



English



Français



Español



Italiano



Deutsch

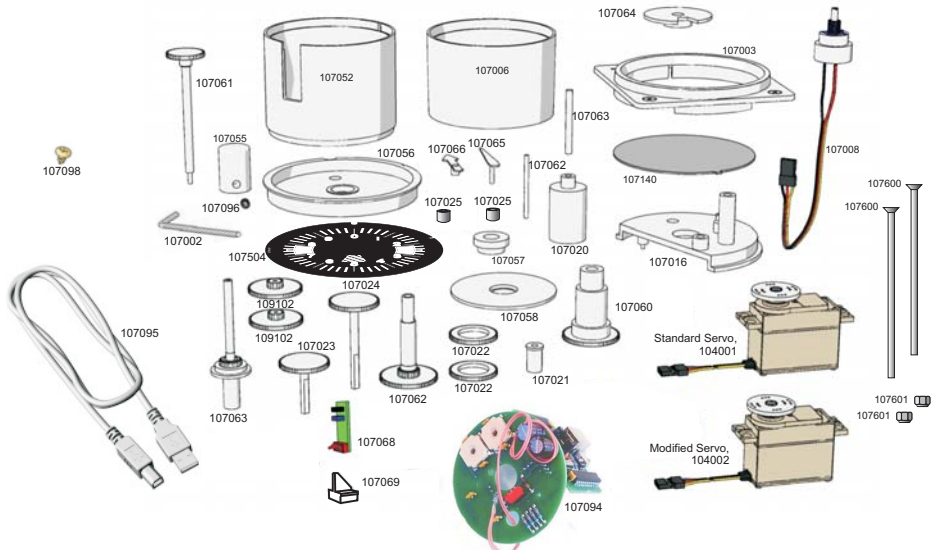
USB Altimeter Construction Manual

Manuel de construction de xxx USB*

Instrucciones de montaje del xxx artificial USB*

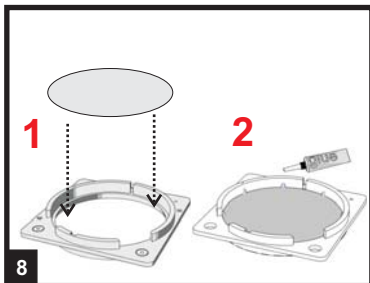
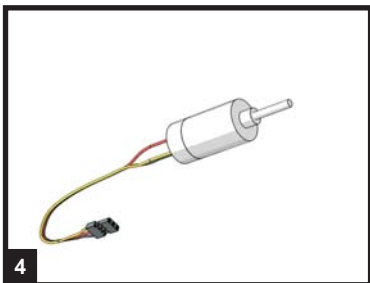
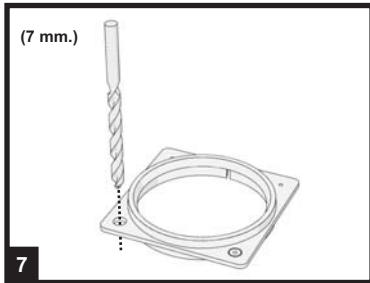
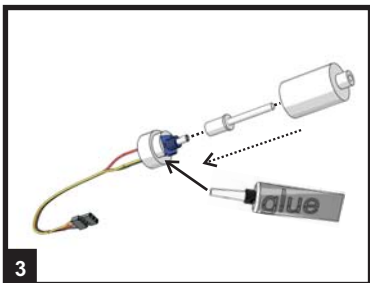
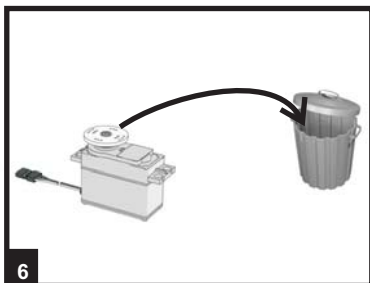
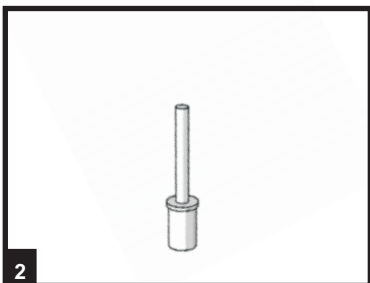
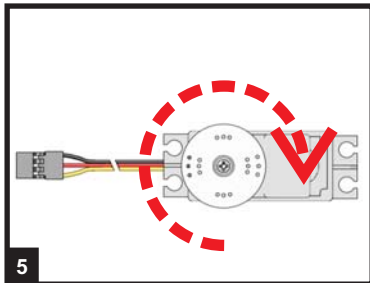
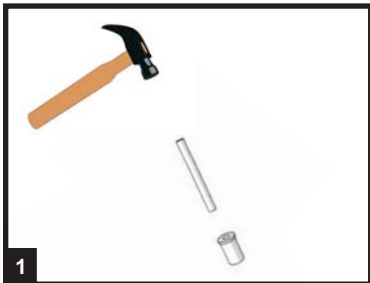
Manuale di assemblaggio dell xxx artificiale USB*

