

Before commencing assembly, please read these instructions thoroughly.

SKYNOVA 1 (GM081XM)



ARF  **Almost
Ready to Fly**

Specifications

Wing Span: 62.9 in / 1600 mm
Wing Area: 428 sq in / 27.6 sq dm
Flying Weight: 25.8 oz / 730 g
Fuselage Length: 33.8 in / 858 mm
Requires: 3-channel radio w/ 3 mini servos
Outrunner Motor KM28251025 w/ Propeller Adaptor
HW2340100 20A Brushless ESC, 9x6 Propeller,
3 cells 11.1V 1800 mAh Li-Po battery & charger.



Warning ! This model is not a toy.

It is designed for maximum performance. Please seek advice if one is not familiar with this kind of electric powered precision model. Operating this model without prior preparation may cause injuries. Remember, safety is the most important thing. Always keep this instruction manual at hand for quick reference.

*** Specifications are subject to change without notice.***



THE WINGS MAKER
FACTORY PRE-FABRICATED
ALMOST-READY-TO-FLY (ARF) SERIES
MADE IN CHINA
www.thewingsmaker.com

SKYNOVA 1

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BEFORE YOU BEGIN

- 1 Read through the manual before you begin, so you will have an overall idea of what to do.
- 2 Check all parts. If you find any defective or missing parts contact your local dealer. Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement. The manufacturer will replace any defective parts, but will not extend to the parts that are good before gluing to defective parts during assembly. Warranty will not cover any parts modified by customer. For pre-assembled kits, please check proper functions of all servos on the ground before flying. Servo gears could be damaged when control surfaces are hit during transportation of models. The manufacturer will replace any servos due to manufacturer's defect, but will not cover plane crashes due to damaged servos not detected before flying.
- 3 Symbols used throughout this instruction manual comprise of the following :-



Apply epoxy glue.



Apply instant glue
(C.A.glue, super glue.)



Apply thread locker



Must be purchased separately !



Assemble left and right
sides the same way.



Ensure smooth non-binding
movement while assembling.



Peel off shaded portion
covering film.



Cut off shaded portion.



Drill holes with the specified
diameter (here: 3mm).



Pierce the shaded portion
covering film.

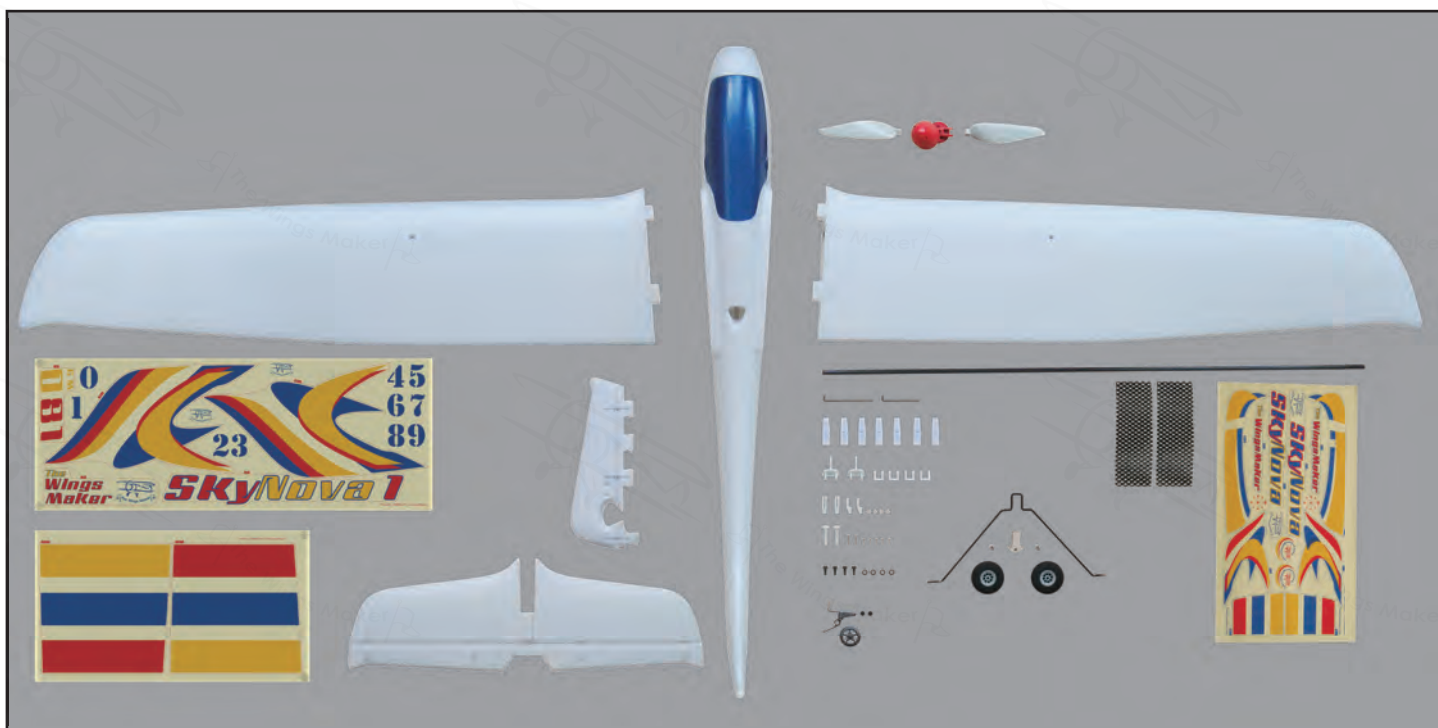


Pay close attention here!



Warning!

Do not overlook this symbol !

