustor screw	0.5 mm = approx. 1 turn
Upper right adjustor screw	1.5 mm = approx. 3 turns
Lower left adjustor screw	0 mm = approx. 0 turns
Lower right adjustor screw	1 mm = approx. 2 turns

Figs. 31 + 32

The correct sidethrust and downthrust are established in an initial careful test-flying procedure, and when this is completed you should use a sanding block and new abrasive paper to sand down the nose of the fuselage to align it with the spinner, as the final curvature varies according to the sidethrust and downthrust of the motor.

16. Completing the canopy

Insert the latch tongues **33** in the canopy latch clips, and

check that they fit correctly. Place the canopy **5** on the fuselage and press down lightly to position the latch tongues correctly. Carefully open the canopy, bend the latch tongues **33** slightly to one side, and apply cyano to the joint surfaces. Straighten the latch tongues again immediately. **Fig. 33**
If you wish, you can paint the canopy at this stage. Please note that you must use our MULTIPrimer, # 60 2700, prior to painting. Mask off the edge of the canopy using tape.

Apply a very thin coat of the primer; just wipe it on and off again, as if you were cleaning the surface. After this treatment you can paint the canopy using any paint of your choice.

17. Joining the wing shells

Lay the wing panels **6 / 7** (top shells) on a flat building board, with the rear flat section making contact with the board; allow the root area to project as shown in the illustration. Weight down the panels at the centre section and the tip. Carefully slide the styrofoam strip **22** under the wing leading edge until the wing shell is fully supported, then fix the strip in that position. **Fig. 34**

Apply thick cyano to the wing shells **6 / 7** along all the contact lines of the internal structure. Don't apply too much glue in the areas on both sides of the spar, otherwise the spar may not fit in its socket. Now apply cyano to the side of the wing cover panel **8 / 9**. Don't worry about running out of time - depending on humidity you have one or two minutes before the glue starts to set. Now insert the wing cover panel and immediately position it correctly; press it down evenly with the flat of your hand, working from the aileron area towards the thickest part of the wing. Leave the wing in this position (no tests!) for a few minutes, because the glue takes at least two to five minutes in order to set hard. **Fig. 35**

18. Installing the servos

The **Nano S** aileron servos are installed standing upright in the wings. The servo leads can be drawn through to the wing root using a length of wire with a hook formed in the end. You may need to use servo extension leads, # 8 5031. Place the servos in the recesses in the wing and secure each with a drop of cyano or hot-melt glue applied to the mounting lugs. **Fig. 36**

19. Installing the ailerons

Cut slots in the wing panels **6 / 7** and the ailerons **10 / 11** for the hinges **42**, as shown in **Figs. 37 + 38**.

Ensure that the slots are in line with each other, and are exactly central.

Install the hinges "dry" and check that the ailerons are aligned correctly and move freely. Remove the ailerons again. Push the hinges about ¼ of the way into the ailerons, apply cyano to both sides, then immediately push them into final position. Wipe off excess glue at the pivot line.

Allow the glued hinge joints to set hard, then assemble the ailerons and wings again, but pushing the hinges only ¼ of the way in. Apply cyano to both sides of the hinges as described previously, then push the ailerons into final

position. Wipe off excess adhesive immediately. **Fig. 39**

20. Aileron pushrods

Glue the horns **34** in the recesses in the ailerons using cyano. The aileron linkages are assembled from parts **38,35,34** and **37**, as shown in **Fig. 40**.

Screw the clevis **40** on the threaded end of the pushrod **41** and set it to the correct length. Connect the pushrod using the pushrod connector, as shown in **Fig. 40**.

21. Final assembly

The first step in assembling the model is to fit the tubular spars **50 / 51** in one wing panel. Carefully insert the wing panel in the recess in the side of the fuselage, at the same time threading the aileron servo lead into the interior. Fit the second wing panel on the other side and draw the servo lead through. **Fig. 41**

22. Receiving system components

1. Motor: already installed.
2. Speed controller: behind the motor, supported by the cables.
3. LiPo 2100 - 3200 flight battery: depending on the mode's balance, on the angled area behind the motor, or on the shelf under the canopy and above the wing.

4. Connect the servo / speed controller cables to the receiver and fit it in the compartment above the fuselage air vents. Pack foam rubber round it if required.

Velcro (hook-and-loop) tape **30 + 31** is supplied in the kit for retaining the components mentioned above.

Fig. 42

23. Centre of Gravity

Right from the outset, the RC system components should be installed with the model's Centre of Gravity in mind; any corrections should be made by re-positioning these items. The CG should be in the range **110 - 120 mm** aft of the wing root leading edge, measured at the fuselage. **Fig. 43**

24. Initial testing

Install all the airborne components and connect them. Set up the control surface travels as stated below, and check the "sense" (direction) of the servos. All the control surfaces must move freely. Check that the motor spins in the correct direction, and reverse it if necessary.

25. Fitting the propeller

Fit the propeller on the motor as shown in **Fig. 44**. The driver features an integral holder for the EPP spinner.

26. Basic settings (guideline only!):

Centre of Gravity:	110 - 120 mm
Longitudinal dihedral:	0°
Motor downthrust:	0 - 2°
Motor sidethrust:	2 - 3° (right)

Control surface travels measured at the point of maximum chord

	"normal"	3-D
Ailerons:	35 mm	60 mm
Elevator:	35 mm	70 mm
Rudder:	45 mm	80 mm

Dualrate for Elevator and Ailerons 30 -50%
Expo Ailerons 30%, Elevator 50%

27. Test-flying

Longitudinal dihedral = 0°; this is defined by the model itself.

Centre of Gravity:

Start by setting the CG within the stated range. Now to the fine-tuning: fly straight and level at half-throttle, then roll inverted. If you have to apply a lot of "down" to maintain level flight, the model is nose-heavy, and you need to move the CG back. If the machine tends to climb when inverted, the CG is too far rearward. The CG is correct when you need to apply just slight down-elevator for inverted level flight.

Correcting the tracking:

First the static balancing: hold the model by the spinner and rudder; it should balance in the normal flight attitude. If one wing is heavy (swings down), add ballast to the lighter tip. During the next flight apply just enough throttle for the model to remain airborne, and trim it for normal flight. Now fly the model inverted and check its tracking. Add ballast if necessary after the model has landed.

Sidethrust:

Place the model in straight and level flight, allow it to fly past you at full-throttle, then pull up into a vertical climb. In a vertical climb the model should show no tendency to fall away to either side. If it veers to the left, add more right sidethrust, and vice versa. However, please note that any wind will also tend to push the aeroplane off course.

Downthrust:

Place the model in straight and level flight, and allow it to fly past you at full-throttle, so that you view the model from the side. Now pull up into a vertical climb. The model should continue to climb vertically, with no tendency to tip forward or over onto its back. If not, adjust the downthrust to correct the fault.

After making these corrections you may find it necessary to repeat the procedure for fine-tuning the model's Centre of Gravity.

Aileron differential

Fly three of four rolls to the right at half-throttle; if the model ends up veering off to the right, the differential needs to be increased. If it veers to the left, the differential is already too great, and needs to be reduced.

28. Gilding the lily - applying the decals

The kit is supplied with a multi-colour decal sheet. Cut out the individual name placards and emblems and apply them to the model in the positions shown in the kit box illustration, or in an alternative arrangement which you find pleasing.

29. Safety

Safety is the First Commandment when flying any model aircraft. Third party insurance should be considered 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 (i.e. that its cover includes 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
Product development and maintenance



Klaus Michler

Parts list - AcroMaster kit

Part No.	No. off	Description	Material	Dimensions
1	1	Kit building instructions	Paper, 80 g / m ²	A4
2	1	Decal sheet	Printed adhesive film	700 x 1000 mm
3	1	L.H. fuselage shell	Moulded Elapor foam	Ready made
4	1	R.H. fuselage shell	Moulded Elapor foam	Ready made
5	1	Canopy	Moulded Elapor foam	Ready made
6	1	L.H. wing panel	Moulded Elapor foam	Ready made
7	1	R.H. wing panel	Moulded Elapor foam	Ready made
8	1	L.H. wing cover panel	Moulded Elapor foam	Ready made
9	1	R.H. wing cover panel	Moulded Elapor foam	Ready made
10	1	L.H. aileron	Moulded Elapor foam	Ready made

Part No.	No. off	Description	Material	Dimensions
11	1	R.H. aileron	Moulded Elapor foam	Ready made
12	1	Tailplane	Moulded Elapor foam	Ready made
13	1	L.H. elevator	Moulded Elapor foam	Ready made
14	1	R.H. elevator	Moulded Elapor foam	Ready made
15	1	Fin	Moulded Elapor foam	Ready made
16	1	Rudder	Moulded Elapor foam	Ready made
17	1	L.H. inner wheel spat	Moulded EPP foam	Ready made
18	1	R.H. inner wheel spat	Moulded EPP foam	Ready made
19	1	L.H. outer wheel spat	Moulded EPP foam	Ready made
20	1	R.H. outer wheel spat	Moulded EPP foam	Ready made
21	1	Spinner	Moulded EPP foam	Ready made, approx. 62 Ø
22	1	Wing jig strip	Pre-cut EPS foam	10 x 30 x 460 mm