USB xxx - Montageanleitung*

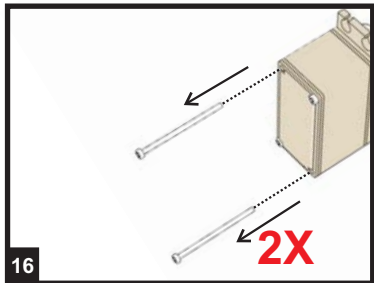
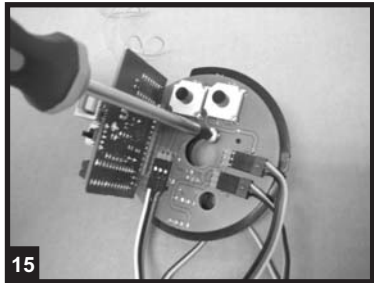
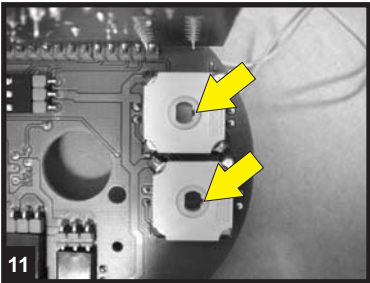
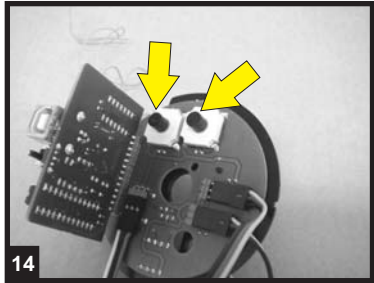
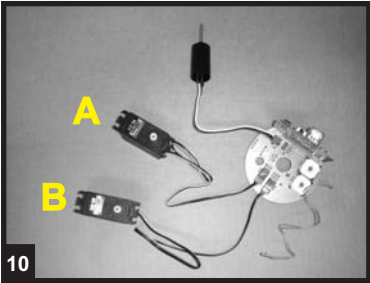
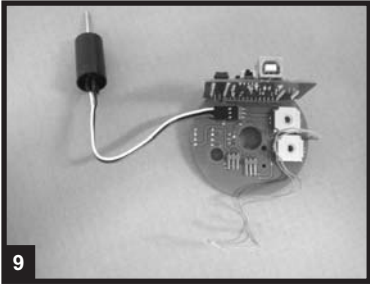


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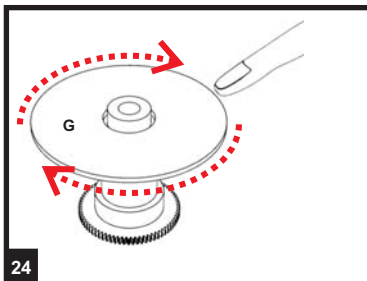
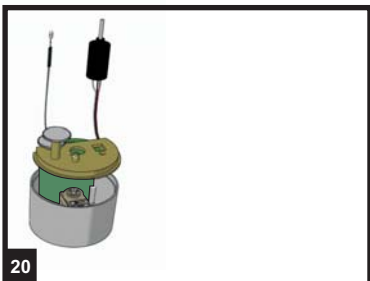
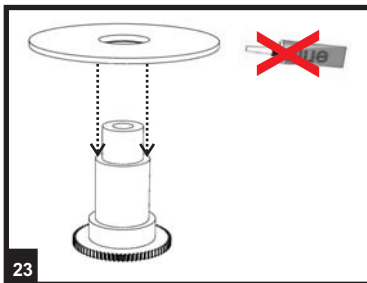
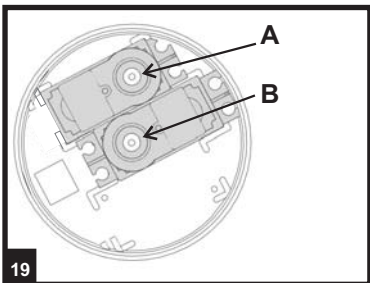
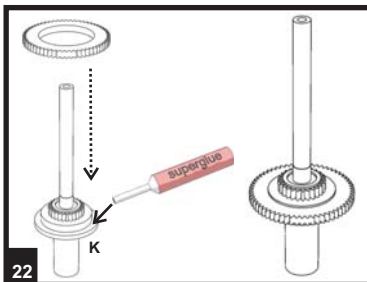
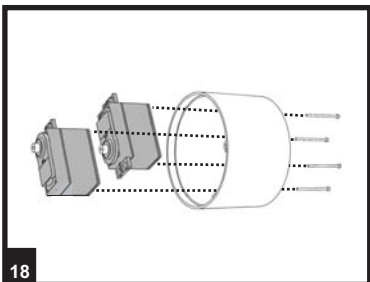
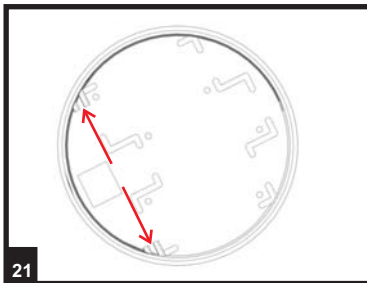
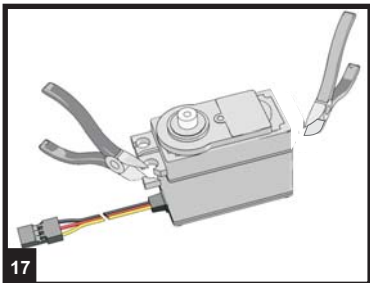
Altimeter