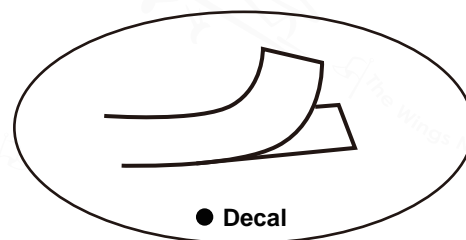


Parts List

1. DECALS: GM081XM DEC -- 1 set
MAIN WING -- 1 pair
STABILIZER -- 1 set
FUSELAGE -- 1 set
2. STABILIZER & ELEVATOR -- 1 set
HINGES PL4115050 -- 4 pcs
3. VERTICAL FIN & RUDDER -- 1 set
HINGES PLL4115050-- 3 pcs
4. DECALS FOR RUDDER - 1 set
5. HORN PL4113103 -- 1 pc.
PLASTIC BRACKET -- 2 pcs
6. FUEL TUBE D2xD4x4mm -- 2 pcs
CLEVIS PL4112105 --1 pc.
STRAPER PL4112106 -- 1 pc.
PUSHROD Ø1.4x45mm w/ Threads (For Rudder) -- 1 pc.
7. HORN PL4113103 -- 1 pc.
PLASTIC BRACKET -- 2 pcs
8. FUEL TUBE D2xD4x4mm -- 2 pcs
CLEVIS PL4112105 --1 pc.
STRAPER PL4112106 -- 1 pc.
PUSHROD Ø1.4x60mm w/ Threads (For Elevator) -- 1 pc.
9. TAIL LANDING GEAR PL3410030 --1 set
SCREW PA2x8mm -- 2 pcs
TAIL WHEEL Ø23mm PL3510230 -- 1 pc.
10. MAIN LANDING GEAR Ø2.5mm -- 1 set
COLLAR Ø2.6mm w/ Set Screw -- 2 sets
MAIN WHEEL Ø40mm PL3116040 -- 2 pcs
SCREW PA2.3x8mm -- 1 pc.
PLYWOOD 21x26x2.5mm (For Main Landing Gear) -- 1 pc.
11. SOCKET HEAD SCREW M3x8mm -- 4 pcs
WASHER d3xD7mm -- 4 pcs
12. RECEIVER TIE 130mm -- 1 pc.
14. BATTERY TIE 200mm-- 1 pc.
BATTERY MAT 2x50x150mm-- 2 pcs
16. SPINNER Ø36mm SP27036FR0 -- 1 set
9x6 PROPELLERS PL6314050 -- 1 set
SCREW PM2x12mm -- 2 pcs
SCREW PA1.7x8mm -- 2 pcs
17. WING TUBE Ø6x715mm -- 1 pc.
NYLON BOLT M3x20mm -- 2 pcs
18. BATTERY COVER -- 1 pc.

1 Decals

- Cut out decal sheet, peel off backing sheet and apply on fuselage, stabilizer and wings.



Main wings



● Top View



● Bottom View

Stabilizer



● Top View



● Bottom View

Fuselage

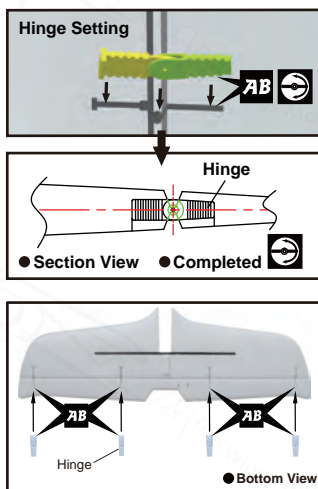


● Left View



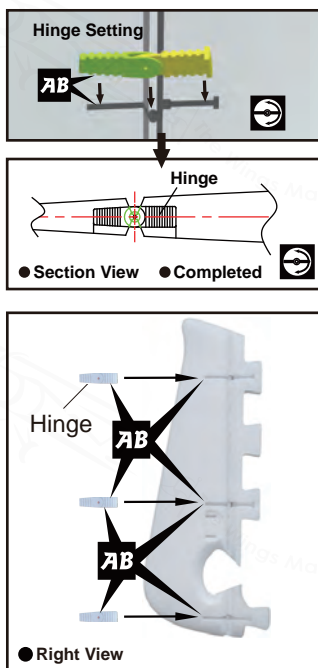
● Right View

2 Stabilizer & Elevator



● For pre-assembled version, the hinges are factory glued.

3 Vertical Fin & Rudder



● For pre-assembled version, the hinges are factory glued.

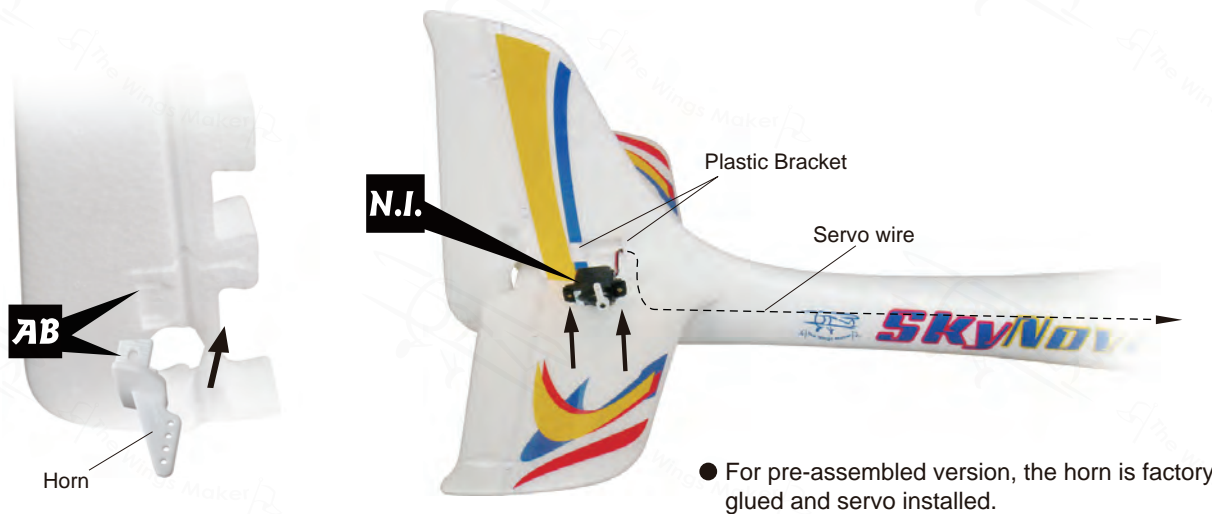
4 Decals for Rudder

Transparent decals to reinforce stabilizer.

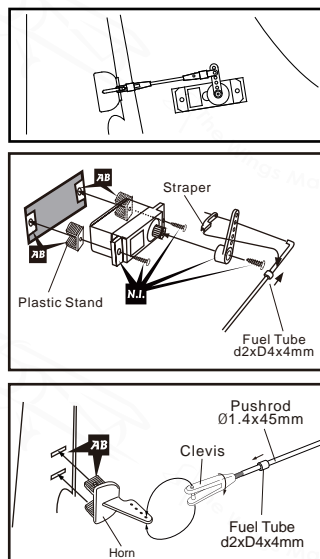
● Apply decal sheets on both sides to fasten rudder. Make sure no decal sheet cover the hinge gap. Check free movement of rudder before hooking up with rudder pushrod.

