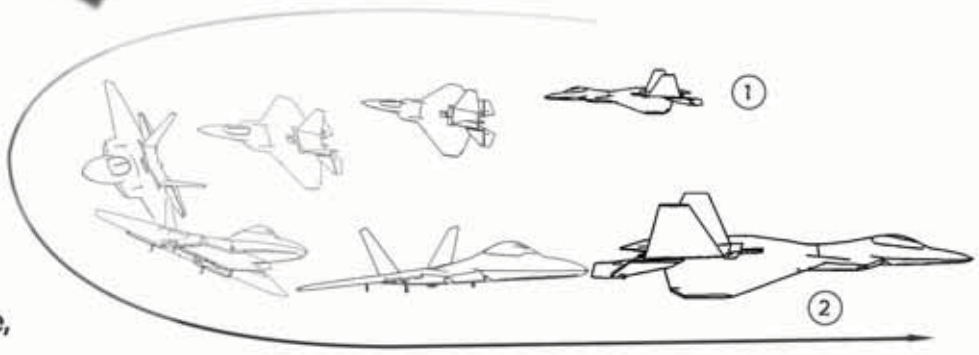
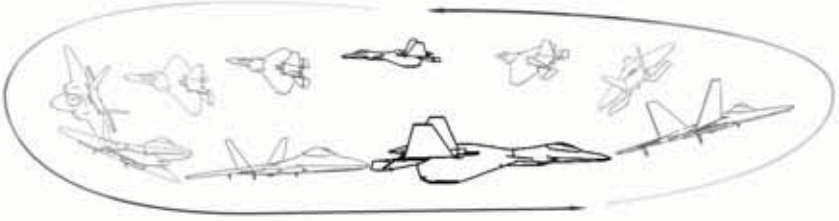
Flying Tips

1.Turns in the Air



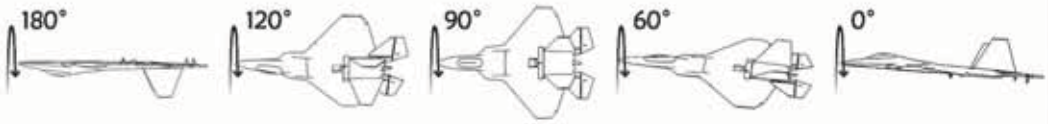
use rudder to turn smoothly
use ailerons to turn sharply
(no more than half travel range,
otherwise the plane will roll)

2.Continuous Turns



Rudder stick to the left, and
gently pull back the elevator
stick and gently push up throttle
if the plane decrease heights.

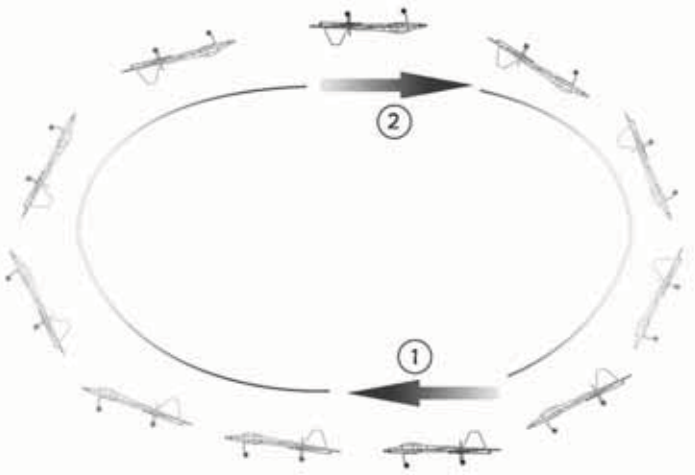
3.Rolls and Inverted Flying



This maneuver can only be performed under stabilizing mode or normal mode!

Aileron to the most left position quickly, the plane will roll to the left and come to a inverted flying.
Make aileron adjustments to the opposite direction if the roll is too much.
Push forward the elevator stick a little bit to maintain the inverted flying.
(Caution: the elevator and rudder control will be reversed in inverted flying!
This is a standard inverted flying showing in the graph; external environment such as wind will influence the maneuvers.)

4.Loops



Push the throttle to the max, and pull
the elevator stick to the lowest position
fast, release the elevator stick when a
360 degree loop was completed.

Transmitter Setup

The movement of transmitter sticks can control the rotation angle of servo and throttle value; this is called "proportional control". Because of the mechanical limit on stick movement, and the difficulty to control our fingers exactly enough, we can only change transmitter parameters to adjust the control characteristics.