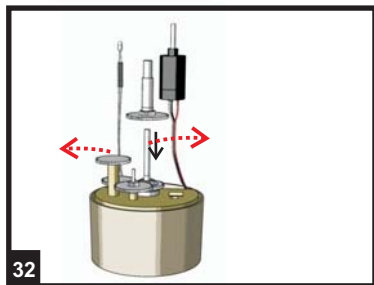
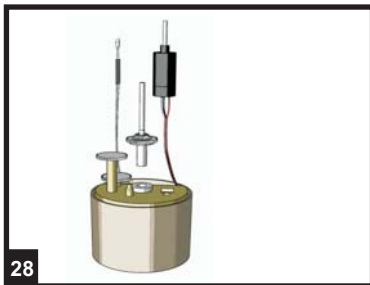
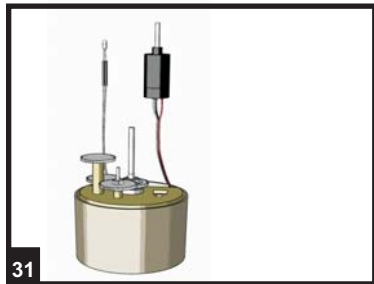
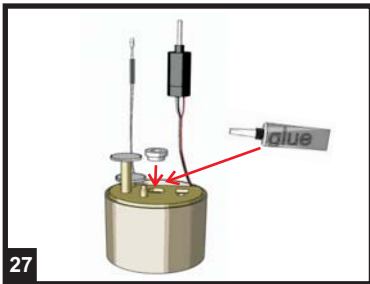
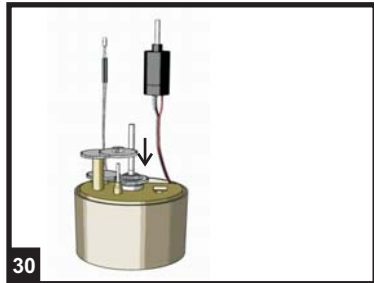
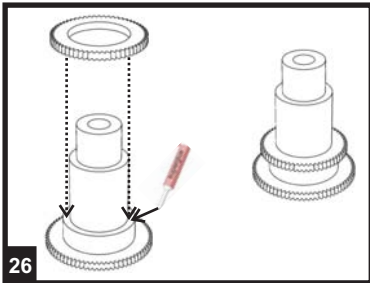
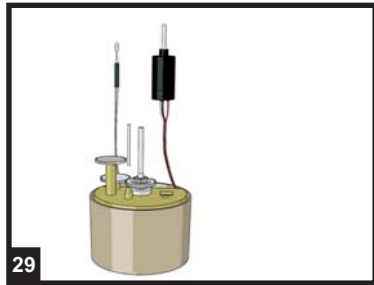
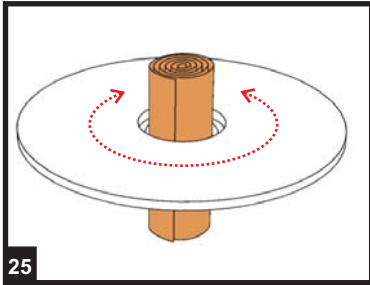
Altimeter