L/R

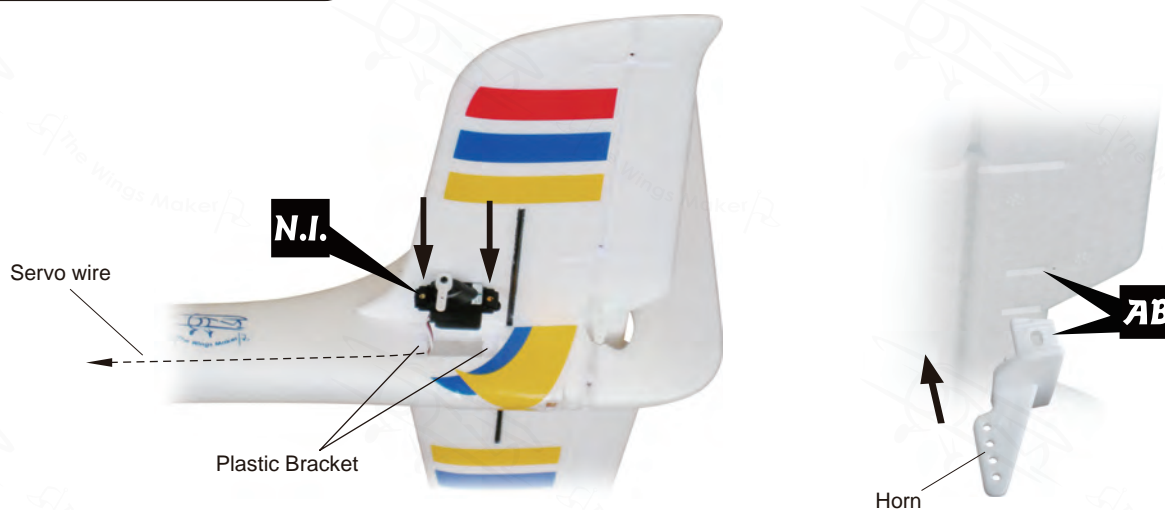
5 Rudder Servo & Horn



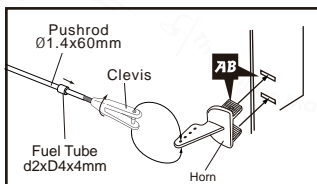
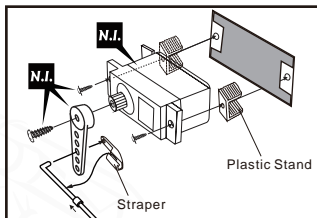
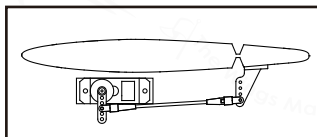
6 Rudder Pushrod



7 Elevator Servo & Horn

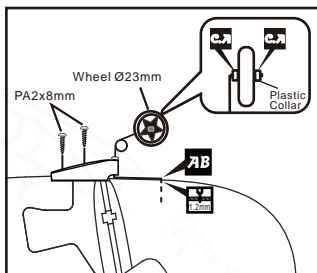


8 Elevator Pushrod



9 Tail Landing Gear

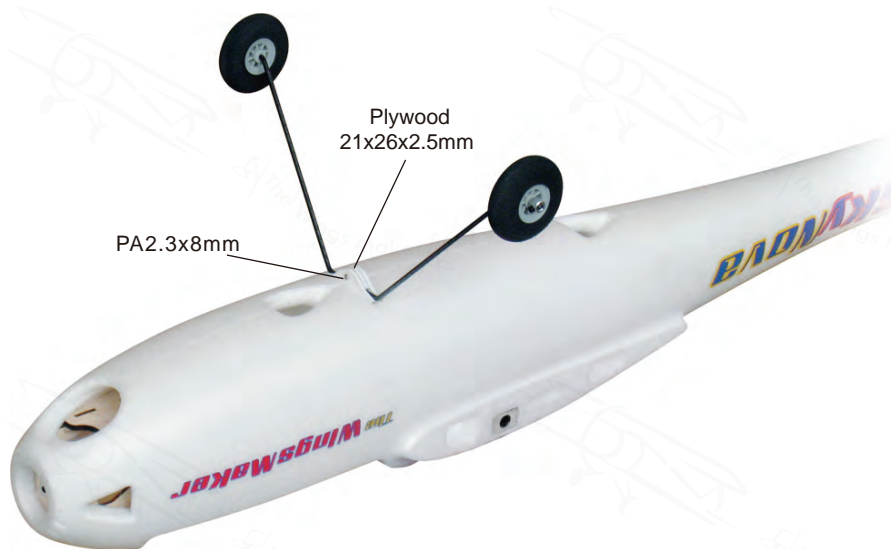
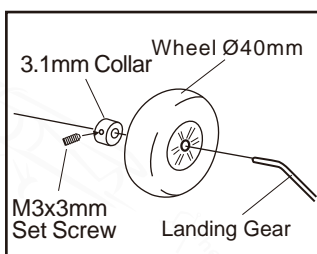
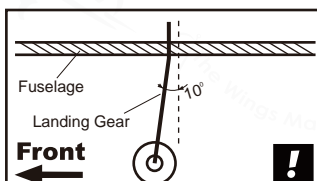
PA2x8mm Screw 2