1.Trim of Center

It is not allowed to trim the center of throttle, to make sure the throttle is at 0 when throttle stick at lowest position.

The center of rudder can be trimmed, so that the plane can fly in a straight way. The rudder movement can be noticed while trimming.

The center of aileron can be trimmed, so that the plane can counter the propeller torque, and fly in a level way. The rudder movement can be noticed while trimming.

The center of elevator can be trimmed to adjust the heading to be climb or decrease height gently. According to general flying statistics, the chance that the plane goes out of eyesight is big, when the plane is heading up and no stick control performed. Most pilots can pull up the plane in time when they found it' s decreasing height, but will fail to control exactly to lower the plane when the altitude is too high and too far away.

2. Control Surface Reverse

When pull back the elevator stick, the elevator will go up and plane climbs up. If you are used to the reversed control (pull back the elevator stick, the elevator goes down and plane decrease heights), the elevator channel in the settings can be reversed from N to R.

Follow the same procedures as above to make adjustments on aileron and rudder channels.

Throttle channel is not allowed for adjustment.

3. Dual Rates (D/R)

For the same stick control, high rate epa1 brings wider range of servo travel and then faster maneuvers. Low rate epa2 brings stable flying characteristics. Press the left stick to switch between epa1 and epa2.

Epa is the shortcut of end point adjustment.

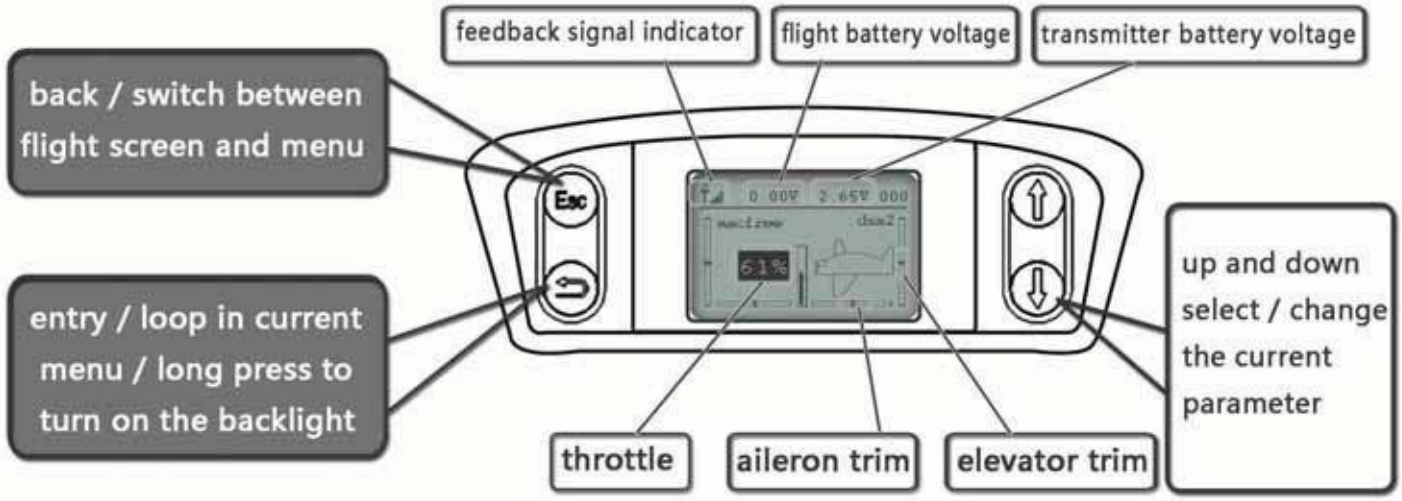
The servo travel adjustment under the dual rates is independent. E.g. If the aileron travel is adjusted to be smaller under epa1, the aileron travel under epa2 will not be changed.

4. Channel Curves

Proper channel curves can bring in fine and smooth controls. Curve adjustment does not influence the servo travel range. For example, pull the elevator stick to the lowest position, the elevator' s angle will be 100%. Now we adjust the elevator curve to be normal, the elevator' s angle will be 50% when pull the elevator stick to the half. If we want a smooth climb and decrease height, we can set the curve to be soft, the elevator' s angle will be 40% when pull the elevator stick to the half, and 100% when pull the elevator stick to the max. Curve adjustment will work for both high rate and low rate at the same time.