Small items set

30	3	Hook-and-loop tape, hook	Plastic	25 x 60 mm
31	3	Hook-and-loop tape, loop	Plastic	25 x 60 mm
32	2	Canopy-Lock latch clip	Inj. moulded plastic	Ready made
33	2	Canopy-Lock latch tongue	Inj. moulded plastic	Ready made
34	2	Acro glue-fitting horn (ailerons)	Inj. moulded plastic	Ready made
35	4	Pushrod connector	Metal	Ready made, 6 mm Ø
36	4	Washer	Metal	M2
37	4	Nut	Metal	M2
38	4	Socket-head grub screw	Metal	M3 x 3 mm
39	1	Allen key	Metal	1.5 mm A/F
40	2	Clevis	Inj. moulded plastic	Ready made
41	2	Pre-formed aileron pushrod	Metal	M2 x 200 mm
42	3 x 6	Film hinge (sprues of 6)	Inj. moulded plastic	Ready made
43	2	Servo output arm extension	Inj. moulded plastic	Ready made
44	1	Glue-fitting horn, rudder / tailskid	Inj. moulded plastic	Ready made
45	1	Glue-fitting tailwheel bush	Inj. moulded plastic	Ready made
46	1	Elevator joiner A (with horn)	Inj. moulded plastic	Ready made
47	1	Elevator joiner B	Inj. moulded plastic	Ready made
48	1	Spinner holder	Inj. moulded plastic	Ready made
49	2	Servo output arm extension screw	Metal	

Wire set

50	1	Front tubular spar	GRP tube	10 Ø x 7.4 x 200 mm
51	1	Rear tubular spar	CFRP tube	10 Ø x 7.4 x 620 mm
52	1	Pre-formed rudder pushrod	Metal	0.8 Ø x 580 mm
53	1	Pre-formed elevator pushrod	Metal	0.8 Ø x 510 mm
54	1	Snake outer sleeve, rudder	Plastic (480 mm*)	3 Ø x 2 x 480 mm
55	1	Snake outer sleeve, elevator	Plastic (480 mm*)	3 Ø x 2 x 400 mm
56	1	Snake inner tube, rudder	Plastic (500 mm*)	2 Ø x 1 x 500 mm
57	1	Snake inner tube, elevator	Plastic (500 mm*)	2 Ø x 1 x 420 mm

AcroMaster motor mount incl. screws

60	2	Motor mount	Inj. moulded plastic	Ready made
61	1	Motor bulkhead	Inj. moulded plastic	Ready made
62	1	Motor mount brace	Inj. moulded plastic	Ready made
63	1	Spacer ring	Inj. moulded plastic	Ready made
64	4	Motor bulkhead adjustor screw	Metal	M3 x 8 mm
65	4	Motor bulkhead mounting screw	Metal	M3 x 16 mm

Undercarriage set

70	1	Main undercarriage unit	Metal	2.5 Ø, ready made
71	2	Lightweight wheel	Moulded EPP foam	53 Ø, hub bore 2.5 mm
72	4	Collet	Metal	2.7 Ø x 7 x 5 mm
73	2	Socket-head grub screw	Metal	M3 x 3 mm
74	2	Socket-head grub screw	Metal	M3 x 5 mm
75	2	Wheel spat bracket	Inj. moulded plastic	Ready made
76	1	Undercarriage mount	Plastic	Ready made
77	1	Tailwheel wire	Metal	1.3 mm Ø
78	1	Lightweight tailwheel	Plastic	26 Ø, hub bore 1.5 mm
79	2	Tailwheel retainer (tubular rivet)	Metal	2 Ø x 0.2 x 3 mm

Acro Master
Kit # 21 4215

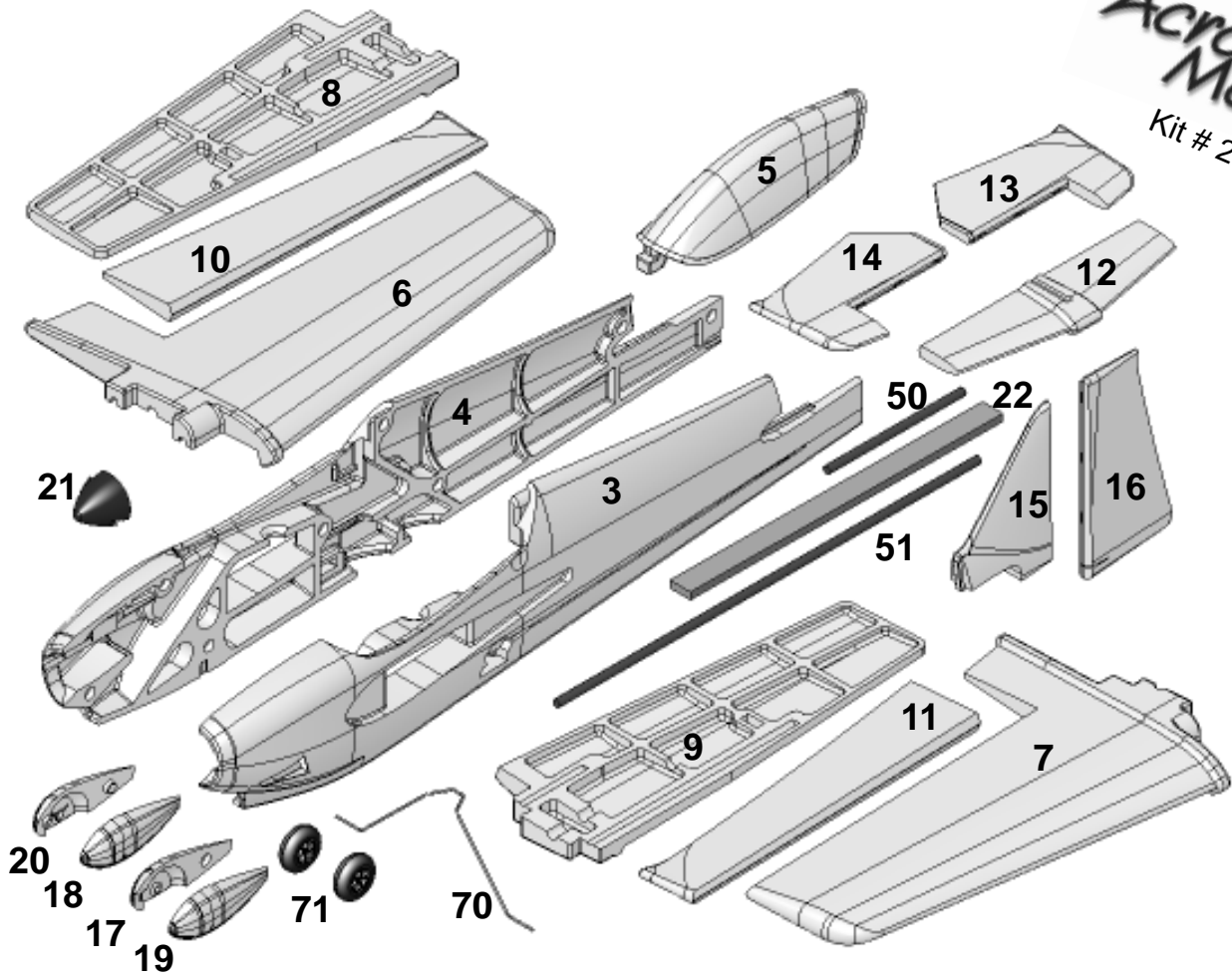


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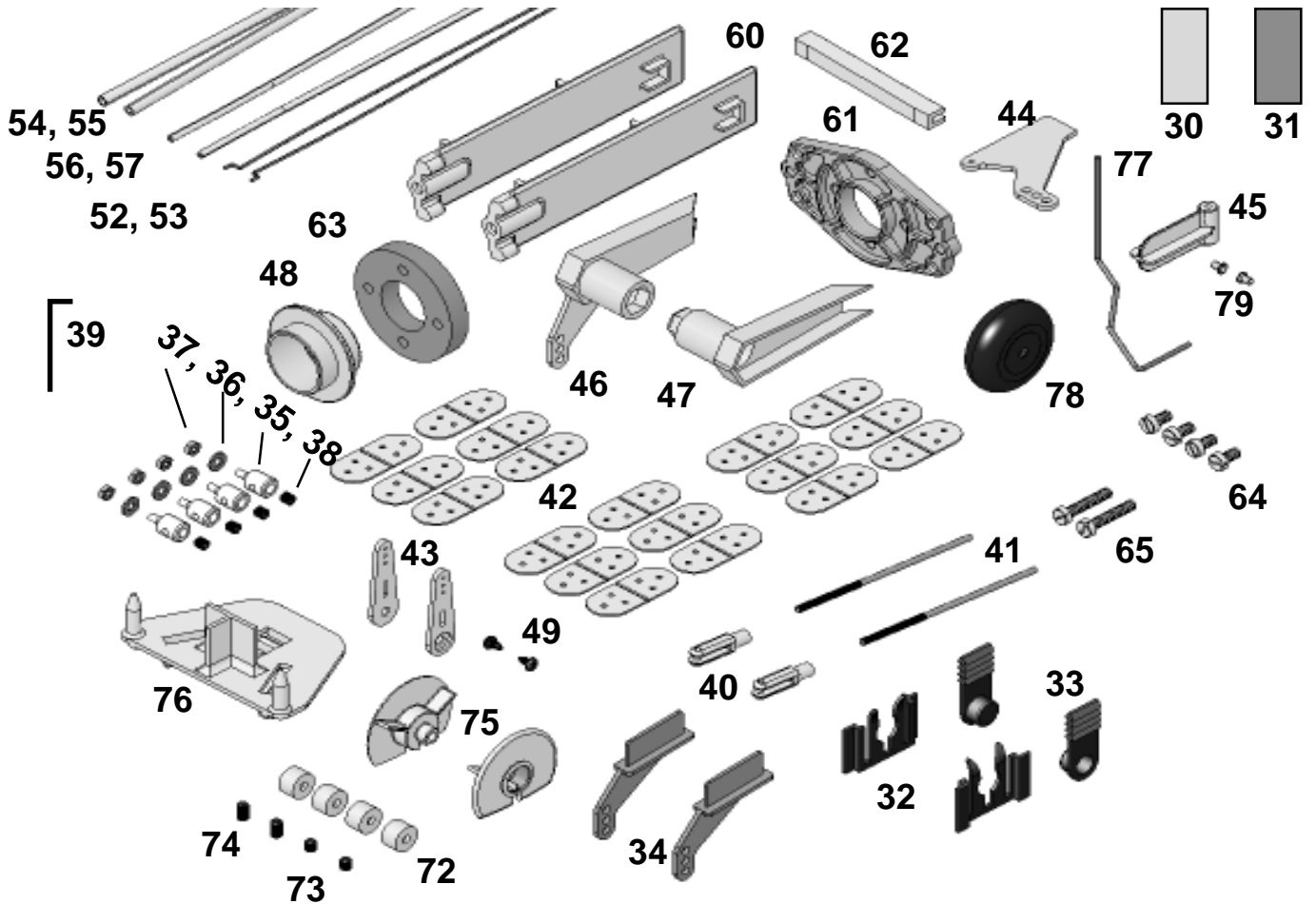


