

Glider FOX assembly guide

2006.10.14 第 3 版面

Glider FOX is the small-sized advanced electromotive R/C glider which it is designed is produced low price and the high performance as a fuselage. The main tail assembly which has the rib group structure due to laser cutting and we have become up-to-date best constitution the lightweight body by FRP depending upon. In addition, it designates the main wing span as 1500 mm size, it has made the size which is compatible the ease of conveyance with the air performance which has the sense of security by the fact that it makes the installation by the carbon shaft. The up-to-date brush less motor, it is optimum size to also loading the lithium polymer.

It is something in order to finish in the fuselage where this book assists the production of FOX, is better accurately. Furthermore it is improved this book by reference and, compared to the high performance becoming the fuselage, it expects that you can obtain many joys.

Furthermore, this instruction manual is drawn up on the basis of the kit of the early lot. Therefore after that, concerning the part which is improved because also the place where it is different from explanation more or less it is, please acknowledge.

1. Completion image of fuselage



Decare of stripe which represents the feather it is pasted in the wing of the fuselage which it offers. Furthermore, it becomes the fuselage where image differs completely by the fact that original decare is pasted. Designing pattern freely, how, probably will be. When it searches with Internet and the like, the beautiful design it may become reference, it comes out hard.

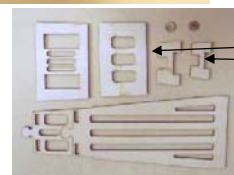
2. Accessory

Those below are the accessory. Before assembling, please check.

Division	Name	Number	Remark
Fuselage part	Body	1	
	Canopy	1	
	Fin and rudder	1	
	Tail plane	1	
	The right main wing	1	
	The left main wing	1	
	Long rod	2	
	Rear window vinyl chloride	1	
	Servo cover	2	
	ベラセット (red or white)	1	
	380 seismicity - tar	1	
	カーボンカンザシ	1	
Internal part	Battery mount	1	B 1
	Servo mount	1	B 2
	Wheel cover	1	B 3
	Battery stopper large	1	B 4
	Battery stopper small	1	B 5
	Motor spacer	2	B 6
Small article	Main gear wheel	1	
	Main gear wheel shaft	1	
	Motor mount board	1	
	Rod fixing block	2	
	Rod fixing block	2	
	Aileron rod	2	φ1.2*115
	Plastic horn	4	
	Pulling spring	1	
	Hook	2	
	M2 nut	4	For servo horn adjustment
	Servo table clamp	4	For servo horn adjustment
	M2 pan screw L=4	4	For servo horn adjustment
	φ 1.8 tapping screws	6	Servo cover installation
	M2 pan screw L=8	12	For horn fixing



胴体
主翼
水平尾翼
垂直尾翼



B 6
B 2
B 3
B 5
B 4
B 1



3. Processing the body

① Fixing of wing

The main wing left and right putting the body, is connected with the carbon pipe. Inside the same body it pulls the flanks in the body with the spring and it becomes the shape which is locked. (5-X reference) removing the wing when moving, you can receive in minimum cubic measure.

② Wing finishing blow hole processing

6 mm holes of カーボンカンザシ and the hole 3 mm of the knock pin for fixing are bored through the place where it is shown in the main wing fixed part of the body. The drill, when from beginning the hole is bored with the drill of intended diameter, is a possibility of shifting position largely. Then, after the drill of smaller 2 mm diameters (the drill for the carpenter is desirable) and, the tapered rill (the drill for the drill of the shape where the tip becomes pointed) with opening the prepared hole, please bore the hole with intended hole diameter.

③ Air intake hole processing

For cooling the motor and the battery, the hole which on rear side of the nose and main wing taking becomes the pathway of the air is bored. Beforehand because the form has been completed in the body, using Luther, et. al. you bore the hole according to that form.