Transmitter Setup

! LCD backlight: LCD backlight will be turned on when the transmitter is powered on, and go dark 10 seconds later. Press any button to turn on the backlight again.



Put the throttle to the lowest position, and the right switch to the free mode.

1. Long press " " for 3 seconds to switch from flight screen " " to menu " " "

2. Press " " to select, and press " " to entry.

3. Press " " to loop in the current menu, if this is the bottom layer. Press " " to adjust the current parameter, and then press " " to entry the next parameter adjustment.

4. Press " " to save the change and return to main menu " " "

5. There are two approaches to recover to factory default setup:

● (1) press " " in the main menu " " , and select " " and entry; select " " , press" " to confirm the choice " " will show which indicates factory default setup is recovered. The screen will go back to flight screen " " "

● (2) Power off, and the unsaved changed will be cleared.

LCD Display Contents

英文	中文	英文	中文	英文	中文
Monitor	监视器	EPA1/2	舵量大/小	Factory Set	出厂设置
Reverse	反向	Soft	柔和	English	英文
Dual epa	大小舵	Normal	普通	On	开
Curve	通道曲线	Hard	刚强	OFF	关
Mixing	混控	Lock	锁定	Success	成功
Setup	设置	Language	语言	ModeSelect	模式选择
Thr	油门	Bind	对码	Professional	专业
Ail	副翼	Selflevel only	仅平衡	Beginner	初级
Ele	升降	Remote lock	遥控器锁定	VoiceSelect	语音选择
Rud	方向	Voice	语音播报	Reset	重置