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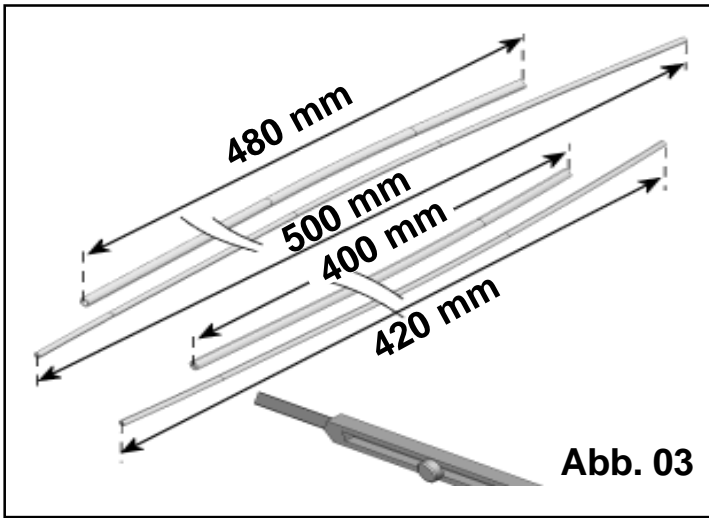


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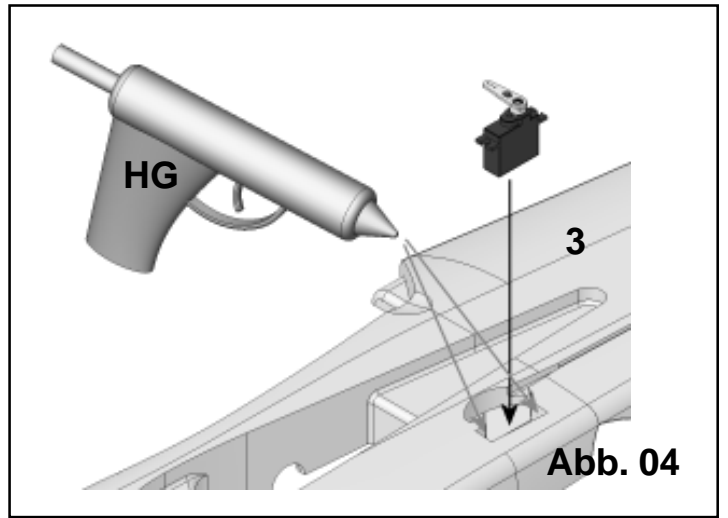


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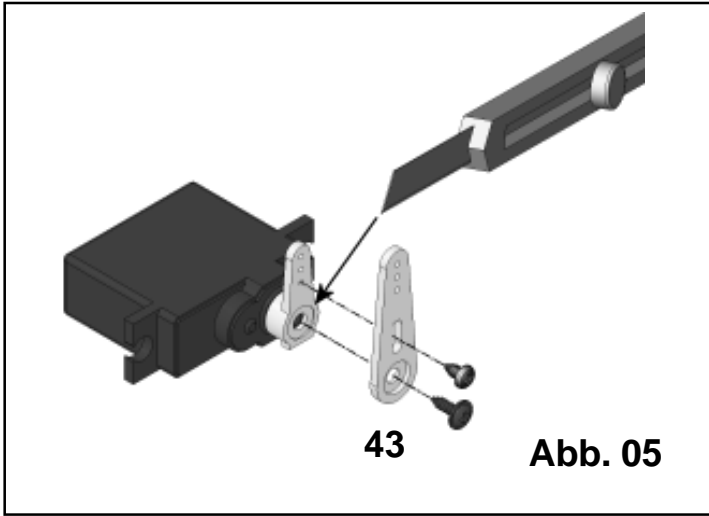


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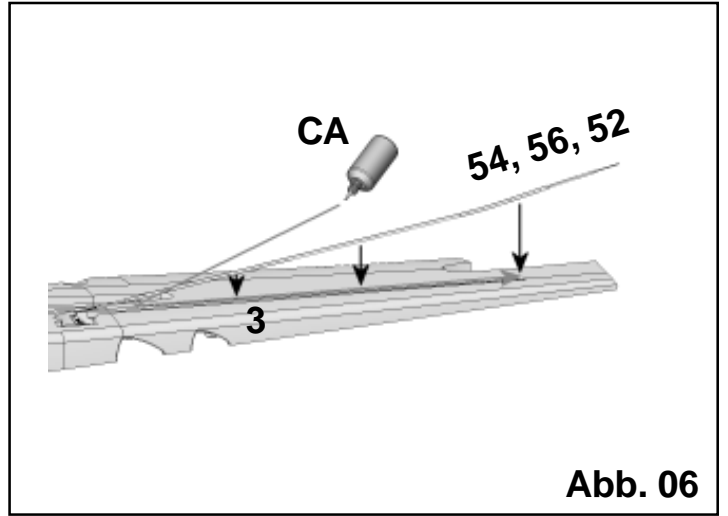
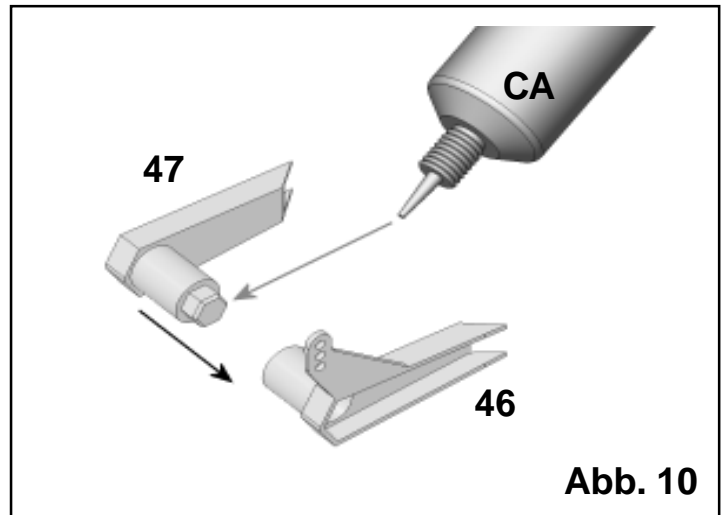
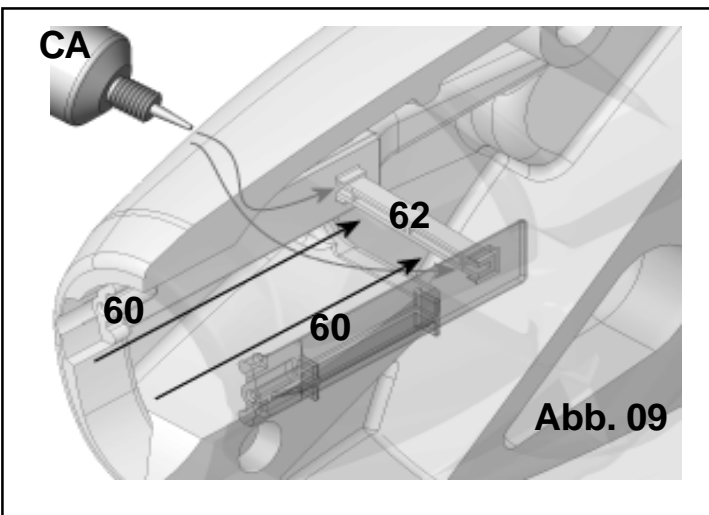
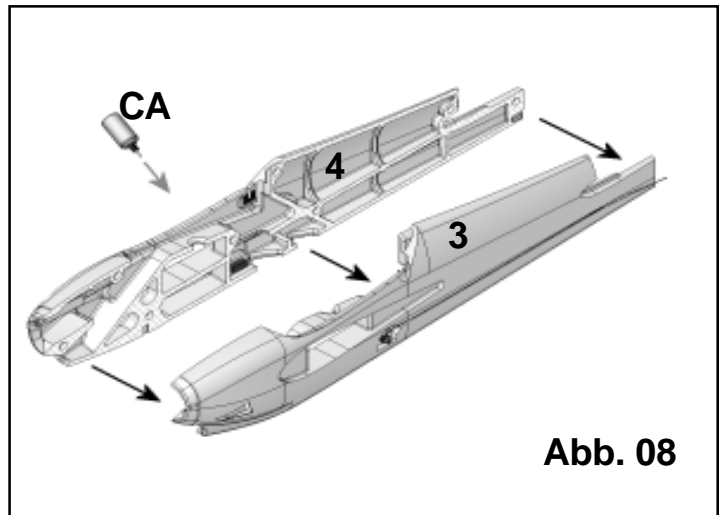
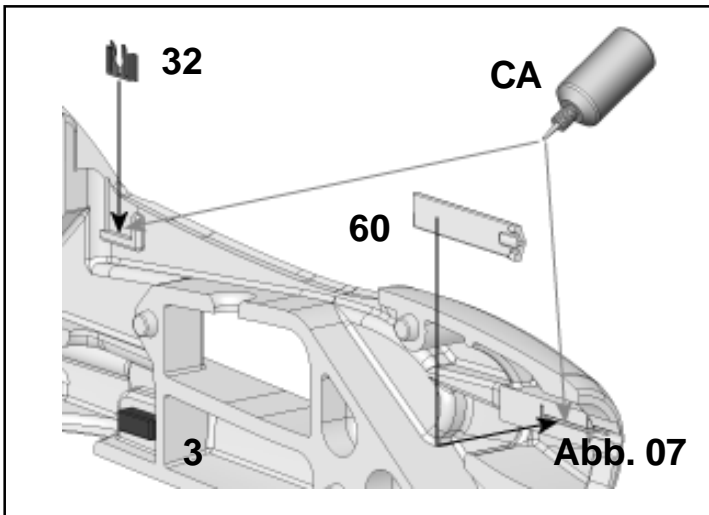