1. カンザシ hole 6 mm



2. Knock pin hole 3 mm



3. Nose



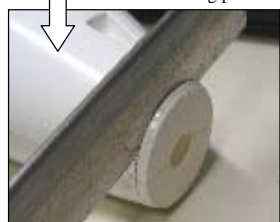
4. Main wing rear section

④ Processing the nose

The spinner which has belonged to the knitting machine - they are 33 mm ones, but the diameter of the nose there being only 32 mm, when it adjusts, it does not become the clean joint. Cutting down the nose section, it connects the new motor mount then. The cutting down length from the nose after cutting down with as about 3 mm, while the spinner - with adjusting, to the point of being brought together cleanly it keeps finishing with the paper. **With the up-to-date lot the spinner - diameter is modified)**



Cutting position



Cutting

The line is pulled with the tape and the like from position of the nose point to become precisely 3 mm

Tape

Line

Using the piranha saw, and the like it cuts off the nose section



Shaving



Adjusting verification

Winding the sandpaper flatly, it puts out the level aspect

The spinner - 0.5 try the diameter of the nose to become mm larger than diameter.

⑤ Connecting and processing the motor mount

It glues the motor mount to the nose which it cuts.

Because the nose is cut down, the new motor mount becomes necessary. It makes anew with the Chinese veneer, glues to the type.

The motor mount makes diameter 32 mm with 3 mm Chinese veneers.



Motor mount



Inside body
Adhesive and application



Outside nose
Adhesive application



Training

If the hole saw is used, it can make clean, but it is possible even with the jigsaw and the like

The excessive adhesive is wiped off roundly with the fingertip and the like



It adjusts hole diameter and hole position, to the motor.



The central hole is expanded to necessary hole diameter with the tapered reamer

The hole of the motor attaching screw is bored

As for the photograph example of 380 motors which belong Completion and the spinner - with it tries checking together



Completion



Note

Because as for the motor fixed screw of attachment being too long, the stator in the motor - (the rotor) there are times when it hits, in that case please cut the screw.



Cutting the screw with the cutting tool

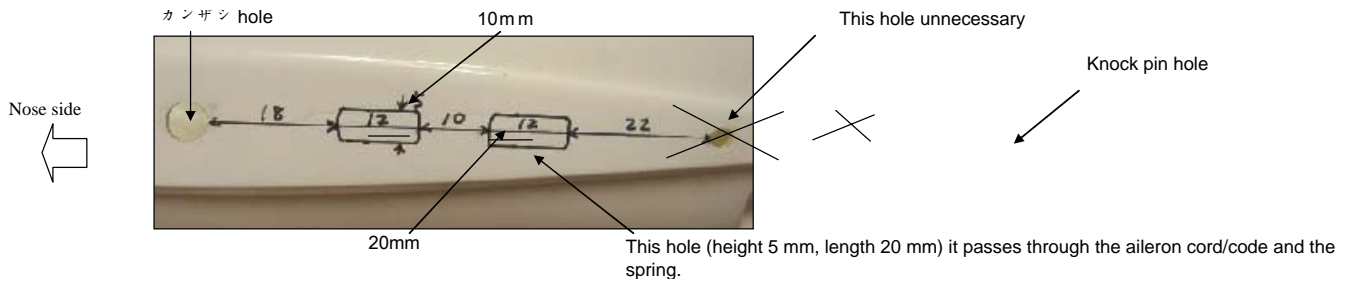


As for length of screw 6 mm

⑥ Main wing retaining spring, hole processing of aileron servo cord/code

The spring because the main wing is locked in the body and the hole in order to pass through the aileron servo cord/code are opened. It processes on left and right both sides.

As for position of the below-mentioned photograph as in the figure please as for not be and process at the numerical value which was reformed.



⑦ Additional manufacture of tai

In the early lot because length of the tail be too long, we had reached the size where the elevator does not move. The tail 8 mm is cut then. With the lot which is improved as for this processing it is unnecessary. Trying placing the tail plane, when the elevator does not move only, please do processing. (The present lot is normal. Processing is unnecessary)



Measurement

8mm



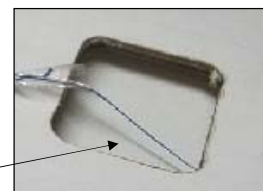
Cutting

After the cutting, it finishes with the paper

4.Processing the main wing

① エルロンサーボホルダーの穴あけ

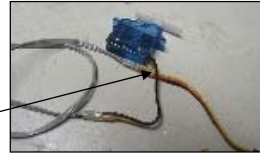
The hole where aileron servo enters is processed to the main wing underside, but because it has hidden in the film, it finishes to burn the film. When this time, the soldering iron is used, it is possible to cut cleanly quickly.



hole which is finished to burn with the soldering iron

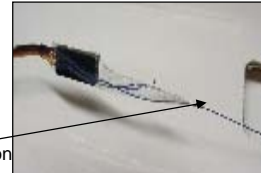
② Cord/code extension of aileron servo

As for aileron servo in order the cord/code to crawl to the body through the main wing, extension is necessary. Please extend the servo cord/code utilize the extension cord of marketing making use of the suitable 3 core cables, or. As for extended length please make 30 centimeters. Cutting off the cable of servo midway, the example which succeeds 3 core cables and adds. There is also a cable extension of marketing, but if it extends the normal 3 core cables with the solder, cheapness.