● Bottom View

10 Main Landing Gear

PA2.3x8mm Screw 1

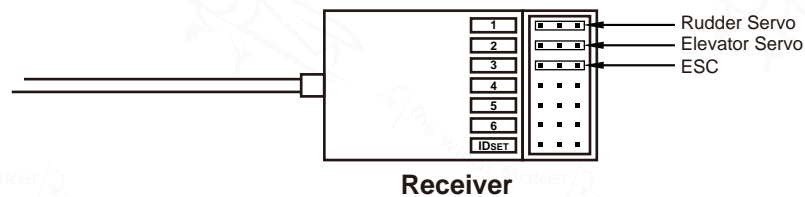


11 Motor & ESC

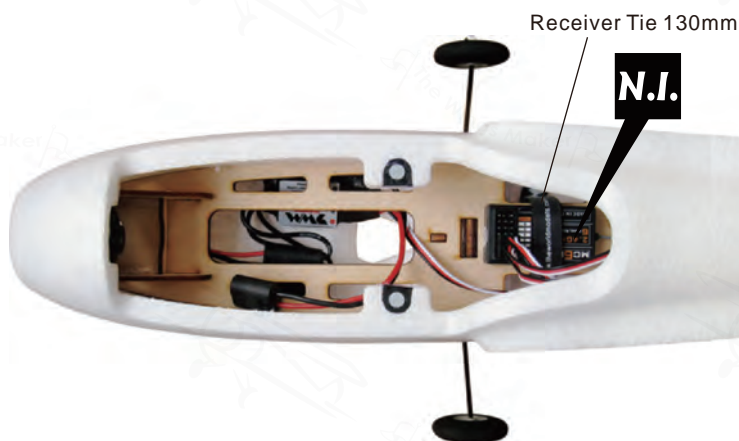
M3x8mm	Socket Head Screw	4
d3xD7mm	Washer	4



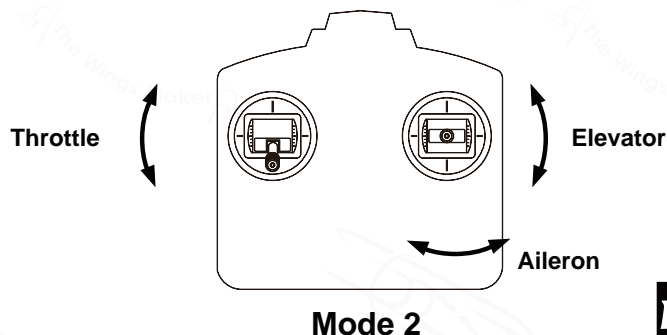
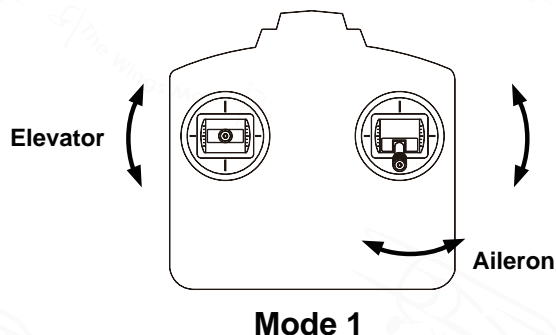
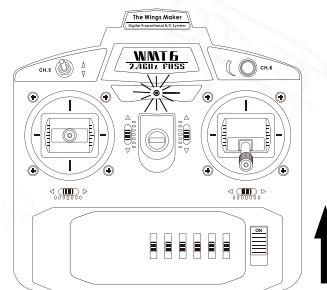
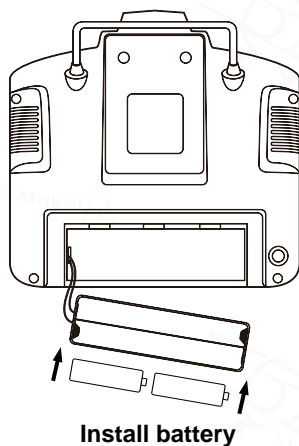
12 Radio



- Plug in the Rudder Servo wire to channel 1
- Plug in the Elevator Servo wire to channel 2
- Plug in the ESC Throttle wire to channel 3

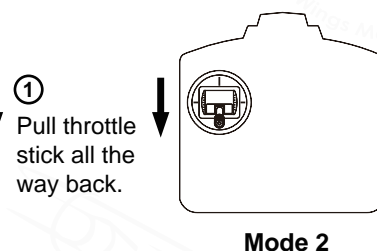
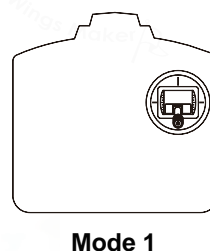
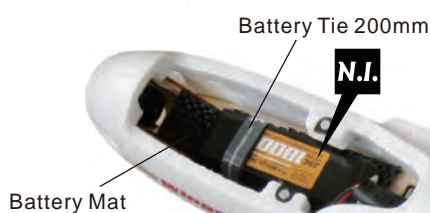


13 Radio

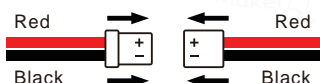


N.I.

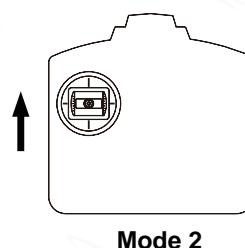
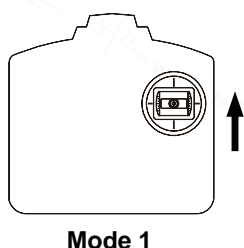
14 Battery & Motor Setting



- ② Plug in battery wait a few seconds for the transmitter and receiver to bind.

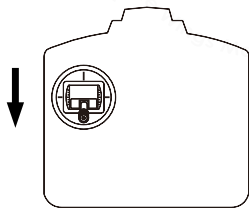


! Plug in with red+ / black- reversed will damage the ESC.



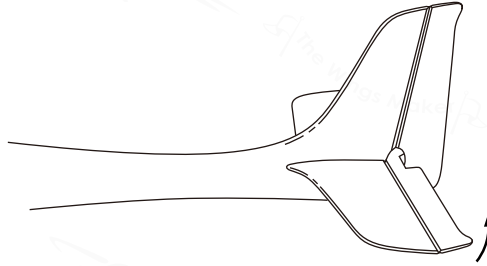
- ③ Advance throttle stick, the motor should start running, check motor shaft for rotating direction. The motor should be turning counter-clock wise. If rotating direction is not correct, unplug the 3-pin plug connecting the motor and ESC, swivel 180° and plug back, the rotation will be reversed.

15 Servos Setting

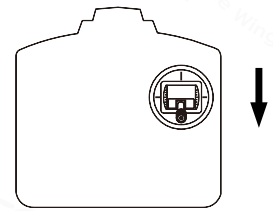


Mode 1

Pull back Elevator stick

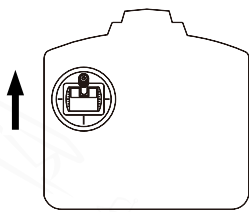


Elevator should move up, plane will pull up when flying.