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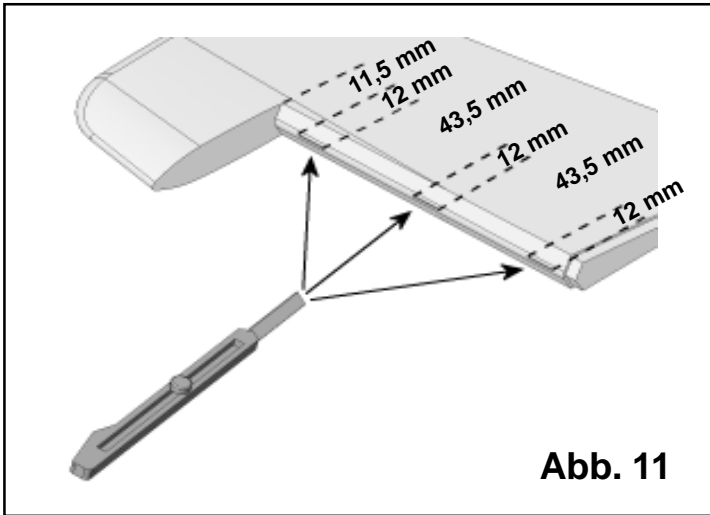


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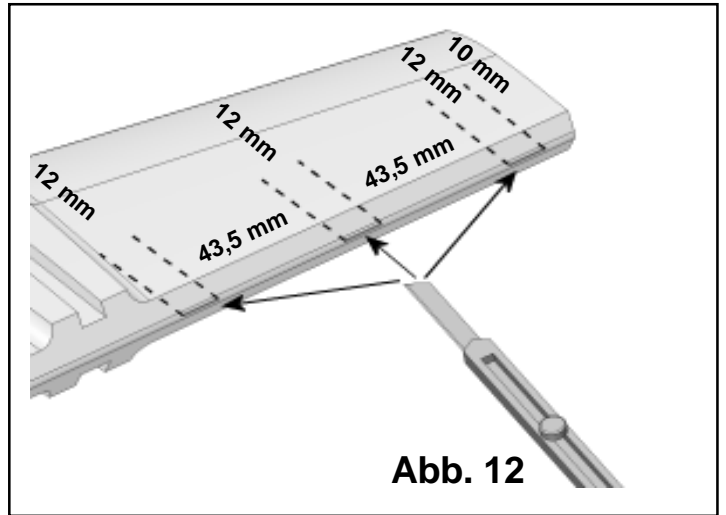


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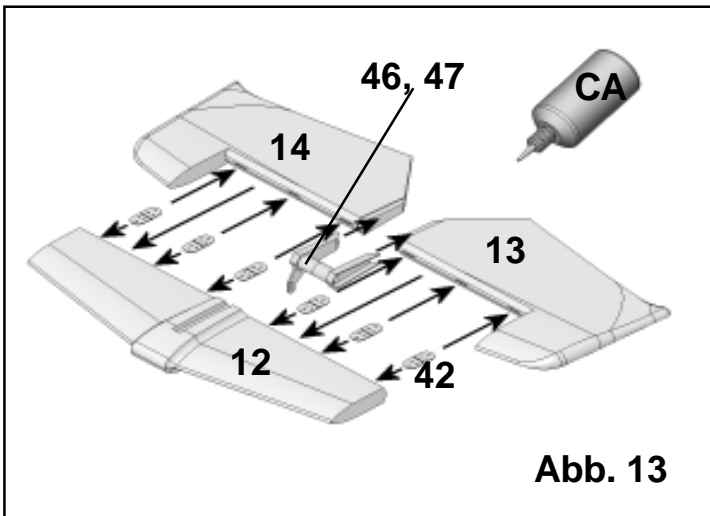


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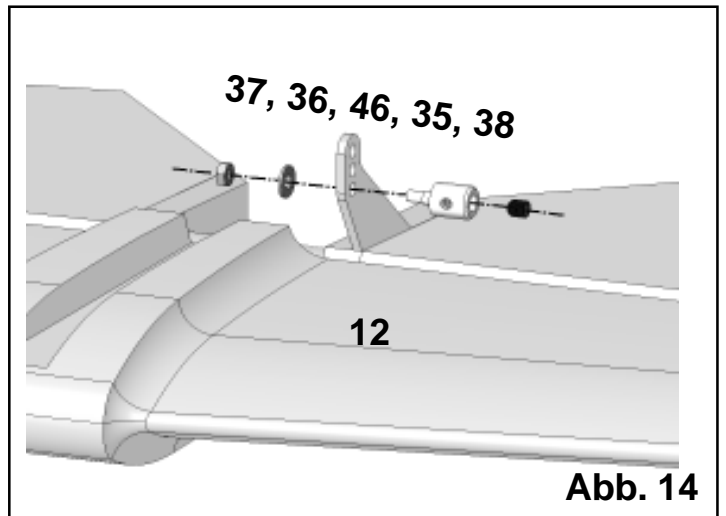


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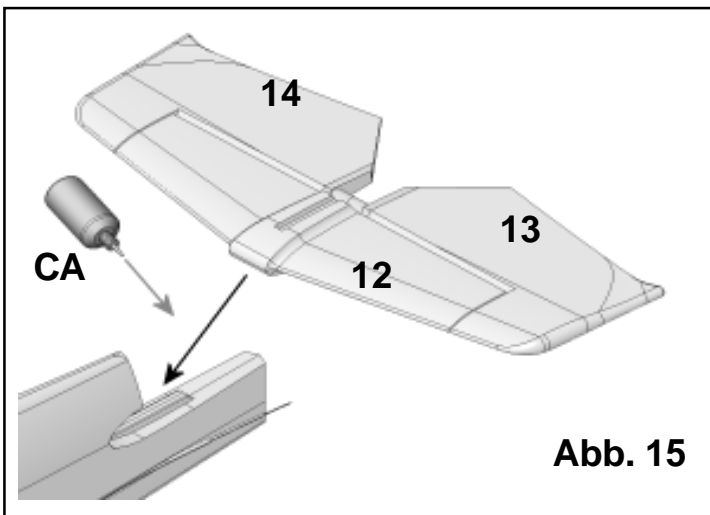


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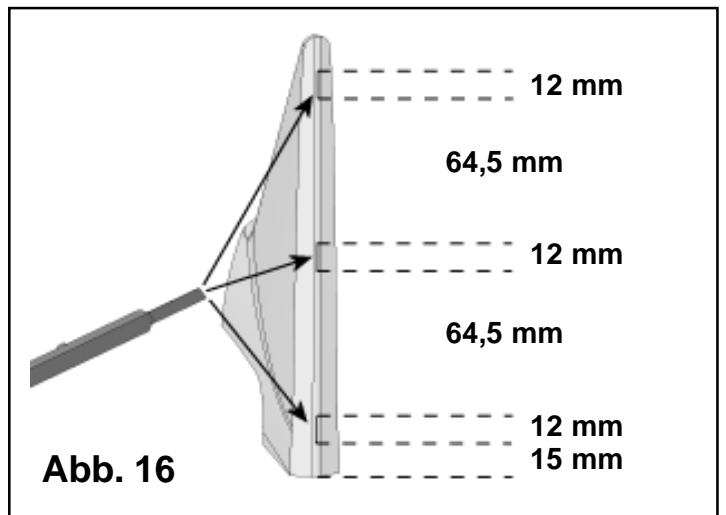