③ Wiring of cord/code

The cord/code of aileron servo passes through the main wing, but the thread for passing is arranged beforehand in the main wing. Using this thread, please crawl the cable. Furthermore, in order to prevent catching in the main wing, connection of the thread and the servo connector like the photograph when the scotch tape is designated as conical condition, is good, is.



Conical condition

④ Processing the aileron servo cover

The aileron servo cover 2 Tsugas is in a state where it adheres with the formation material of プラ. To separate this, fairing each one cleanly with the sandpaper and the like, the て.



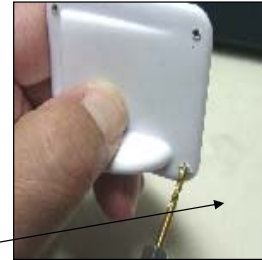
It fairs with the sandpaper

1



2

In the cover there is a sign of convex condition in hole crying position. 2 about mm holes are bored through 3 places of this sign with the soldering iron.



After boring the hole with the soldering iron, the hole is expanded with 3 mm drills.

3

Lastly, cutting down Bali which appears in the part of the hole with the cutter, you complete.



4

Completion

The parenthesis it was good, cut slantedly.



5

⑤ Installation of aileron servo

エルロンサーボは④で加工したサーボカバーに両面テープで貼り付けます。両面テープは3M社製のVBMなど、強力タイプを使ってください。このテープを使うと、一旦、貼り付けたサーボは2度と剥がれないほど強力に接合されます。



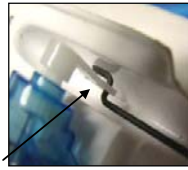
When installation position of servo is unpalatable, the installation of the servo cover of the next section does not go well. Then when beginning when with the both sides tape of weak type the temporary locking rice, suitable position it becomes settled position of servo writes in to the cover with the pen, locks lastly with the powerful both sides tape it is good, probably will be.

⑥ Processing the aileron rod

1.2 mm piano lines of attachment are used in the aileron rod. This servo horn side you bend to Z type. The Z when vendor and the like is used, it is possible to bend simply cleanly. The photograph is the Z vendor of the pilot make. It seems that is assumed that reputation is best in the Z vendor which is marketed in the country. (Presently, as for this factory processing to be completed)

The hole of horn 1.2 mm piano lines just are also some which do not fit. In that case please bore 1.2 mm holes with the drill.

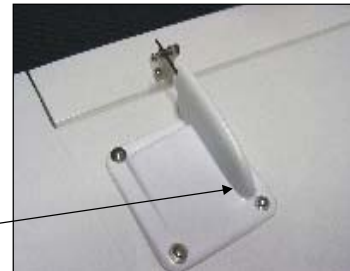
1.2 Mm hole



⑦ Installation of aileron servo

The servo cover where it can stick servo is inserted in the servo hole of the main wing. In the hole of the servo cover it locks in the main wing through 2 mm spikes. This time, the spike is easy to lock on main wing side, the sea urchin balsa block of the eye being arranged largely, it has become the design where the spike is screwed in to that block. After the stopping one time removing, the spike securely please verify that it was screwed in to balsa block. If (approximately, the servo cover is set to the position of the photograph, OK)

On the reverse side of this cover servo is stuck with the both sides tape

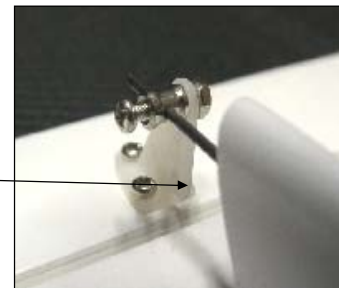


⑧ Installation of aileron horn

Aileron horn is installed in the aileron.