1.Monitor

2.Reverse
3.Dual epa
4.Curve
5.Mixing
6.Setup

2.Reverse

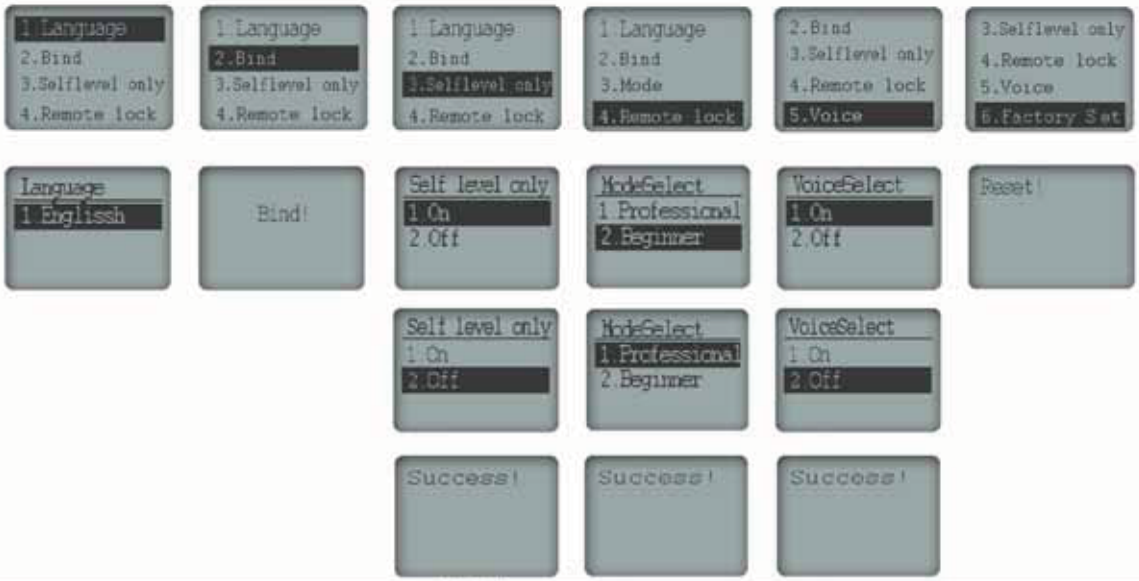
3.Dual epa

4.Curve

5.Mixing

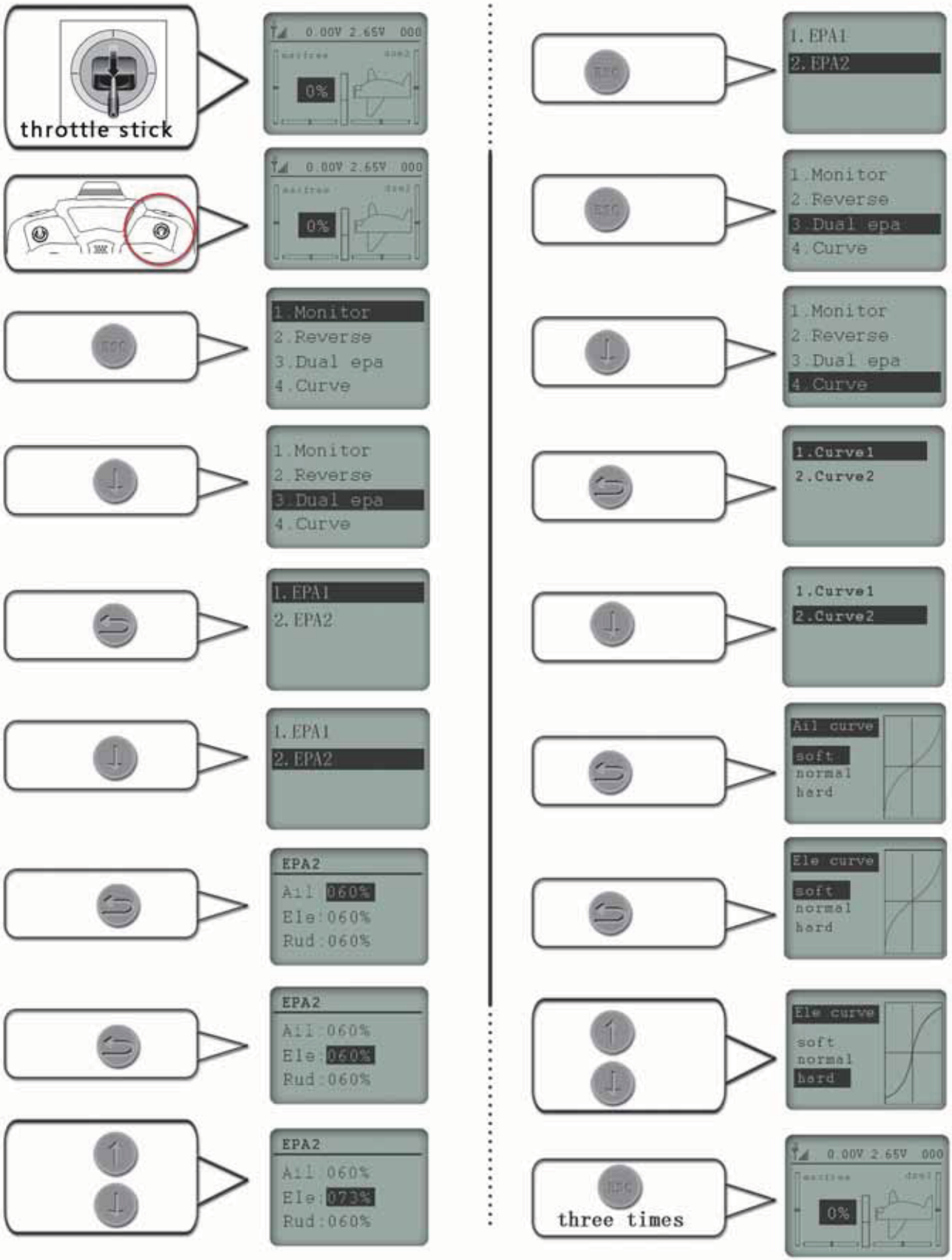
Mix Setup will be available only after the transmitter was set as professional mode. Please refer to the manual on our website.

6.Setup



How to Adjust EPA

How to adjust the servo travel range to be 73% under small EPA, and change the curve to be hard.



Troubleshooting

Trouble	Possible Cause	Solution
① Transmitter can not be powered on	1. No power in the batteries 2. Transmitter damaged	1. Change to new batteries 2. Contact your local dealer
② Plane can not be powered on	1. No power in the flight battery 2. Flight battery is below 3.7V 3. Plane damaged	1. Change to fully charged battery 2. Change to fully charged battery 3. Contact your local dealer
③ LED in the plane flashes after powered on, but no response to control	Plane and transmitter not binded	Re-bind
④ LED in the plane works, but the elevator keeps pulled up	Self-check fails	Contact your local dealer
⑤ Self-check passes and servos works, but motor doesn' t respond to controls	1. Damaged motor 2. Damaged motor wiring	1. Change to new motor 2. Contact your local dealer
⑥ Servo does not work properly	Servo gears damaged	Change to new servo

Foam Parts

The foam fuselage are produced by professional foaming manufacturer, made of EPP material. EPP is shortcut of expanded polypropylene, with the features of lightweight, good in elasticity, shock-resistant, press-resistant, good in recovery, oil-resistant, acid-resistant, chemical solvent resistant, waterproof, electricity insulating, hot resistant (-40~130°C), non-toxic, non-smelly. Density is 17-130kg/m3. EPP is a pure hydrocarbon. Heavy equipment is used to produce foam parts covering 1cm-2000cm. RoHS certificate is granted.