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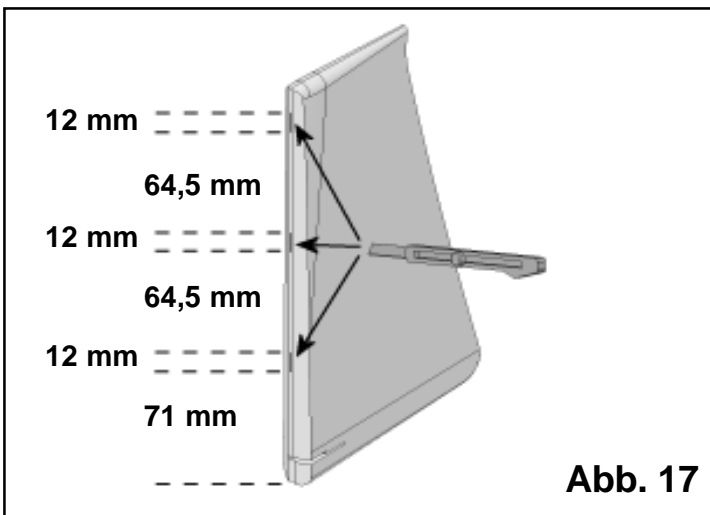


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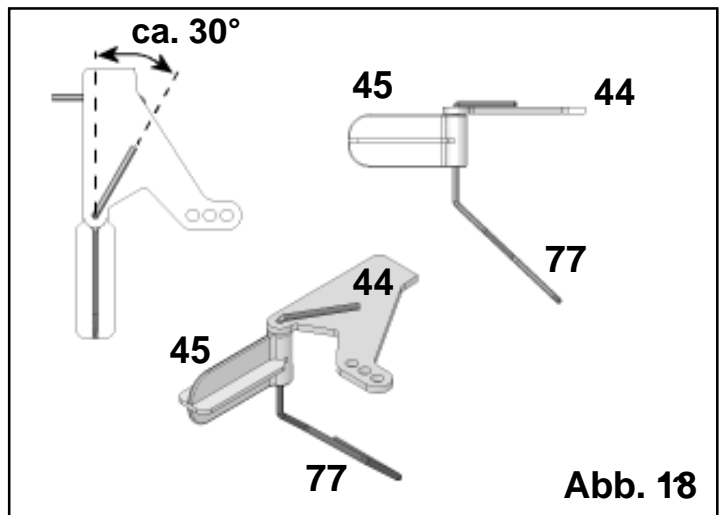
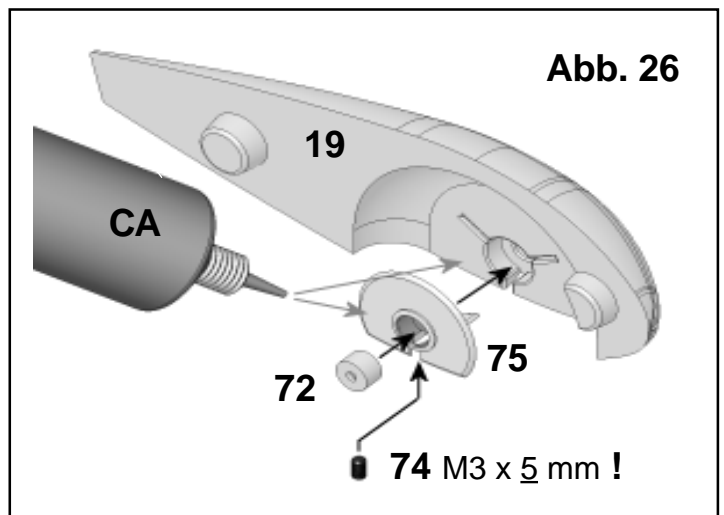
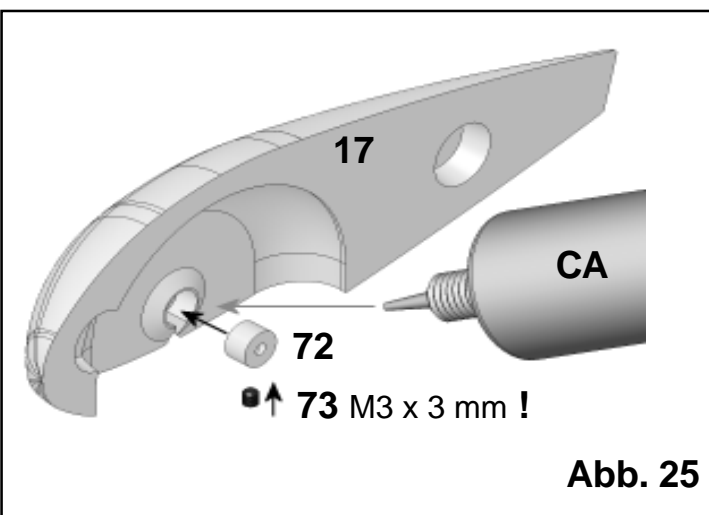
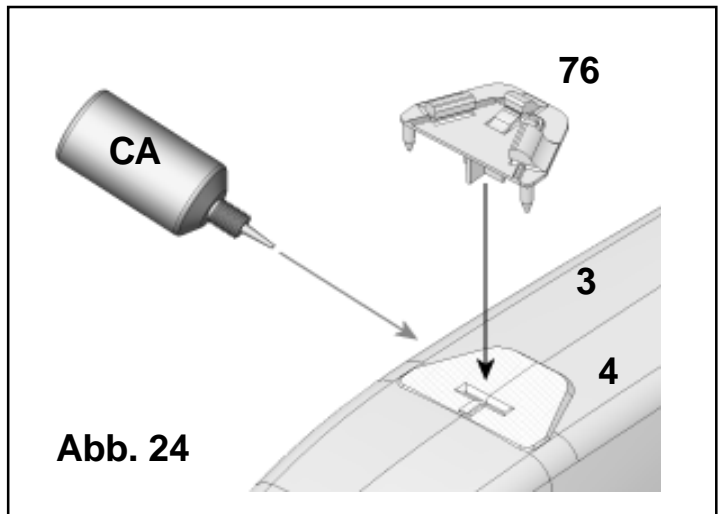
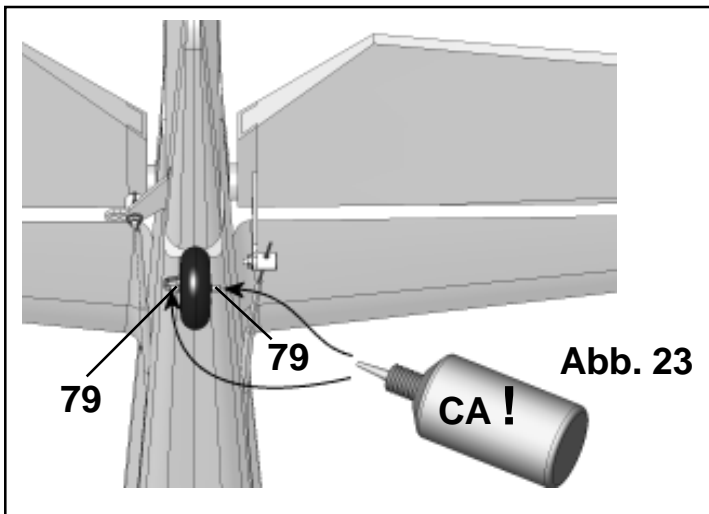
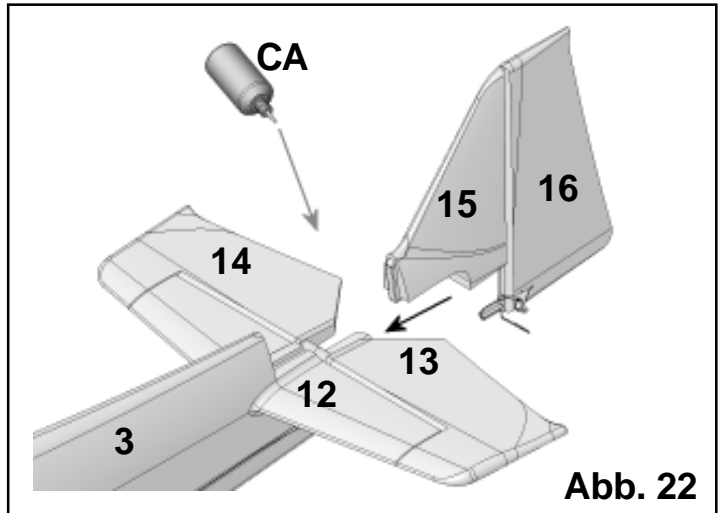
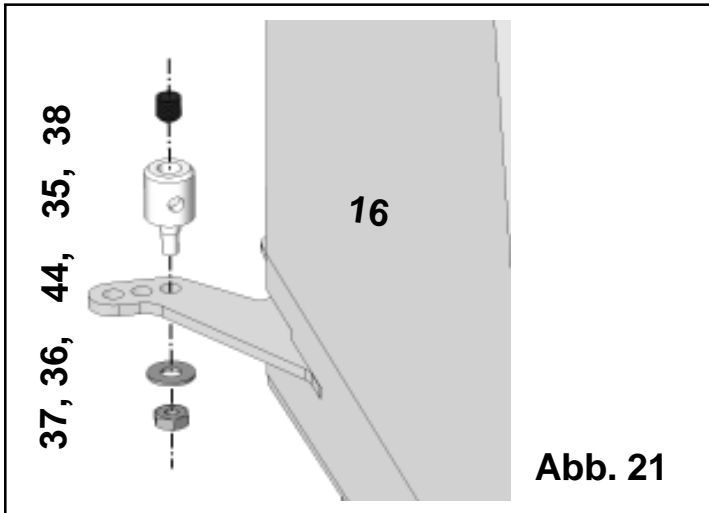