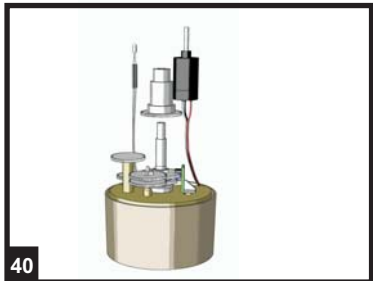
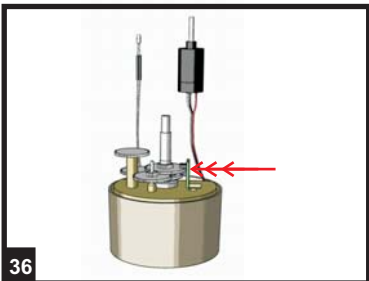
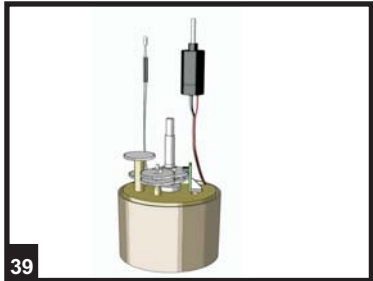
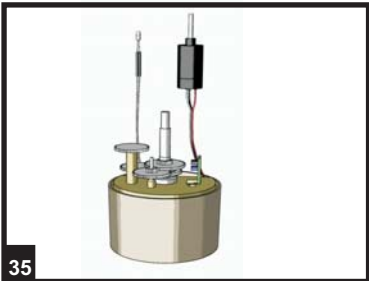
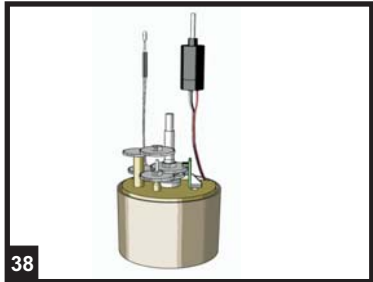
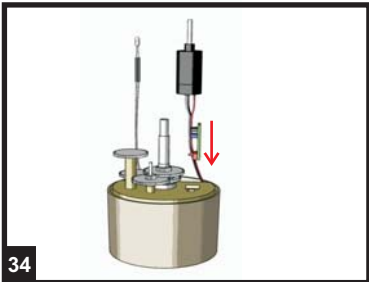
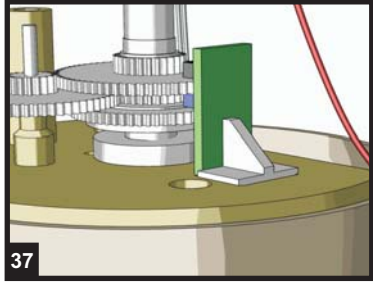
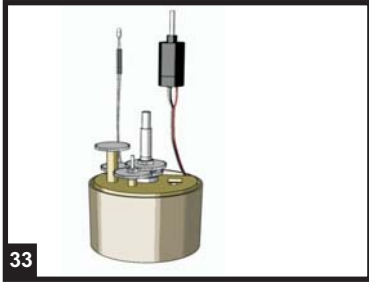
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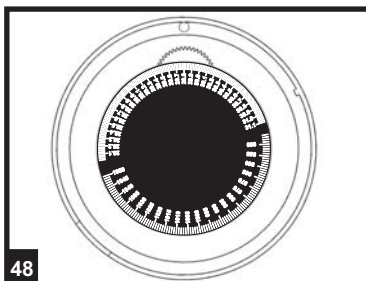
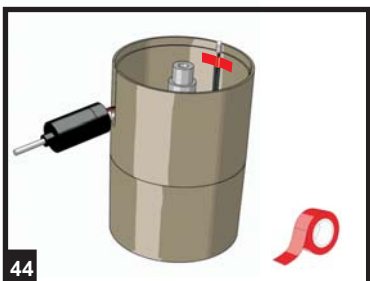
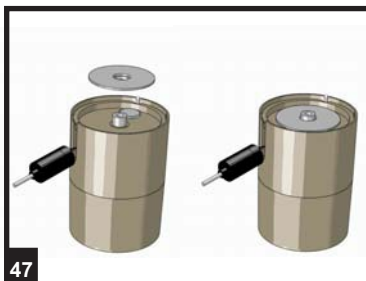
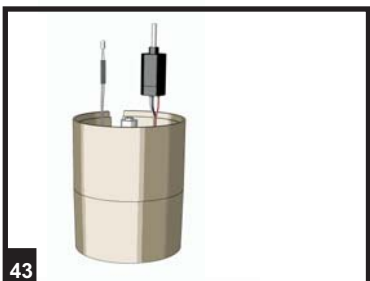
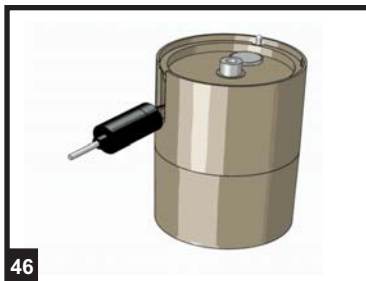
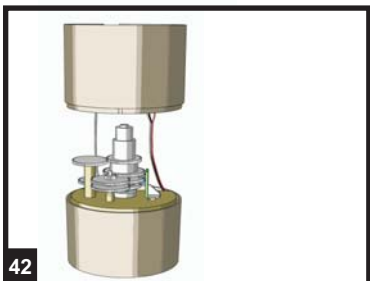
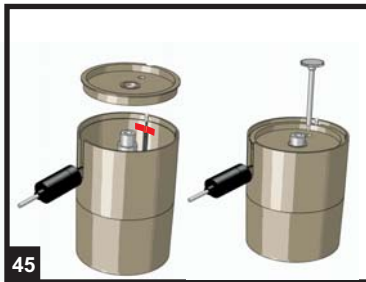
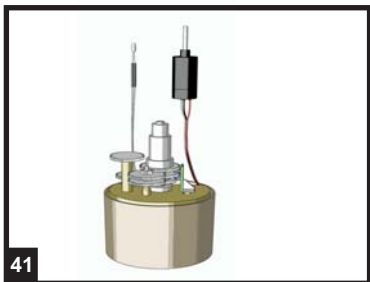
Altimeter