Plastic Parts

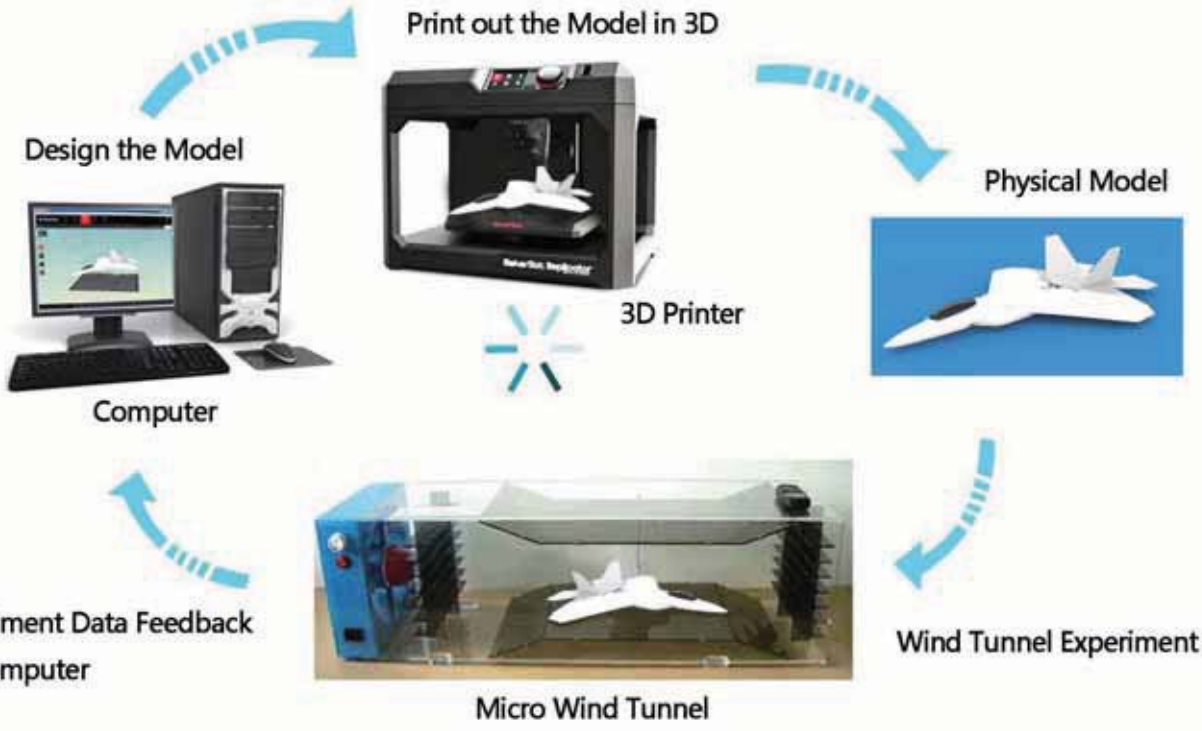
Equipped with laminators and imported machines from Taiwan Formosa Plastics Corporation, and resin materials from lg chemical and Taiwan. RoHS certificate is granted.

Electronics

All the electronic parts are designed by our-self. Most of the engineers are advanced pilots, and always pursuing best performance. This ensures the product quality.



Fixed-wing Aircraft Model Design and Experiment Procedure



Source Code of Flight Control System

debugging of flight control system

integrated circuit design

Patents

5 patents are granted already. Please check our website for details.