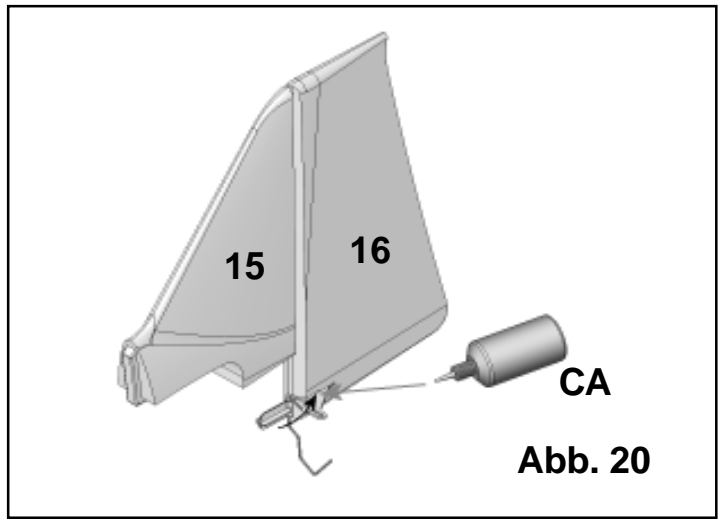
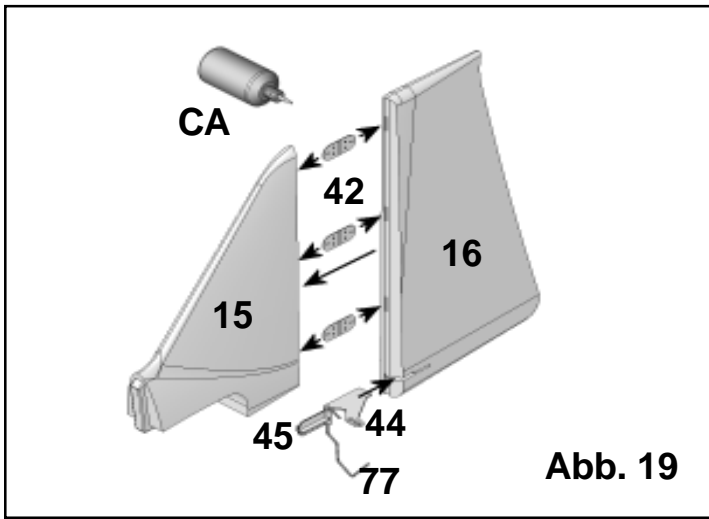
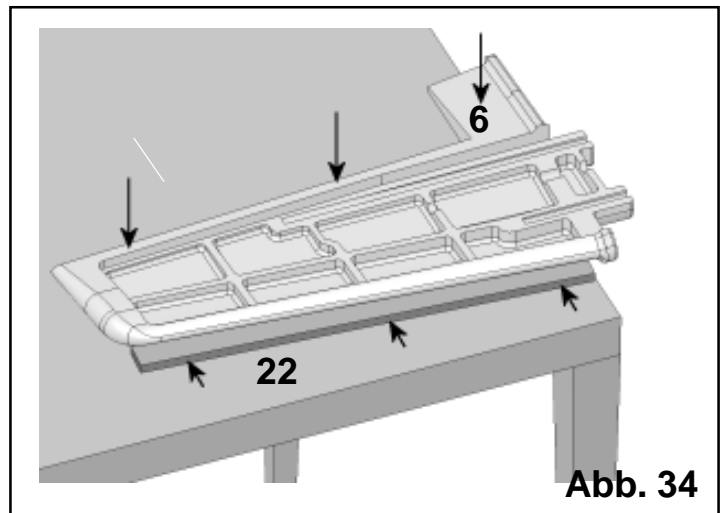
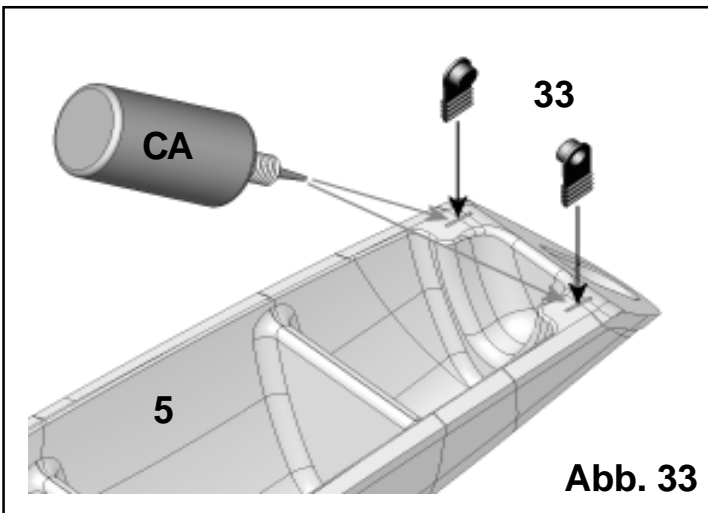
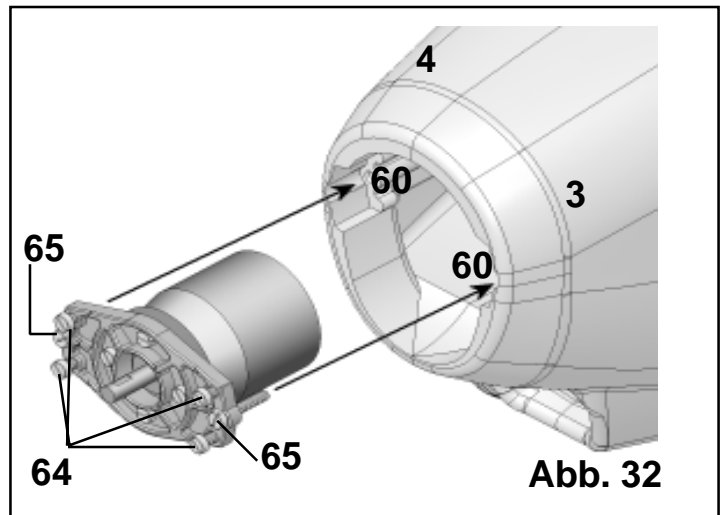
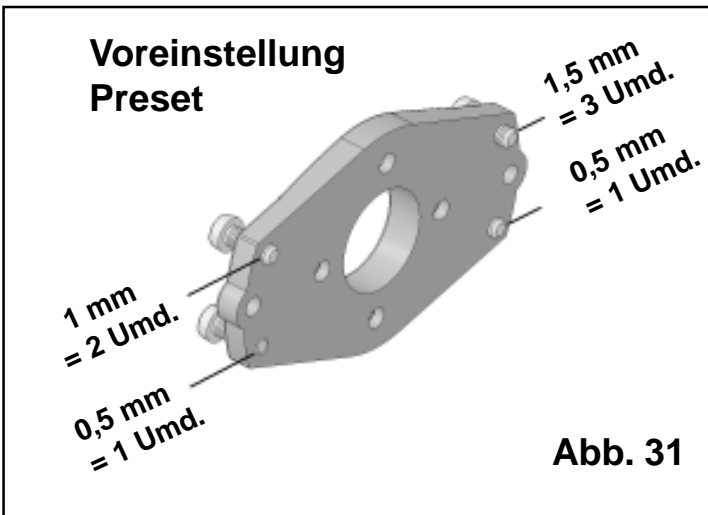
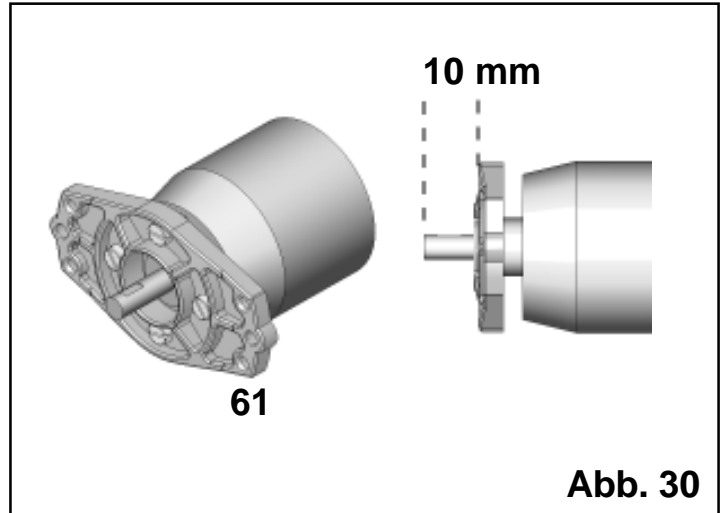
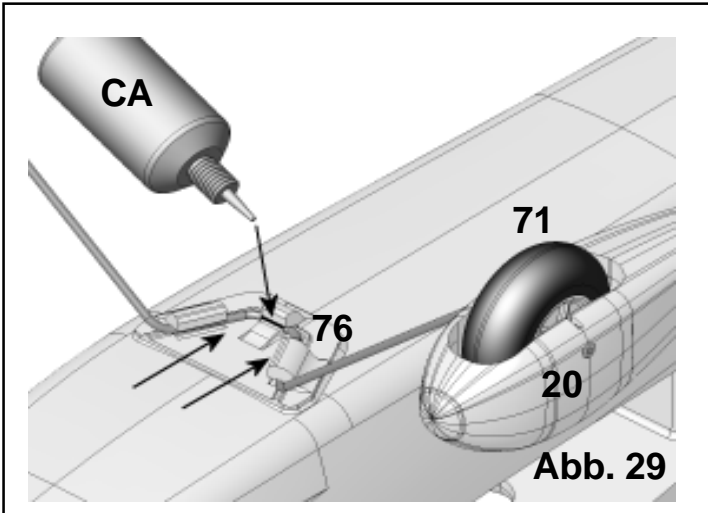
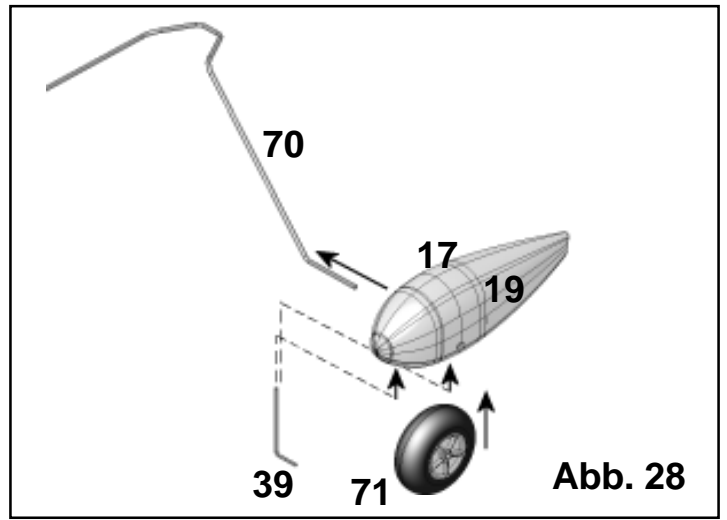
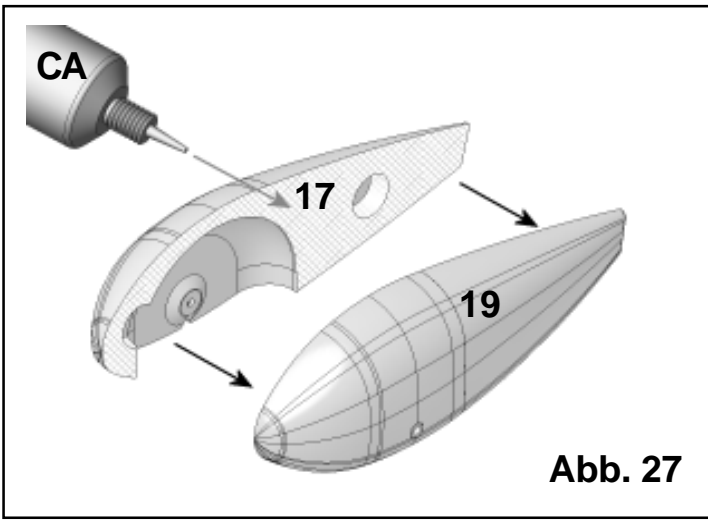