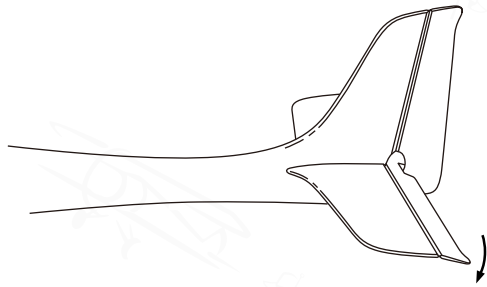
Mode 2

Pull back Elevator stick

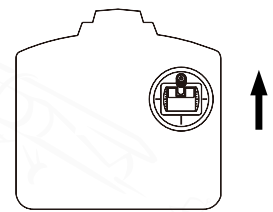


Mode 1

Push forward Elevator stick

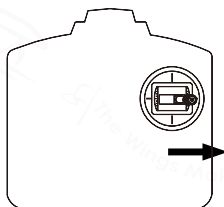


Elevator should move down, plane will dive down when flying.



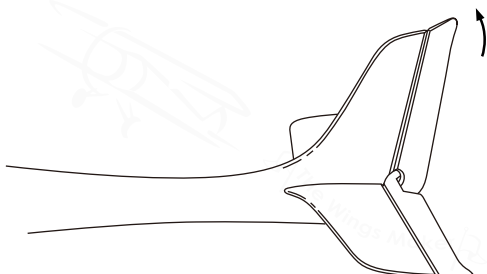
Mode 2

Push forward Elevator stick

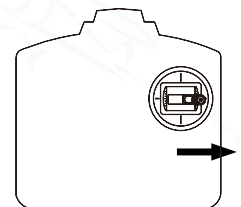


Mode 1

Move aileron stick to right side

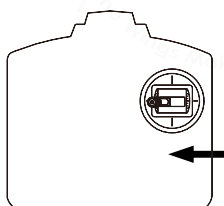


The rudder should move to right, the plane will bank right and turn to right when flying.



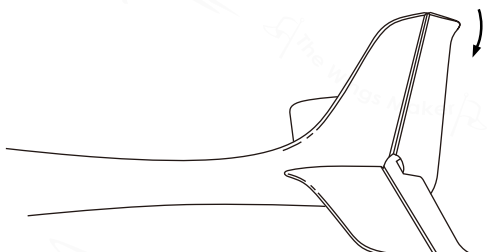
Mode 2

Move aileron stick to right side

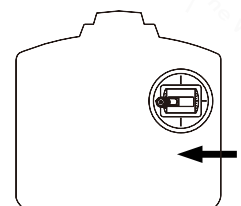


Mode 1

Move aileron stick to left side



The rudder should move to left, the plane will bank left and turn to left when flying.



Mode 2

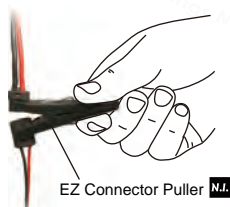
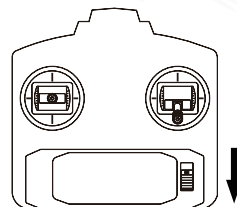
Move aileron stick to left side

16 Propeller

① Unplug battery



② Switch off transmitter



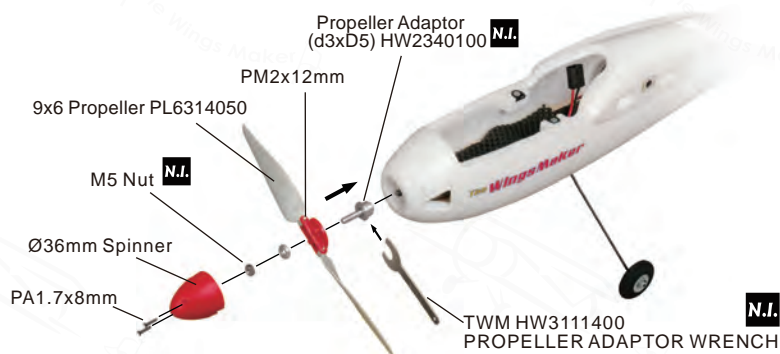
EZ Connector Puller N.I.

③ Charge battery



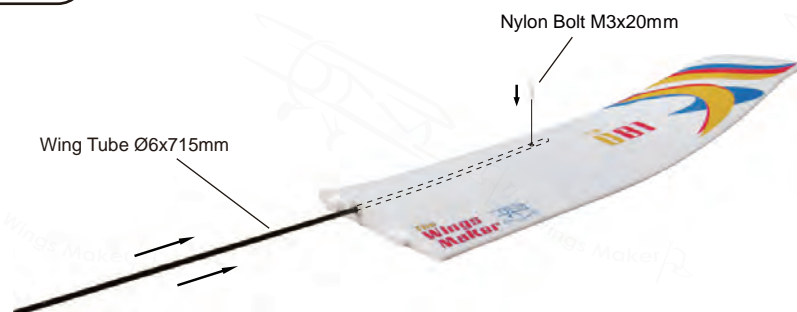
The battery is ready for use when all the lights turn from red to green.

④ Install the propeller



* Make sure you have unplugged the battery before working on the propeller.

17 Main Wing



Insert carbon fiber wing tube into right wing, align the anchor holes and apply the nylon bolt.



Insert the right wing into the Fuselage. Inset the left wing onto the carbon wing tube, press the wings against the fuselage align the anchor holes and apply the nylon bolt.

