

DIY Educational Kit for Green Energy

Mini-TURBINE

Mini Wind Turbine Kit MT-150

Assembling Guide

- A Wind Power Generator with 14V, 6mA
- Well Designed Kit for Easy Assembling



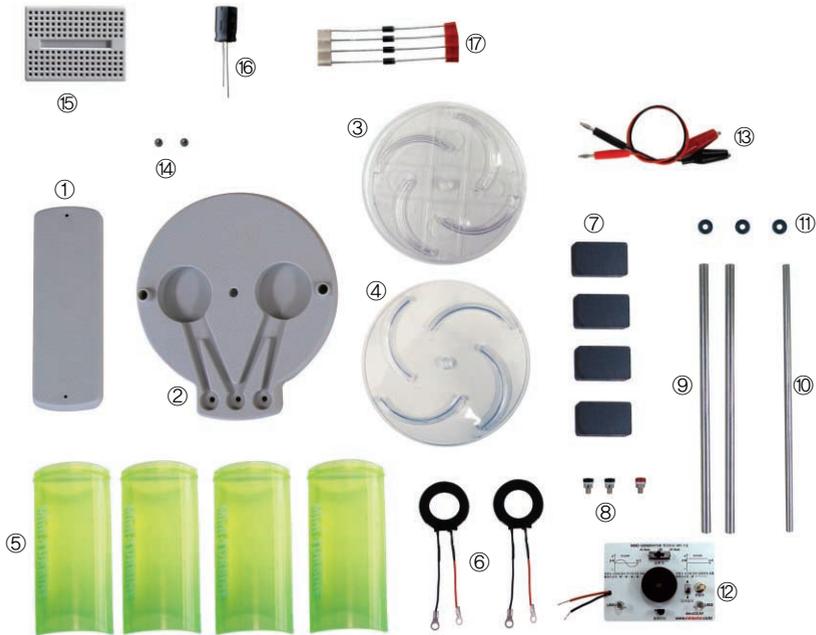
You can make it work with folding fan!



Have the basic idea of the wind power generation.

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Components of Mini-Turbine MT-150



MT-150 Components

Num.	Name	Q'ty	Remarks	Num.	Name	Q'ty	Remarks
①	Roof of MT-150	1	rectangle, 50×150mm	⑩	Aluminum Pipe(pivot)	1	5mm diameter, 200mm length
②	Base Body	1	round, 150mm	⑪	Rubber Rings	3	
③	Lower Plate for wings	1	round, 120mm	⑫	Gauge	1	WT-01
④	Upper Plate	1	round, 120mm	⑬	Wires with tongs	2	200mm red, 200mm black
⑤	Wings(Mini-Turbine)	4	57mm×125mm	⑭	Balls	2	
⑥	Coil Windings	2	37mm Diameter	⑮	Bread Board	1	35mm×45mm
⑦	Magnets	4	25mm×40mm	⑯	Condenser	1	16V, 1000 μ F
⑧	Terminals(sokets)	3	2 blacks, 1 red	⑰	Diodes	4	1N4007
⑨	Aluminum Pipes(pillars)	2	7mm diameter, 200mm length	⑱	Folding Fan	1	

Assembling and Experiment steps

1 Fix the magnets to lower plate.

Fix the 4 magnets at the prepared places on the bottom of the 'lower plate' (component #3) using double-sided tape, refer to <Fig. 1>.

Keep the sequence of magnet's polarity, N-S-N-S, refer to <Fig. 1-c>.

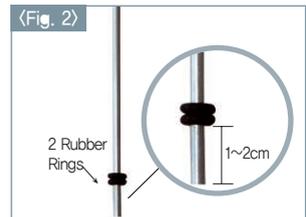
(The side with red spot is S polarity of the magnets)



2 Put the rubber rings on the aluminum pipe (pivot)

Put the 2 rubber rings on the aluminum pipe (pivot, component #10) with a distance 1~2cm from the bottom, refer to <Fig. 2>.

※ The distance from the bottom can affect the performance of generator.



3 Insert the pipe thru the hole in the center of lower plate till the rings.

The bottom with magnets faces the rings, refer to <Fig. 3>.



4 Fix the wings to upper plate (component #4).

Upper plate has 4 furrows to fix the wings. Fix the wings to the plate using the side with sill.

※ Be careful not to fix the wings with wrong side, refer to <Fig. 1-a> to see the difference between upper plate and lower plate.



5 Assemble the upper plate to the pivot (aluminum pipe, component #10)

Assemble the upper plate with the wings downward to the pivot through the hole.



6 Assemble the upper plate and lower plate to make a rotating body.

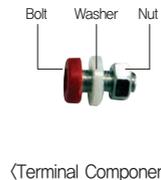
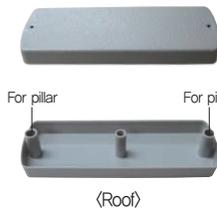
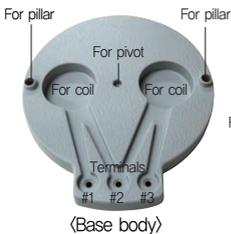
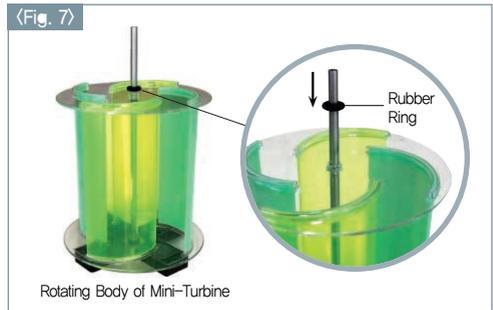
Fix the other side of wings to the grooves on the top of the lower plate.