Abb. 18





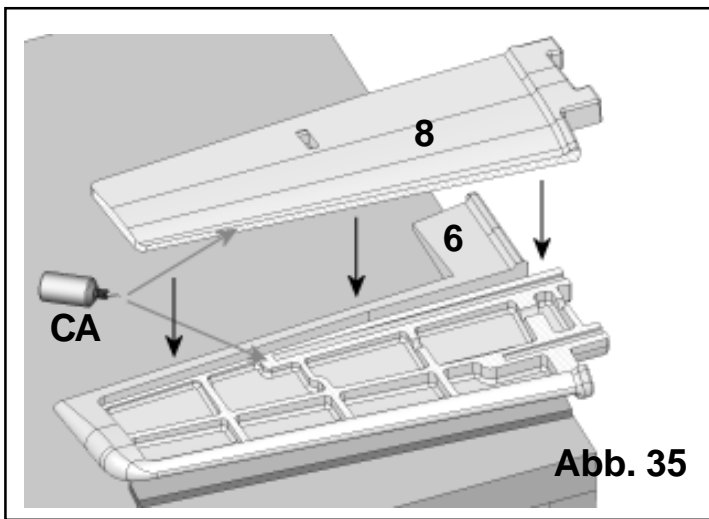


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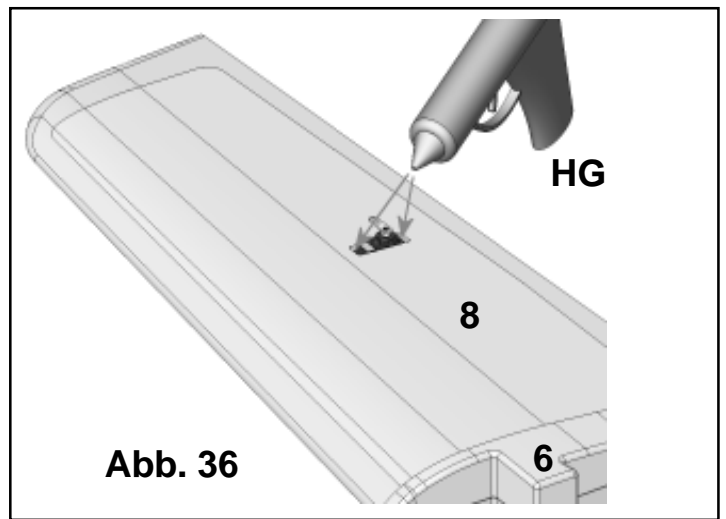


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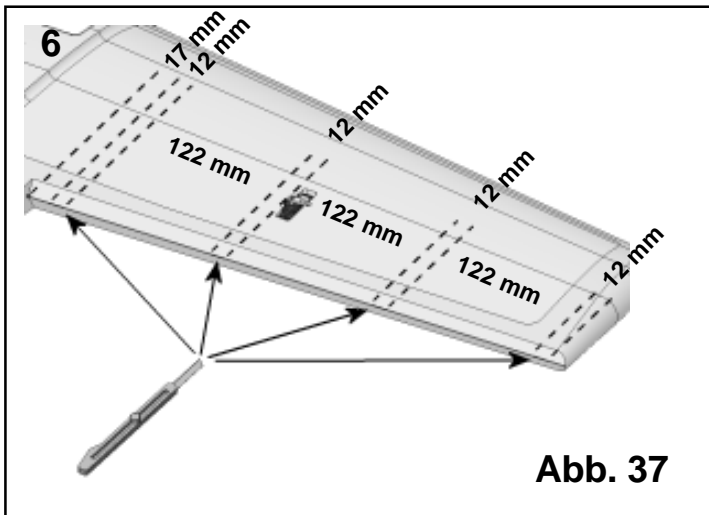


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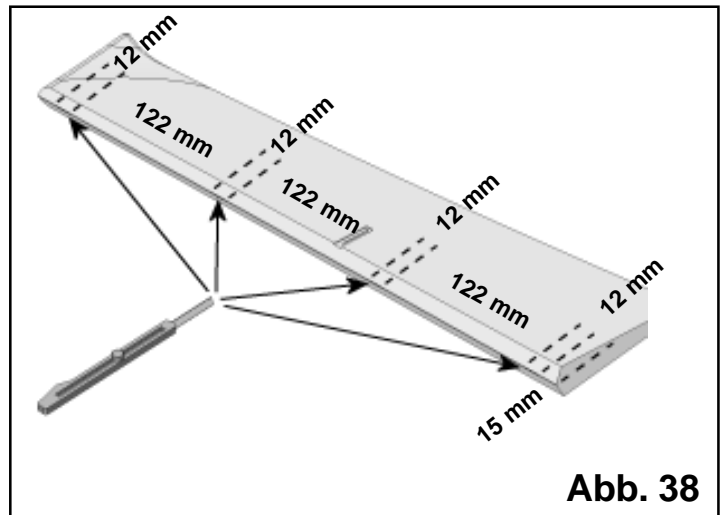


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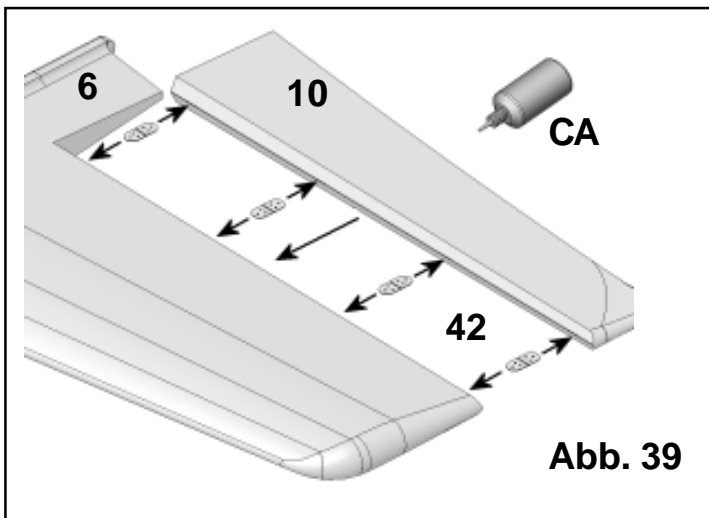


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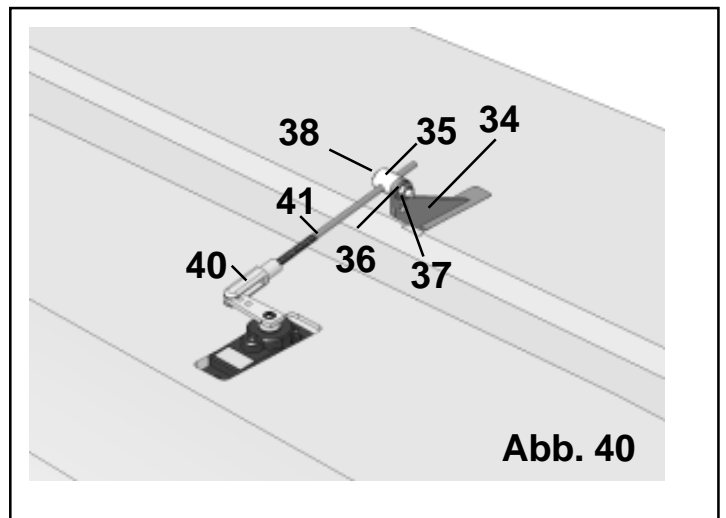