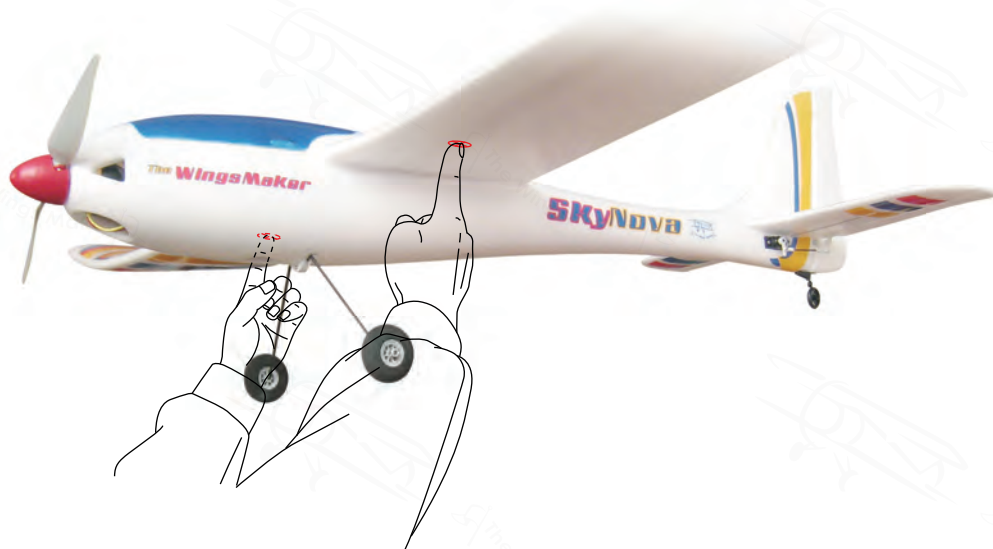
18 C.G.



Install battery onto the battery tray. Don't plug in the battery yet. Put on the battery check C.G. mark underneath wings.

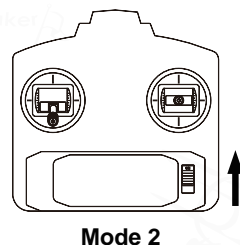
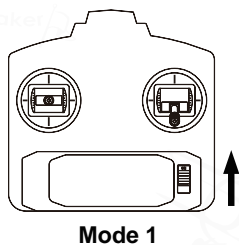


Support the model by two fingers on the C.G. mark, move battery position if necessary to balance the model on the C.G. marks.



19 Get Ready to fly

- ① Turn on transmitter, throttle stick at low position.



- ② Plug in battery.



- ③ Wait a few seconds for the receiver to bind with transmitter.

- ④ Make sure the propeller is cleared of any object.



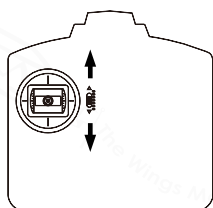
- ⑤ Check movement of Elevator and Rudder by moving the Aileron and Elevator sticks, as shown in step 14.

20 Flying

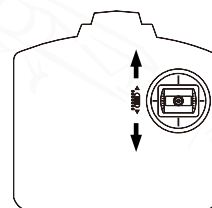
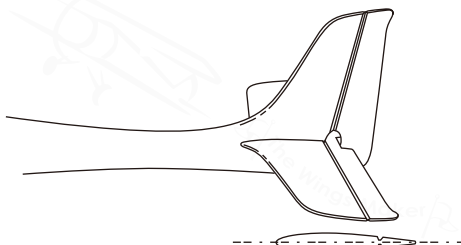
Try to get an experienced flyer to check through your installation before flying. Ask him/her to do the first flight for you. He/she can trim out the control surfaces for you so the model can fly straight and level with control sticks in neutral positions and throttle stick about half throttle. You will get a much higher successful rate with the help from an experienced flyer.

If you learning to fly by yourself, try to follow the steps below.

- ① Fine tune Elevator and Rudder with sub-trim tab.

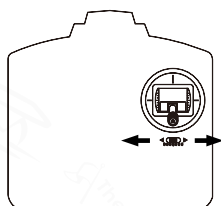


Mode 1

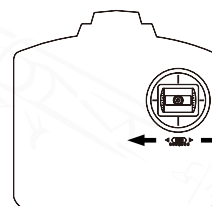
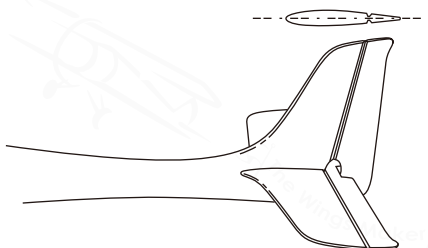


Mode 2

Move Elevator Sub-trim tab up or down to bring elevator in a straight line with horizontal stabilizer.



Mode 1

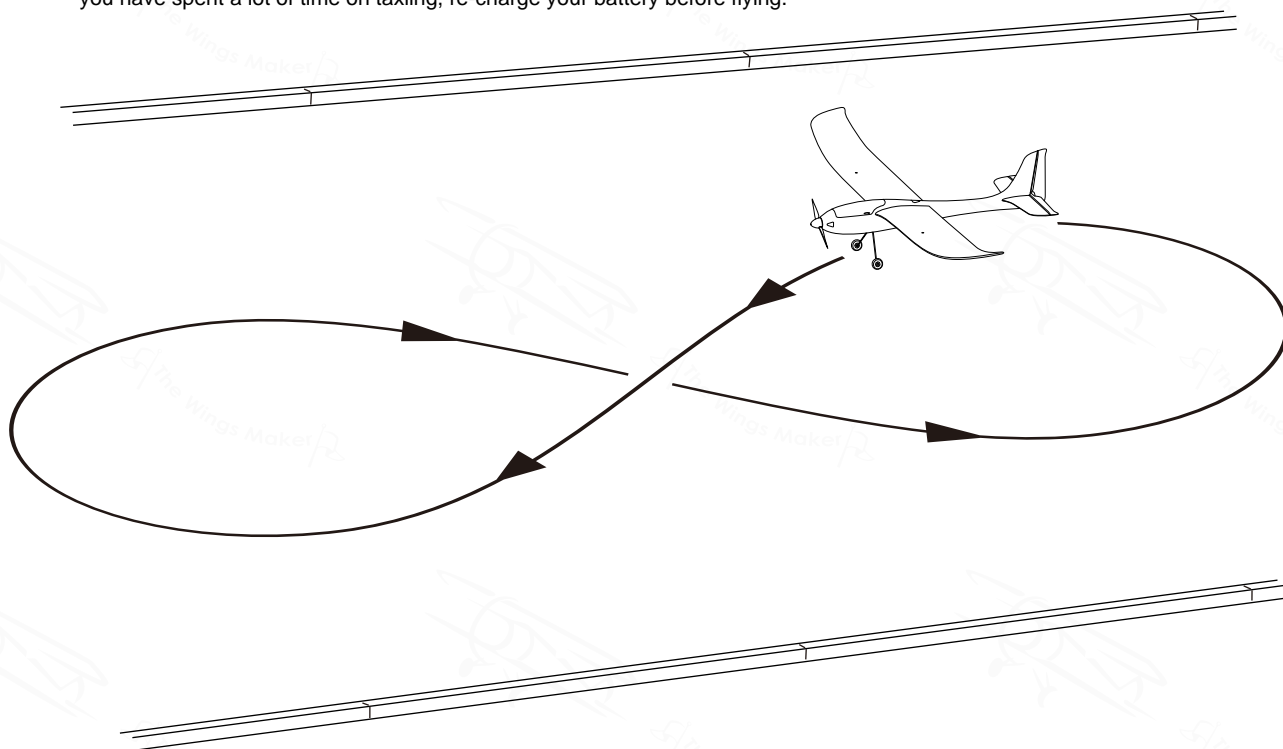


Mode 2

Move Aileron Sub-trim tab left or right to bring rudder in a straight line with vertical stabilizer.