Aileron horn puts the aileron in with 2 parts and locks with 2 mm screw 3. Approximately when position is decided, sign is acquired to the position where it passes through the screw with the pen. After that 2. The hole is bored through position of sign with mm drill. Because 2 mm screws it has reached a little long size, cutting according to need, please install.

The length of the screw it cuts according to need



Like the photograph to the left it assembles the aileron control rod and aileron horn. In order to be able to adjust the position of the rod afterwards, about 5 mm leaving, it cuts.

⑨ Installation of main wing pulling hook

左右の主翼はカーボンカンザシを挿入の上で、胴体に取り付けられます。このとき、左右の主翼が抜けないようにフックで引っ張り合うようにします。フックは3-

⑥で開けた穴位置に合うようにして、主翼の端のリブにねじ込み固定します。エボキシを少々つけると良いでしょう。



⑩ Adjusting the main wing positioning pin

The alignment of the main wing and the body is formed with the knock pin of カーボンカンザシ and the aluminum. This time, there is a knock pin hole of the body and times when the knock pin of the main wing is not agreeable. In that case, processing the hole of body side to some long hole, try to be able to insert the main wing smoothly.

3-③Please refer the photograph of 2.



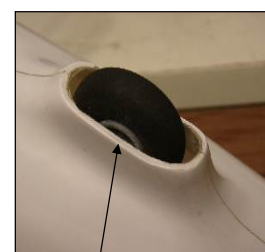
5. Processing the body

① Installation of main wheel

The main wheel in the wheel which belongs you install in the wheel mouth of the body through the shaft. Cutting the length of the shaft, after making exactly good length, with epoxy it locks the both ends of the shaft in FRP of the body. This time the gluing part in order to put the fragment of the shaft which is cut down above the wheel shaft when it glues, even at the time of hard landing the fact that the wheel comes off prevents.



It reinforces with the rod which it cuts down



Position of the extent where the wheel is visible a little is good

② Installation of tail gear wheel

We have not belonged to the kit and, with standard as for the tail gear wheel it has not meant to install, but if there are Φ 15 mm small diameter wheels, it is possible to install the tail gear wheel like the photograph.

Those of the trade name, OK model make sponge tire 15 mm are agreeable exactly.



This part using リネーター and the like, bores the hole where the tire enters. The shaft of the tire is the brass line of marketing.

③ Installation of battery mount

The battery mount is installed inside the same body. Is the both veneer. In reference please lock the photograph with the epoxy adhesive. Adjusting to the form of the battery, it reaching the point where it can select the installation of the stopper board it increases the battery mount. When it is the majority, being to think, that head side becomes heavy, as for battery stopper the one which is attached on rear side is better, probably will be.

④ Installation of servo mount

The photograph please glue the servo mount to the body same as the battery mount in reference. The adhesive epoxy is suitable. The aforementioned way because there is a tendency where center of gravity is from before, the servo mount the one which arranges on rear side is good from the photograph, probably will be.

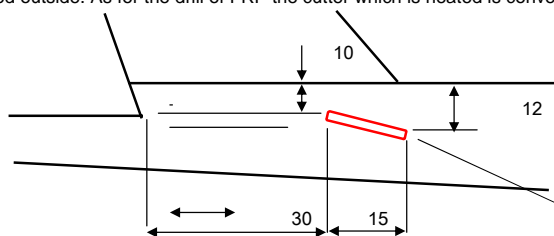
⑤ Gluing of rod intermediate fixing block

The rod of the elevator and the aileron passing by inside the body, extends to the tail, but length considerably because of a certain, it dances inside the body. Then the dance is prevented at intermediate position of the rod through fixing block.

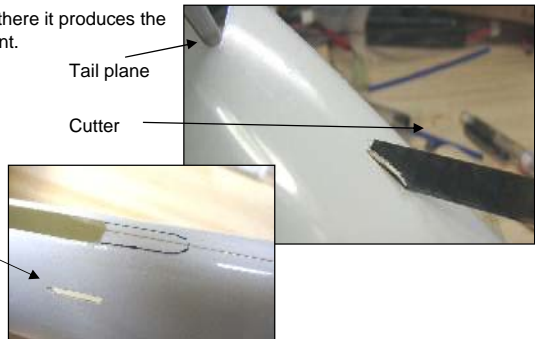
Fixing block consists the tube and wooden block. After connecting two with the epoxy adhesive, in reference please glue locking the photograph inside the body and.