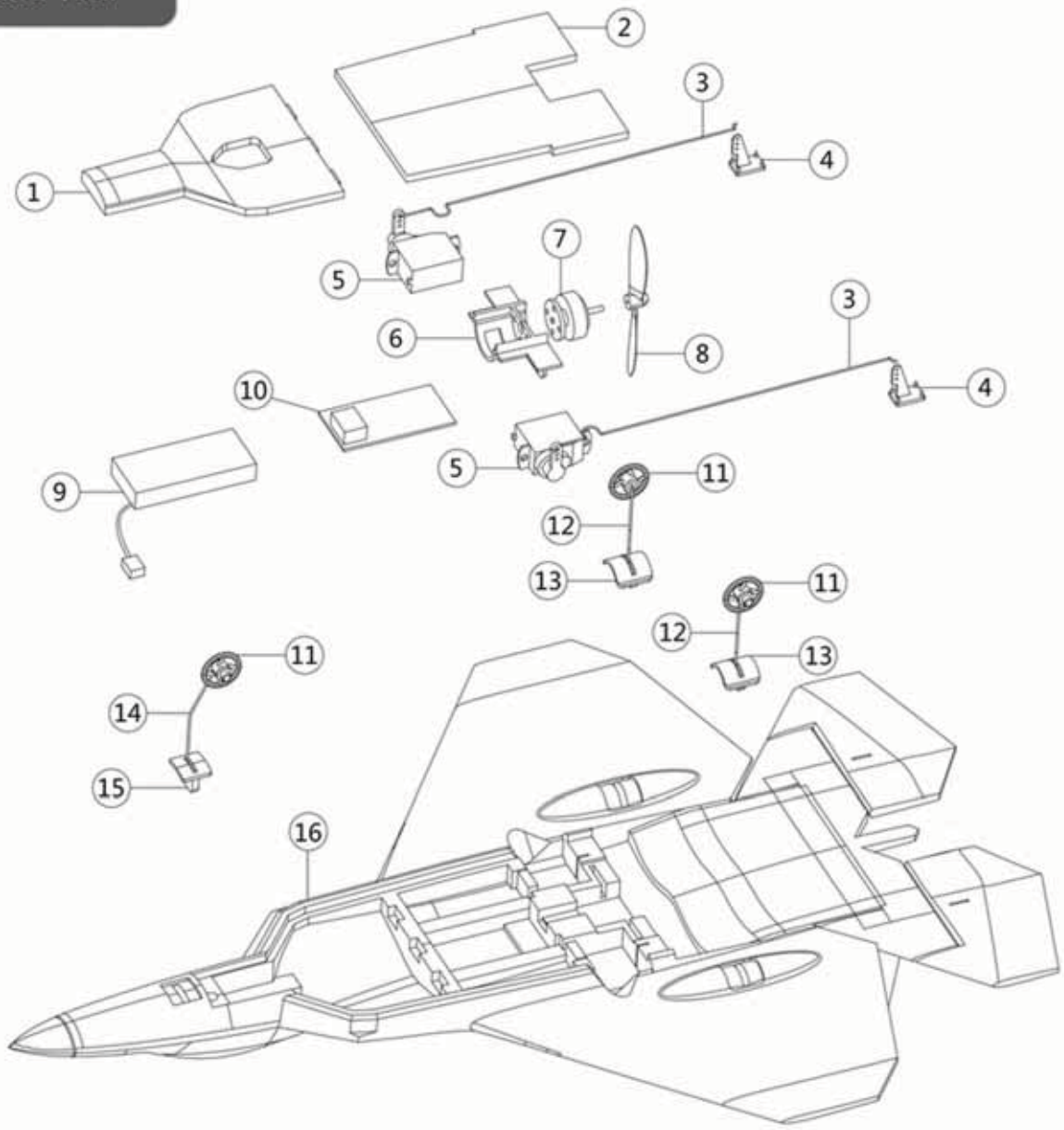
This product is equipped with three patented technology:

1.Transmitter with voice trainer function

2.Micro smart rc plane flight control system

3.LED lighting system in transmitter

Exploded View



No.	Part Name	Quantity		No.	Part Name	Quantity
1	battery cover	1		9	battery	1
2	belly cover	1		10	receiver	1
3	push rods	2		11.	wheels	3
4	control horn	2		12	rear landing gear wire	2
5	servo	2		13	rear landing gear mount	2
6	motor mount	1		14	front landing gear wire	1
7	motor	1		15	front landing gear mount	1
8	propeller	1		16	fuselage	1