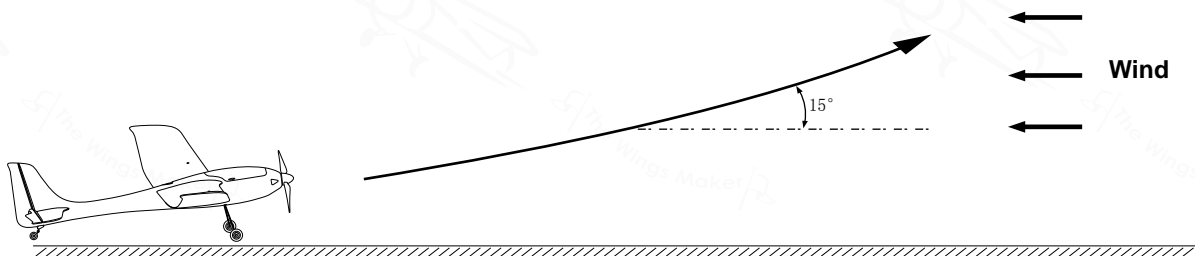
- ② Taxiing practice

Find a large flying field, at least the size of two football courts, ideally with a paved runway. Put the model on the ground. Slowly advance the throttle until the model starts to taxi on the ground. Maintain the throttle, and taxi the model on the ground with a figure eight turn. If the model is moving too fast, throttle back, if too slow, push throttle. Move the aileron stick to right for right turn and left for left turn. This is to train your coordination of your controls on the throttle and turning. Do this for at least 10 rounds until you are familiar with the response of the sticks. After you feel confident in doing figure 8 turns, try doing oval rounds, counterclockwise and then clockwise. Make sure you get the feeling of turning control when the plane is going towards you. If you have spent a lot of time on taxiing, re-charge your battery before flying.

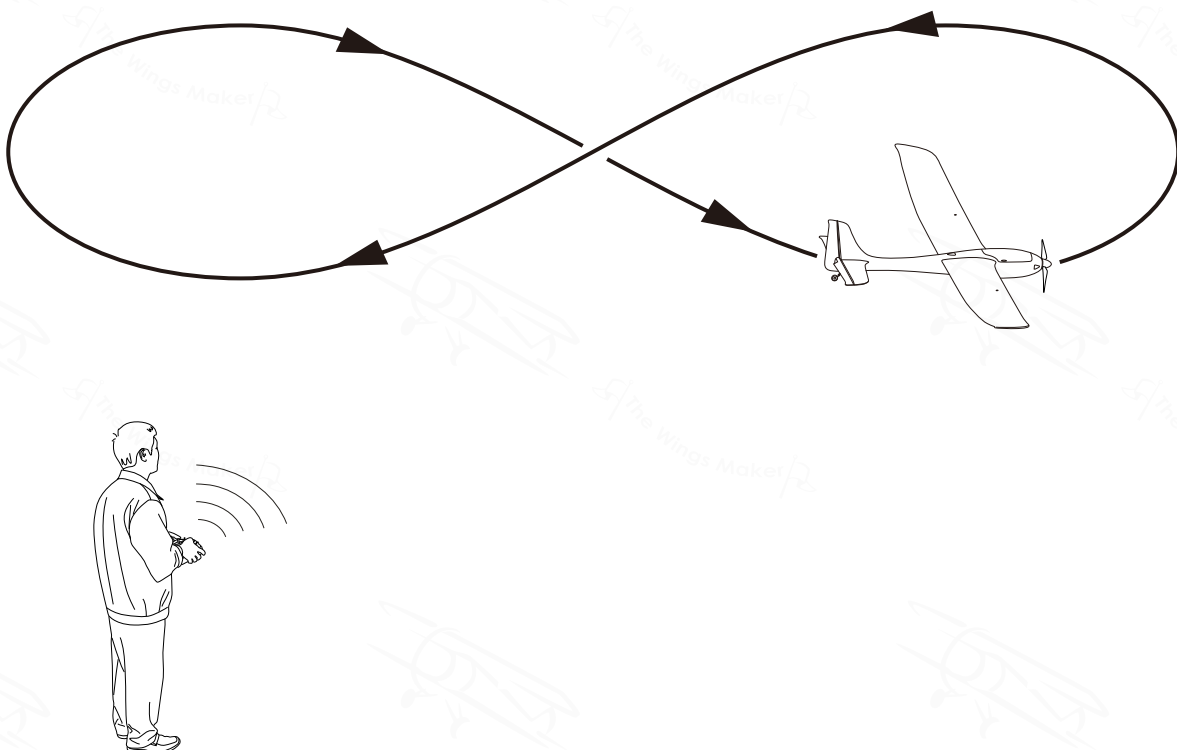


③ Flying

Now it is time to take off. Don't fly if the wind is more than 5 miles per hour. Wind is good for take off and landing, but if it is too windy, it will be very difficult to control the plane. It is much better to wait for calm weather than crashing your beautiful plane. Check that there is no one at the field. If you have someone with you at the flying field, ask them to stay behind you. Check the wind direction. Taxi the plane against the wind direction. You can take off from left to right. Taking off and landing against the wind is the rule of thumb. Advance the throttle gradually and see the plane increase in taxiing speed. By the time you reach full throttle, the plane should be lifted off the ground. If the plane is not taking off, pull back the elevator slightly and the plane should lift off. Maintain a 15° climb and turn left before you reach the end of the field. Turn big circle, the plane will lose air speed when turning small circle and will drop the nose, pull up elevator a bit to bring back the climb angle.