⑥ Processing the ladder rodding hole

The ぁ boring the hole through the fin and rudder leading edge right side, from there it produces the ladder rod outside. As for the drill of FRP the cutter which is heated is convenient.



Cutting position explanation drawing



Processing the rear window

⑦

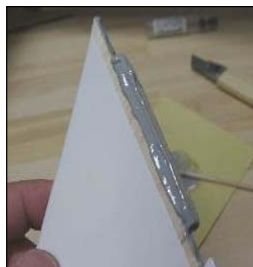
In FOX there is rear window in the rear of the canopy. The concavity processing to the body beforehand, the rear window is shown. Being the paint to be possible to do, it does, here, but when we would like to voice the scale impression, we recommend additional manufacture. Dent is different from actual position more or less. The photograph please try challenging to processing in reference.

Bend of 1 transparent vinyl chloride		2. Marking-off of cutting position	3. Cutting
Warming the vinyl chloride board of attachment with the gas cookstove, and the like being the place where it becomes soft, applying to the FRP body, it bends similarly to the body. When it bends, 2 it divides to the one for window left and right.		Position of the window is decided with the pencil. The window is 3 rectangularities. Please decide the photograph in reference.	The window is cut. The blade of the cutter which is heated with the gas cookstove and the like is suitable in cutting. サクッ it is cut off.
4. Fairing		5. Sticking the window	
Bali you take the edge which it cuts cleanly with the stick file, and the like fair.		From the window cutting the vinyl chloride which it divides to going around large texture, it sticks from inside.	

6 .Installation of tail assembly

① Installation of fin and rudder

The fin and rudder is installed in the body. We are simple insertion system, but when it is not agreeable, inside the body concave section and shaving the convex part of the fin and rudder, try to be able to insert in the hole of the body. As for connecting the epoxy adhesive is used.



② Installation of rudder horn

The hole where the attaching screw of horn enters beforehand is processed to the ladder. The ㇏ doing the film, please verify the position where it has the hole whether in light. Applying the your solder ㇏ to the position, please bore the hole. Horn is locked in the hole which you opened through the screw of rudder horn. Please cut the long part above necessity of the screw.



ラダーホーン

③ Fillet formation of fin and rudder

It just connected being even to be good, it does, but in order to show the body and the fin and rudder smoothly, it is good forming the fillet with epoxy, probably will be.



④ Installation of tail plane

As for the tail plane you install with the body and gluing, but in the future a some being necessary, perhaps there are also times when you remove. The method then of locking with the screw and the knock pin is introduced.



4-②With elevator horn is installed with the same procedure.

1.2 mm holes additional manufacture are done in necessary position.

With the screw and the knock pin the elevator is locked in the body.
It glues usually.

In order for the elevator rod and the attaching screw not to cross, 3 mm it shifts elevator horn from the centerline of the body.



The Φ 3 mm *8 mm knock pins (it does not belong)

The Φ 3 mm *8 mm knock pins (it does not belong)



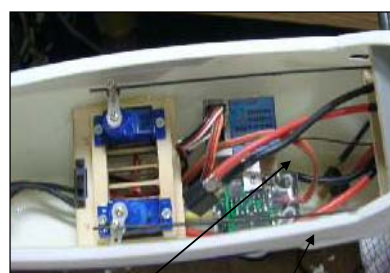
Once, removing horn, you install in the rod and after that and install horn.

7 .Loading the mechanic

① Amplifier and receiver

The amplifier and the receiver glue the cover board to main gear wheel top, on that lock with the both sides tape or the magic tape. Simply, when interference happens in connection with the servo mount, please move to the other places. It meaning that center of gravity moves due to the type of battery and motor adjusting to the setting, please set.

On-board example



受信機

アンプ

② Ladder and elevator rod

The metallic parts which belong to servo horn are installed. Try to be able to adjust these metallic parts position through the rod. After adjustment using the screw lock and the like, with the vibration and the like which is in the midst of flying not to come off, please make sure not to slip.