Replacement Parts

Part Name	Item No.	Photo
Fuselage (white)	MCF2201A-001	
Fuselage (yellow)	MCF2201B-001	
Fuselage (gray)	MCF2201C-001	
Transmitter (green)	MCF2201A-008	
Transmitter (yellow)	MCF2201B-008	
Transmitter (black)	MCF2201C-008	
Receiver (brushed)	MCF2201-015	
Receiver (brushless)	MCF2202-015	
Control horn (2pc)	MCF2201-078	

Part Name	Item No.	Photo
Motor (brushed)	MCF2201-022	
ESC	MCF2202-029	
battery	MCF2201-036	
Motor (brushless)	MCF2202-022	
2G servo	MCF2201-043	
charger	MCF2201-050	
Propeller (brushed 2pc)	MCF2201-057	
Propeller (brushless 2pc)	MCF2202-057	
Landing gear set	MCF2201-064	
Push rod set	MCF2201-071	
Decal set	MCF2201-085	

micro F22

Specification (standard version)

Completion Level :	RTF
Material :	Foam (EPP)
Wingspan :	8.74 in (222mm)
Length :	12.28 in (312mm)
Propeller :	2.1 in (54mm)
Flying Weight :	1 oz (32g)
Motor :	8520 Brushed motor
Battery :	200mAH 1S 3.7V 20C LiPo Battery
Radio :	DSM2 Compatible remote controller
Gear :	Removable Landing Gear
Charger :	3.7V Li-Po Charger (Included)
Approximate Assembly Time :	No assembly required

thrust-to-weight ratio: about 1.1 flying time>8min

micro F22-BL

Specification (brushless version)

Completion Level :	RTF
Material :	Foam (EPP)
Wingspan :	8.74 in (222mm)
Length :	12.28 in (312mm)
Propeller :	2.1 in (54mm)
Flying Weight :	1 oz (32g)
Motor :	MF1103-10000KV Brushless motor
Battery :	200mAH 1S 3.7V 20C LiPo Battery
Radio :	DSM2 Compatible remote controller
Gear :	Removable Landing Gear
Charger :	3.7V Li-Po Charger (Included)
Approximate Assembly Time :	No assembly required

thrust-to-weight ratio: about1.25 flying time>10min

Warranty and Service

We perform strict control on supply chain system and manufacturing when we are doing the design and production, so please rest assured while flying. We will deal with product defectives as following process:

1. Return and Replacement

A. Unconditional return within 7 days:

We accept returns unconditionally within 7 days after purchase, if the package is not opened (the seal or belt not damaged); full payment back. If the package opened while all parts in the box remain brand new, we make refund of full payment minus 2 dollars of packing cost. If parts in the box showed any man-made damage or defect, we make refund of full payment minus the cost of damaged parts.

Customer shall be responsible for the transport costs.

B. Replacement within 6 months

For transmitter defect, customer can apply for reparation or replacement within 180 days since receipt

For battery defect, such as no power or bulge, we accept free replacement within 1 month.

For servo defect, such as no response or vibration, we accept free replacement within 3 months.

For defects or damages caused by a failed radio, we accept free replacement of damaged parts.

We will be responsible for one-way transport cost.

2. Reparation

A. For recalled products, we will provide free upgrading or replacement, no matter the products are damaged or not. No refund will be offered.

B. We offer one free repair if any damage or crash resulted by the customer. Customer will be responsible for any transport costs. We will charge for the part cost for the second and follow-up repairs.

C. The first free reparation will not be offered if the damage was caused by modification in parts or battery. The follow-up repair will not be influenced.

3. Service Procedure

A . Customer shall preserve the package, receipt, warranty card and manual in a proper place, and take photos before using if available.

B. Please contact us before return, replacement or repair, and go to the service procedure after agreement. Email: customerservice@macfree.cn , Tel: 755-26606481. Address: Rm 2101i, BAK Building, Science and Technology Park, Nanshan District, Shenzhen, China.

C. We can only refund to the purchase bank account or credit card.

D. We reserve the final right of identification on the cause of damage.

- Macfree reserves the right of changing the product design and specifications, and customers may not be notified with the changes.
- Macfree will do all we can to provide the correct information in this manual; we reserves the right of explanation on the information.

macfree®

SHENZHEN MACFREE INTELLIGENT TECHNOLOGY CO., LTD.

Add: Rm 2101i, BAK Building, Science and Technology Park,
Nanshan District, Shenzhen, China

Tel: 0755-26606481

post code: 518057

Email: customerservice@macfree.cn

Website: http://www.macfree.cn