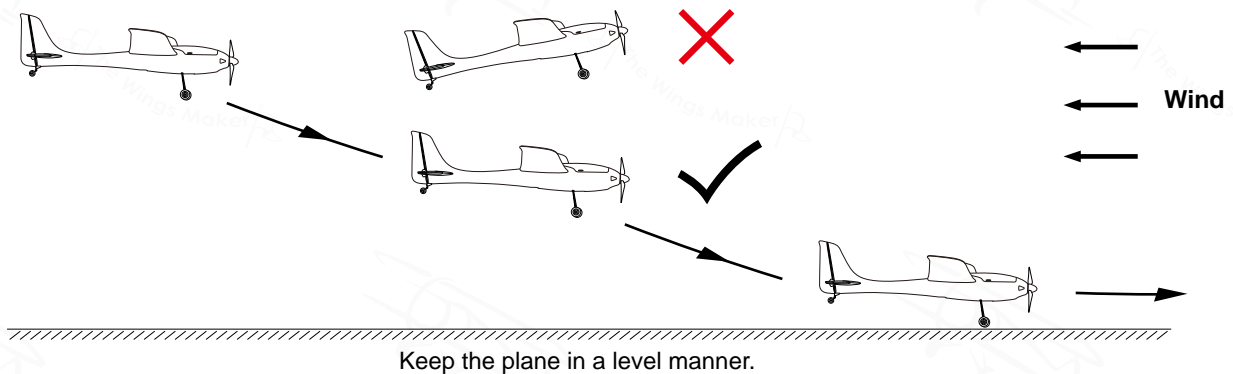


When you reach 10 storey height, you can throttle back to about half throttle and try to fly in a level course. Try to do the figure 8 turn as you have practiced on the ground. Try to do big circle turns, and when you see the plane drops during turning, pull back elevator slightly and throttle up a bit to maintain the plane at the same level. Practice the figure 8 turn for the next 5 minutes. When you are OK with the figure 8 turn, try to do the counter clockwise turn. Always try to fly the plane with the fuselage in a level manner. If you find the plane always wants to dive, pull the trimming tab towards your body to trim up the elevator. If you find the plane always wants to climb, push the trimming tab away from your body to trim down the elevator. The goal is to fine trim the elevator so you can have a level flight at about half throttle. With the elevator properly trimmed, you will find that when you throttle up, the plane will go up, and when you throttle down, the plane will descend. When you get the plane under control, it is time for landing.



④ Landing

Turn the plane against the wind, line up with the runway and throttle back. The plane will be losing air speed and descending gradually. Use the elevator to keep the plane in a level manner. If you allow the plane to nose up, the plane will lose air speed too soon and will lose lift (stall) and falls to the ground. If you want the plane to touch down further down the runway, throttle up a bit to increase the air speed of the plane. Never pull up elevator to pull up the nose of the plane thinking that will make it touch down further down the runway, it will stall the plane at that spot and crash.



⑤ Control

The most common problem for novice flyer is over control of the sticks. Do not push or pull the aileron or elevator stick all the way. Gradually move the stick and when you see the plane starts to show response to your stick input, release the stick to its neutral position, the plane will continue to move in that direction for a while. If you need more movement, move the stick again. Push the stick all the way too long will cause the plane to spiral and spin out of control.

⑥ Emergency

If at anytime during flying you think you are losing control of the plane, or you don't know what to do next, throttle back, and let go of your fingers on the control stick. If the plane is flying high enough, it will recover to a level manner and descend, give you more time to re-gain control from the panicking situation. If the plane is flying too low, throttling back will reduce the damage done to the plane by reducing the speed of the plane, and could likely save you a broken propeller. Again, throttle back and hands off could be your best action, if you don't know what to do. Good luck!

Warning!

Important Safety Precautions

- # First time flyer should never fly by himself / herself. Assistance from experienced flyer is absolutely necessary.
- # Pre-flight adjustment must be done before flying, it is very dangerous to fly a badly pre-adjusted aircraft.
- # **SkyNova 1** is specially designed to be powered by **KM28251025 Outrunner Motor**.
- # Make sure the air field is spacious, never fly the plane too close to people and never get too close to a running propeller. Extreme caution should be exercised when working with electric powered models. Make sure the propeller is cleared of all objects, especially your hands before connecting the battery to the model. Make sure you understand the operation of the ESC (Electronic Speed Control) by studying the ESC manual. Once you plug in the battery for electric powered model, always treat the propeller as a rotating one, as accidental movement of the throttle stick will spin the propeller and could cause injuries.
- # Check and re-tighten up all factory assembled screws, use thread locker if necessary.

Optional Parts

(ACCESSORIES)

3 - Pin EZ Connector

Code No.	Size	Package
KP0011310	40A Max. Current	1 set



-ideal for electric models

2 - Pin EZ Connector

Code No.	Size	Package
KP0011210	40A Max. Current	1 set



-ideal for electric models

Propeller Adaptor Wrench

Code No.	Size	Package
HW3111400		1 pc



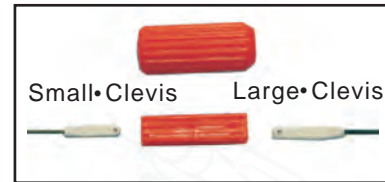
EZ Connector Puller

Code No.	Size	Package
PL8210030		1 set



Clevis Wrench

Code No.	Size	Package
PI8210010		1 set



Special tool for clevis installation.
Suitable for standard and small (EP) clevis.

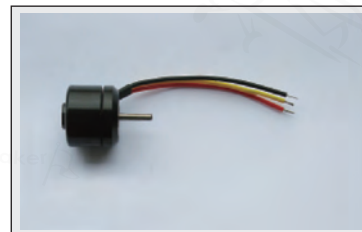
Propeller Adaptor

Code No.	Size	Package
HW2340100	d3xD5	1 set



Outrunner Motor

Code No.	Package
KM28251025	1 pc



- Kv (rpm/V): 1025
- Operating Power: 110W
- Operating Voltage: 2-3S Li-Po
- Operating Current: 10A
- Peak Current: 15A (max. 15 sec.)
- Internal Resistance: 50 m ohms
- Diameter: 27.6mm
- Length: 25mm
- Weight: 40g
- Shaft Diameter: 3mm
- Shaft Length: 14 mm
- Mounting Screw: M3 (Front)
- Distance of Mounting Holes: 16mm and 19mm



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