8.Processing the canopy

- ① The canopy please finishes and pulls out the formation item of attachment paralleling to the cutting line. When cutting it pulls out, sticking the both sides tape thinly on body side, please lock the canopy.



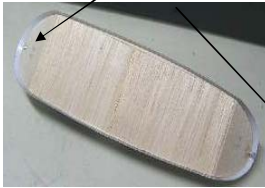
Processing is difficult, but in order to voice the scale impression, the production which is imitated to the apparatus canopy is introduced.

- ② Connecting the board

		
1. It adjusts the part of the bottom of the canopy to the body and makes with 3 boards. The board 4 mm balsas is suitable.	2. In order to be agreeable with the body, it keeps shaving the end face of the board.	3. According to need, it fairs also the surface which is brought together with the board with the file.
		
4. Adjusting to the canopy temporarily, it is agreeable and verifies condition. It adjusts precisely.	5. The cutting seat of marketing is stuck politely on board side.	6. The cutting seat of white is pasted in the edge. When pasting, in order for section of the balsa to become unable to be visible, width 6-8 makes mm. Adjusting to the canopy, it increases the shape which it cuts.
		
7. Processing balsa block, it sticks as block of operation meter. The cutting seat of black is used even here.	8. Once more, it adjusts to body side lastly and precisely is packed	9. Gluing the balsa board and the canopy, it is completion. The adhesive the transparent synthetic rubber type adhesive is good, probably will be.

- ③ Installation of canopy lock

If the canopy lock of marketing is attached, furthermore the installation removal of the canopy becomes easy.

		
The pin hole is bored through the part which installs the canopy lock	It glues the canopy lock.	The canopy the side where the lock enters (canopy rear side) bores the hole, anterior glues 3 mm pins of the aluminum. Boring the hole where the pin enters into body side, you complete. Please decide the process position of the hole prudently.

9.Decare

There is no decare in the body and the tail assembly. Thinking of original decare, please try sticking then. The photograph is reference example, but splendid design is Sawayama in appearance. In addition if you look at W eb, it can also look at the paint of Sawayama's aircraft. The just little seal just is pasted probably is to become the better looking fuselage with the cutting seat.



Example 1



Example 2

10.Adjustment of fuselage

- ① Position of center of gravity, with hitting angle

The position of center of gravity please do the gland test from the main wing leading edge 10-40 with as mm position. While you verifying also the operating quantity of each rudder and the effectiveness of the rudder by your, please adjust.

- ② Receiver

Because the body is FRP make, there is no problem, the antenna through through the body, but when it is extended securely, from the tail please produce the

length which is left over outside. Never, as for kind of cutting midway please do not do.

In addition, recently also the very much cheap receiver is discovered, but e.g., contiguity frequency and the radio interference it does, also the product whose danger is very high is discovered. Because as for RC of empty ones there is a possibility of leading to serious accident, after adopting the receiver which reliance can be put after furthermore, doing the terrestrial test, please use.

③ Motor

The motor which has belonged is the brush motor of 380 types, but the brush less motor is becoming recently main current. The fact that the place where the mechanical damage is received putting in a state of heavy-current and Takaide power is little is feature. When it makes super large output, in case of the brush motor, brush and コーテーター were destroyed in beginning, but because the brush less there is no this, until the motor coil can burn in fact, it is possible to raise output. Very small size, it is possible to put out big output. However, you can exchange the damage of the brush, but the damage of the coil is exchange impossible. In order to use when the cooling effect for the motor has been high, the heart per seat で.

④ Amplifier.

The amplifier for the brush less motor can set advanced angle. When in the brush less motor setting of advanced angle is insufficient, it seems that is the times when the startup of the motor becomes unstable. Setting of advanced angle please do variety trials and optimum setting. That and, different from the brush motor, because as for the brush less like the basket electric current flows, as the amplifier the damage does not occur with overcurrent, the person who pays attention to also the current value which flows is good, probably will be.

11.In addition

GDP. With JAPAN, electric motor, glider, motor, amplifier, servo, ベラ and the Ammeter etc. which include the fuselage of up-to-date test stage are handled other than the fuselage which this time we transfer. It is the foreign manufacturer make which the reliance where the majority has supplied OEM at the Japanese, Europe and America major manufacturer can be put. But very much supplying cheaply does, there is no thing that it probably will be cheap it probably will be bad. When there is an interest, we request communication.