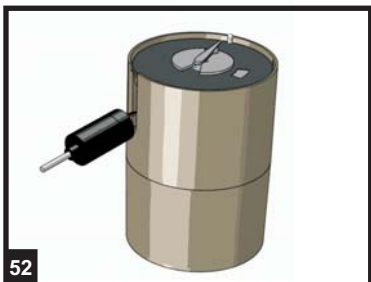
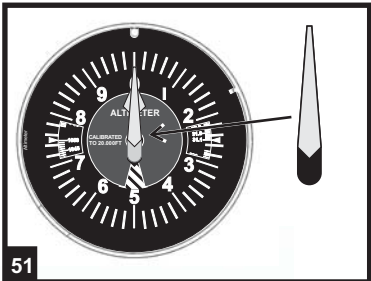
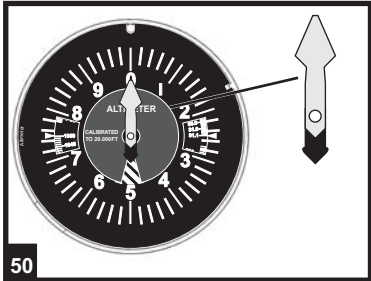
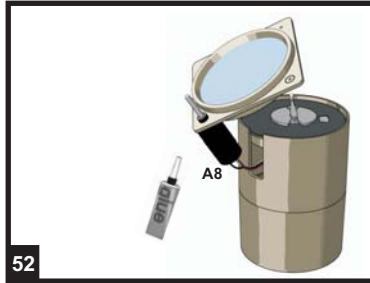
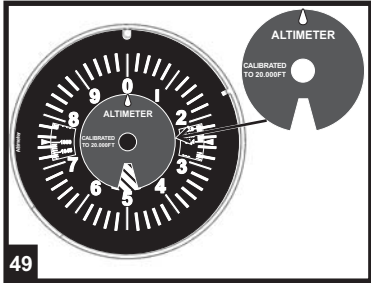
Altimeter



Altimeter



Altimeter





USB Altimeter Construction Manual

Before you begin: carefully read the manual and try (without using glue) to mount the components, in order to familiarise yourself with the procedure of construction.

Construction kit USB Altimeter

Your kit contains all the necessary components for assembling an USB Altimeter. Read this manual carefully before starting construction. This product can be constructed without technical expertise. Care and accuracy are of utmost importance. You will need some simple tools, such as a small star-shaped screwdriver, a hobby knife, some pliers, a 1/6" (4 mm) drill, a small file, insulating adhesive tape and glue suitable for plastic model kits.

General hints

Be very careful when using the hobby knife! Take good care of the amount of glue you apply and to which areas you apply it. Glue for plastics is essentially a solvent. Excessive use can damage the exterior of the instrument. Check if all components are included. During packing, the contents of the construction kit have been inspected several times.

Warranty

Construction kits come without a warranty!