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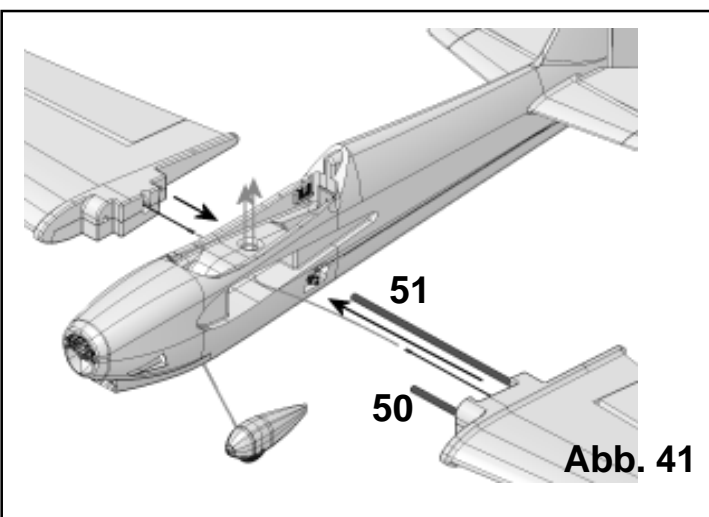


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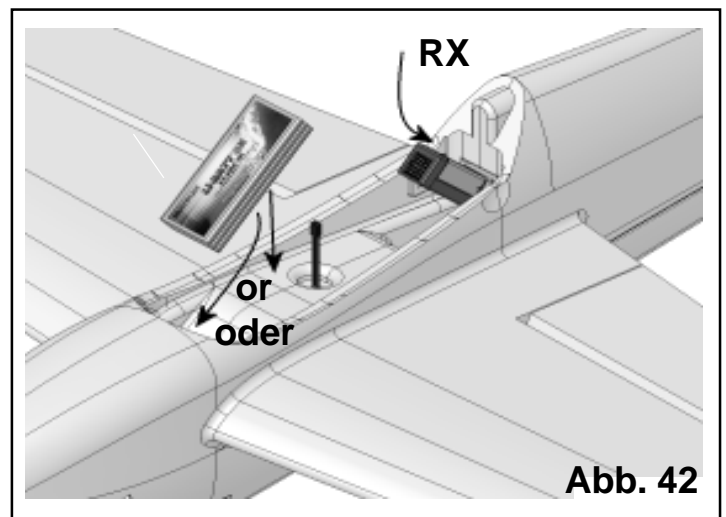


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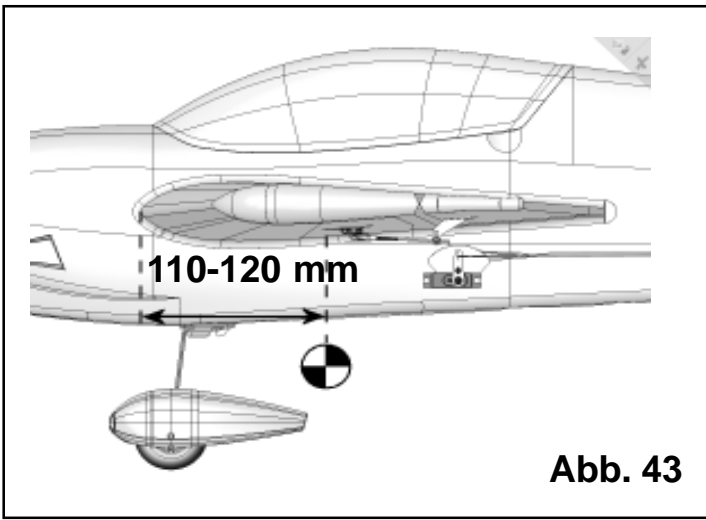


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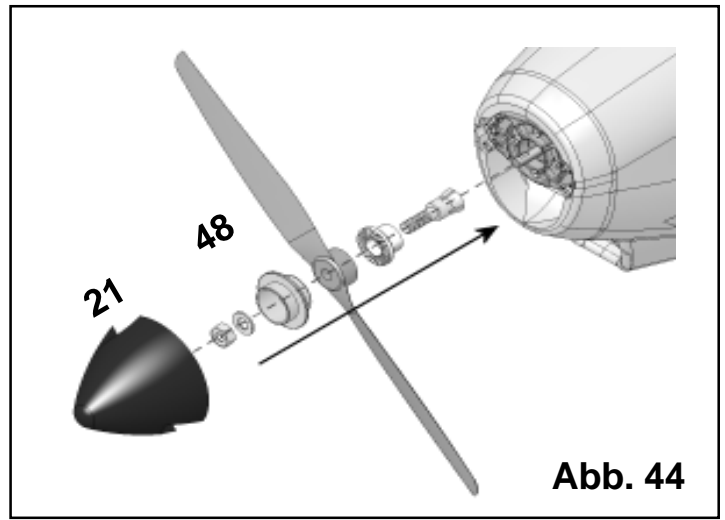


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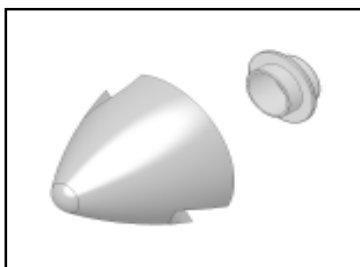
*Acro
Master*



Abb. 45

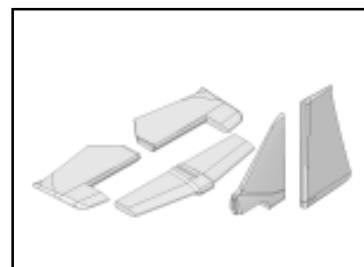
22 4207

Spinner EPP
 Spinner EPP
 Cône EPP
 ogiva in EPP
 cono EPP



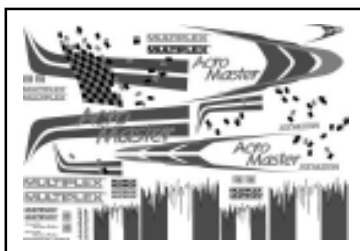
22 4203

Leitwerkssatz
 Tail set
 Kit de gouvernes
 Piani di coda
 Timones



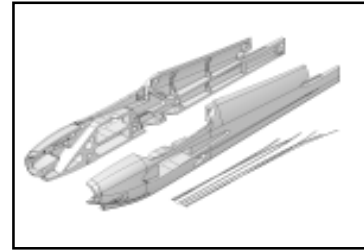
72 4390

Dekorbogen
 Decal sheet
 Planche de décoration
 Decals
 Lámina decorativa



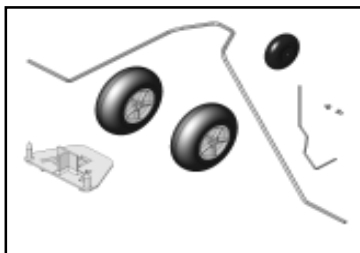
22 4200

Rumpf + Bowdenzüge
 fuselage + snakes
 fuselage + tringlerie
 fusoliera + bowden
 fuselage + trans.bowden



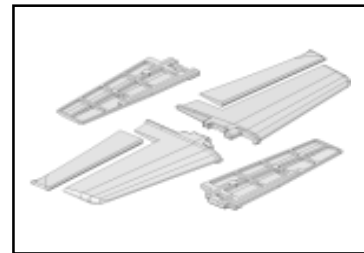
22 4206

Fahrwerkssatz
 Undercarriage compon.
 Train d'atterrissage
 Parti per carrello
 Kit del tren de aterrizaje



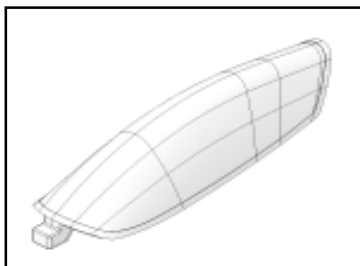
22 4202

Tragflächen
 Wings
 ailes
 ali
 alas



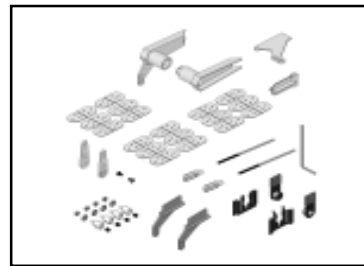
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Kabinenhaube
 Canopy
 Verrière
 Capottina
 Cabina



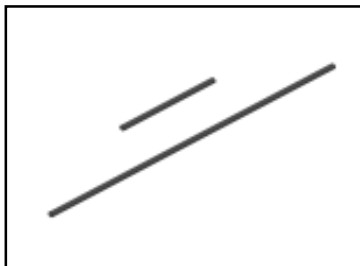
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Kleinteilesatz
 Small items set
 Petit nécessaire
 Minuteria
 Piezas pequeñas



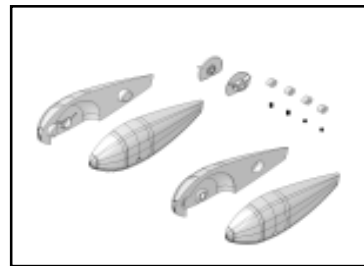
72 3187

Holmrohr
 Wing joniner
 Clé d'aile
 Baionetta
 Larguero



22 4204

Radverkleidungen
 Wheel spats
 carrénages de roues
 copri ruota
 protección para ruedas



33 2686

Motorträger
 Motor mount
 Support moteur
 Supporto motore
 Soporte del motor