Parts in your kit:

Partno	Description
104001	Standard Servo
104002	Modified Servo
107002	Inbus key
107003	Front ring
107006	Lower casing
107008	Rotary encoder assembly
107016	Plate
107020	Upper cap rotary Encoder
107021	Cap for rotary encoder
107022	Hollow gear wheel
107023	Gear wheel with shaft short
107024	Gear wheel with shaft long
107025	Fastening CAP
107052	Upper casing
107055	Metal knob
107056	Lower faceplate
107057	Bearing
107058	Pressure scale printed
107060	Outer shaft

107061	Propeller shaft
107062	Central Shaft
107062	Gear wheel shaft
107063	Inner shaft
107063	Shaft
107064	Indicator 10.000 ft
109102	Double gear wheel
107140	Optical
107065	Indicator 100 ft
107066	Indicator 1000 ft
107068	PCB small
107069	PCB support
107094	USB Controller PCBs
107096	Inbus bolt M3
107098	Screw to mount PCB
107504	Front plate
107600	Bolt M3 70 mm
107600	Nut M3 self locking

In case you need a replacement part, you can order them from our website entering the part number in your shopping cart. Parts are only available as replacement parts!

Assembly instructions

1. Carefully tap shaft 107063 into cap 107021 until it blocks.

2 and 3. Place component 107063/107021 as you have assembled onto the rotary encoder shaft (part no. 107008). There is a small indentation in the rotary encoder shaft. The opening of component 107021 contains a small ridge, which fits exactly into this indentation. Make sure ridge and indentation fit completely.

3 and 4. Mount component 107020 to component 107008 using just a little glue, making sure no glue comes into contact with the rotary encoder, with the rotary encoder shaft or with component W107063/107021.

5 and 6. There are 2 servos supplied. One modified servo (unpacked, part no. 104002) and one normal servo (packed in a box, part no. 104001). Take the normal servo out of the box and mark it so that you can distinguish between the two products at any later moment. Now take the normal servo and turn the mounted white plastic wheel carefully and slowly clockwise until it stops. Remove the white plastic wheel(s) (without moving the shaft of the servo!) and save the small black screw(s). You will need it later.

7. Enlarge the left lower hole of the front ring by using a 6.5 mm. drill (0.26").

8. Place optical 107140 into front ring 107003 by pressing it down and cement it by sparingly applying glue for model aircraft kits to the back of the front ring, in the edge where optical and front ring connect. Note that the optical has a recessed edge. This allows the optical to be inserted in the front ring in such a way that the optical comes a little forward to the front of the front ring.

9. Connect the rotary encoder assembly connector onto the Printed Circuit Board as shown in the picture. The wires of the rotary encoder assembly can be colored White, Black, Red or Yellow, Red, Black (depending on the production series).

The connector should be positioned onto the PCB in such a way that the Yello or White wire from the rotary encoder connects close to the square PCB and the round PCB.

10. Now connect the servos to the PCB. The normal servo **A** should be connected to S2 and the modified servo **B** to connector S1. The yellow wire of the servo connectors should be closest to the PIHER sensors.

11. The board 107094 contains 4 so-called position sensors with the text PIHER printed on it. These sensors are used in pairs. One on one side of the board and one directly opposite on the other side of the board.

The inner ring of this PIHER sensor has a little notch (see arrow), which indicates the position of the internal mechanics.

It is of utmost importance that the PIHER-pairs are properly aligned. Use the shaft of component 107024 and slide it into the center of the PIHER sensors.

Now turn slightly **each** PIHER sensor on both sides so that the little notch points to the **outside** of the board and align the center so that the shaft of components 107024 and 107023 can slide through the PIHER sensors easily. The positioning of the



components 107024 and 107023 is further explained in the next pictures.

12. Mount plate 107016 onto the electronics board 107094, using the positioning notches as shown in the picture. Do not use screws yet.

13. Insert gear wheels 107024 (longer shaft) and 107023 (shorter shaft) into the position on the plate 107016 as shown in the picture.

Be careful! The flattened sides of the shafts should move easily into the properly aligned Pihers!! This is of utmost importance!

Make sure the PIHER positioners are properly aligned as indicated in the picture 11. Once the shafts of gear wheels 107024 and 107023 are in position, you can carefully check whether they can twist freely.

14. Using superglue, cement caps 107025 onto the gearwheel shafts. TAKE NOTE: Under no circumstances should the PIHER positioners come into contact with glue! It is advised to put a very tiny drop at the top of the shafts of the gear wheels 107024 and 107023 and then press the caps 107025 onto the shafts.

15. Mount plate 107016 onto the PCB using screw 107098.

16. Unfasten two diagonally placed long screws from each of the servo casings as indicated in the picture. Keep the little screws from the servo shafts in a safe place.

17. Cut the ears from the **normal servo** as indicated in the drawing.

18. and 19. Place the servos into lower casing 107006 as indicated in the drawings. Use the screws you previously unscrewed from the servos to mount them into position. Take note: do not wind the screws too tightly! It's easy to damage the thread. The normal servo is position A and the modified servo on position B.

20. Position the plate with circuit board onto the lower casing, and guide out the rotary encoder assembly and the light between the casing and the circuit board. Mind the proper positioning of the plate. Use the

positioning notch to find the right position.

21. The lower casing has mounting ribs which facilitate the small square PCB. When mounted properly, the USB connector and switch is visible from the bottom side of the lower casing. The USB connector top should be at the same level as the lower case bottom when perfectly aligned. While doing this, make sure the superfluous wiring of lamp and servo do not touch any moving parts. If necessary use some adhesive tape to stick superfluous wires to the bottom of the casing.

22. Place gearwheel 107022 onto inner shaft 107063 and use superglue to cement the gearwheel. Only superglue can be used, since the gear wheel is made from nylon. Apply the glue to component 107063.

23 and 24. Check if component 107058 can turn freely on the topmost section of outer shaft 107060.

25. If this is not the case, use a rolled-up piece of fine sandpaper to widen the opening in component 107058, in case component 107058 does not turn freely on component 107060. It is absolutely necessary that part 107058 turns freely on part 107060 without any friction!! Remove all dust prior to continue assembly.

26. Place gearwheel 107022 onto component 107063 and cement it using superglue (the gear wheel is made from nylon so glue for model kits does not work properly here). Apply the glue to component 107063.

27. Place bearing 107057 into the plate and press it down. Use superglue to mount it.

28. Insert component 107022/107022 (inner shaft and gearwheel) into bearing 107057, making sure the inner shaft aligns with the modified servo.

29. Insert shaft 107062 into plate 107016 as shown in the picture. Press it tight until it stops.

30 and 31. Place one gearwheel

109102 over the metal gearwheel shaft with the smaller gearwheel side up.

32 and 33. Place central shaft 107062 over inner shaft 107063. While lowering shaft 107062, you need to bend shaft 107063 a little to the side in order to pass the gear wheel 107024 with the gear wheel from shaft 107062.

34, 35 and 36. Lower PCB 107068 onto the main PCB 107094 with the small connector facing towards the center of the instrument through the square hole of plate 107016 and press it in the direction of the center of the instrument.

37. Secure PCB 107068 by pressing the PCB support 107069 behind the small PCB 107068 into the hole of plate 107016.

38 and 39. Now place the 2nd gear wheel (part no. 109102) over the metal gearwheel shaft with the smaller gearwheel part up.

40 and 41. Place the outer shaft 107060/107022 over central shaft 107062, making sure the gearwheels connect properly and smoothly. While lowering shaft 107060/107022 you need to bend shaft 107062 a little to the side in order to pass the gear wheel 107024 with the gear wheel from shaft 107060+107022.

42 and 43. Place the upper casing 107052 onto the lower casing, use the little notch for proper positioning, while guiding the rotary encoder and light bulb up through the upper casing.

44. Mount the light bulb on the inside. The light bulb needs to protrude 0.1" (2.5 mm) from the edge.

45 and 46. Place lower faceplate 107056 onto the upper casing. Then carefully press the gear wheel with the long shaft 107061 into the opening in the standard servo axis where normally the screw is mounted. This needs to be done with great care!

47 and 48. Position the combined inches and millibar pressure scale 107058 exactly as indicated in the



illustration. Make sure the servo axis has not moved since you turned it. Use the altimeter's faceplate as an aid, and permanently place the faceplate onto the upper casing as well. Mind the proper positioning by using the positioning notch.

49. Now place the 10.000 ft indicator 107064 exactly as shown in the illustration and press it gently down. Do not use glue!

50. Then place the 1.000 ft indicator 107066 as shown in the illustration and press it down gently. Do not use glue!

51. Finally place the 100 ft indicator 107065 as shown in the illustration and press it down gently until in position. Do not use glue! Your assembly should look like illustration 52.

52. Mount the rotary encoder assembly 107008 into the earlier prepared front ring 107003.

53. Position front ring A1 onto the upper casing, and mount front ring, upper casing and lower casing together using the two 70 mm. M3 screws 107600 and self locking M3 nuts 107601.
Do not screw them too tight as this causes the front ring to bend. Just when everything is closed together, stop screwing!

54 and 55. Finally mount knob (107055) onto the shaft using the inbus bolt 107096 and inbus key 107002.



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DECLARATION OF CONFORMITY

We, the manufacturer:
TRC Development b.v.
Kolk 4

4241 TJ ARKEL - The Netherlands

Declares that the product:

Simkits USB Altimeter

Is in compliance with the essential requirements and other relevant provisions of the following directives:

*Electromagnetic Compatibility Directive
(89/336/EC)*

Low-Voltage Directive (73/23/EC)

The product is compatible with the norms / standards:


EN 50091-2 (1995)

EN 61000-3-2

EN 61000-3-3

EN 62040-1-1 (2003)

Manufacturer/Authorised representative


Curt Roth Sr. - CEO

If you have any questions concerning this product, please address them by email to:

support@simkits.com. Support is only available in the English language.

Pour toute question concernant ce produit, veuillez contacter par email

support@simkits.com. Support en anglais uniquement.

Wenn Sie Fragen zu diesem Produkt haben, wenden Sie sich bitte per E-Mail an:

support@simkits.com. Support steht nur in englischer Sprache zur Verfügung

Se si hanno domande relative a questo prodotto, è possibile sottoporle tramite posta elettronica all'indirizzo:

support@simkits.com. Il supporto è disponibile soltanto in lingua inglese

Si desea más información acerca de este producto, envíe un correo electrónico a:

support@simkits.com. La asistencia sólo está disponible en inglés.

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SimKits products are sold for personal use only. They may not be used or resold to third parties as a commercial activity, neither as parts, as being constructed for or be used as part of a commercial flight simulator or a flight simulator for training purposes. A license can be obtained at an additional fee per product to allow the use of a Simkits product for commercial or training purposes. When you do not agree with this limitation, you may return the product unused within 5 days after purchase/receipt of the product, for a full refund of the purchase price of the product. Shipping costs are never refunded.

Remarque impotante

les produits SimKits sont vendus pour un usage personnel uniquement. Ils ne doivent pas être utilisés ou revendus dans le cadre d'une activité commerciale, ni en tant que pièces détachées, ni comme partie d'un simulateur de vol commercial ou destiné à l'entraînement. Une licence peut être obtenue moyennant le paiement d'une taxe additionnelle par produit pour autoriser leur utilisation dans un cadre commercial ou pour l'entraînement au vol. En cas de désaccord avec cette clause, vous disposez d'un délai de cinq jours pour retourner les produits en vue de remboursement. Les frais de port ne sont pas remboursés.

Wichtiger Hinweis

Die Produkte von SimKits wurden ausschließlich für den persönlichen Gebrauch hergestellt. Sie dürfen nicht im Rahmen kommerzieller Aktivitäten, auch nicht in Teilen, etwa als Teil eines kommerziellen Flugsimulators oder eines Flugsimulators für Trainingszwecke, verwendet oder an Dritte weiterverkauft werden. Für eine zusätzliche Gebühr (pro Produkt) kann eine Lizenz erworben werden, die die Verwendung eines SimKits-Produkts für kommerzielle oder für Trainingszwecke erlaubt. Wenn Sie mit dieser Einschränkung nicht einverstanden sind, können Sie das unbenutzte Produkt innerhalb von 5 Tagen nach dem Kauf bzw. dem Erhalt des Produkts zurückgeben und erhalten den vollen Kaufpreis zurück-erstattet. Versandkosten werden in keinem Fall zurückerstattet.

Nota importante

I prodotti SimKits vengono venduti esclusivamente per uso personale. Non possono essere utilizzati da o rivenduti a terzi per attività commerciali, oppure essere usati come parti di un simulatore di volo commerciale o destinato alla formazione. Pagando una cifra aggiuntiva per prodotto è possibile ottenere una licenza che consente l'utilizzo di un prodotto Simkits per scopi commerciali o di formazione. Se non si accetta questa limitazione, è possibile restituire il prodotto integro entro 5 giorni dall'acquisto o dal ricevimento per avere il rimborso totale del prezzo di acquisto. I costi di spedizione non vengono rimborsati.

Nota importante

Los productos SimKits están pensados para uso solamente particular. No serán utilizados por terceras partes ni se venderán como parte de una actividad comercial, ni en piezas ni como un todo, tampoco se usarán como parte de ningún simulador de vuelo comercial o de un simulador de vuelo para formación. Se puede obtener una licencia, con el correspondiente coste adicional por producto, para poder utilizar los productos Simkits con fines comerciales o de formación. Si no está de acuerdo con esta limitación, puede devolver el producto sin usar dentro de los 5 días siguientes a su compra o recepción y se le reembolsará totalmente el precio de compra. Los gastos de envío no se reintegran en ningún caso.