※ Fix the wings firmly one by one not to fall out from the plate.



7 Put a ring on the top of the pivot.

Put a ring down to the top of the upper plate thru the pivot making the rotating body tightened.

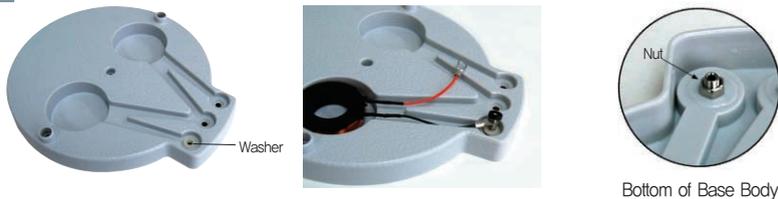


8 Set the coil windings to the base body of Mini-Turbine.

8.1 Connect the coil(A, left) to the terminal hole.

Put the mini washer on the hole of terminal #1 and lead the black wire to the terminal and fix the terminal with a nut and black bolt(socket).

<Fig. 8-1>

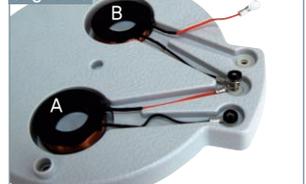


Bottom of Base Body

8.2 Connect the coil(B, right) to the terminal holes on the base body.

Lead the red wire of coil A and black wire of coil B, to the terminal #2 and fix the terminal as same way with 8.1. Do the same thing with red wire of coil B and terminal #3 and fix it with a nut and red bolt(socket).

<Fig. 8-2>



8.3 Place the coils to the prepared place in the base body.

Set the coils to the body and arrange the wires along to the furrows.

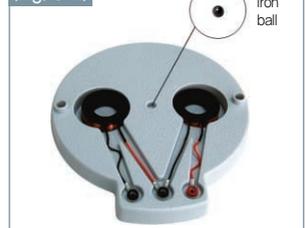
<Fig. 8-3>



8.4 Put the iron ball in the hole for pivot in the center of the body.

※ Be careful not to miss the ball.

<Fig. 8-4>



9 Mount the rotating body of Mini-Turbine on the base body.

Put the pivot (aluminum pipe) on the iron ball in the central hole of base body.



10 Joint two aluminum pipes (pillars, 7mm diameter, component #9).

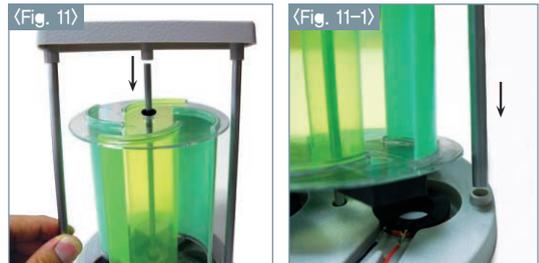
Two aluminum pipes to the holes at the edge sides of the roof (component #1). They are the pillars of Mini-Turbine, MT-150.



11 Joint the complex of the roof and the pillars to the base body.

Hold the pillars by both hands and put down to the holes at the base body. Watch the pivot to meet the hole in the center of roof. Refer to <Fig. 11> and <Fig. 11-1>.

※ Slap slightly the top of the roof to fix well.



12 Check the turbine rotates easily.

- ▶ Problem shooting when it jammed.
 - Check the ball is in the hole of base body
 - Check the pillars stand straight
 - Check the space between the magnets and base body.



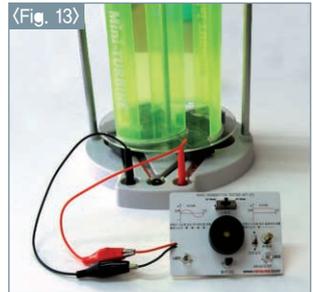
13 Attach the gauge. (WT-01)

13-1. Insert the banana jacks to terminals of base body.

- Black terminal – Black jack
- Red terminal – Red jack

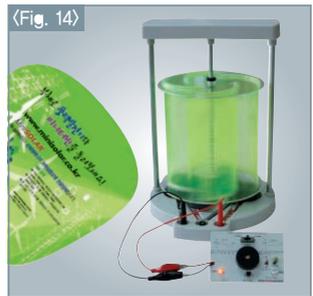
13-2. Link the tongs to the wires from the gauge with same colors.

※ Check the difference of output, inserting the black banana jack to terminal#1 and terminal #2.



14 Make winds blow with the folding fan to rotate the turbine.

※ What is the difference in the loudness of melody or the brightness of LED, while you are blowing.



15 The gauge (WT-01)

The gauge for wind power generator, Mini-Turbine MT-150 is a testing equipment to see the output of the generator, such as 'type of electric current', 'brightness of LED' s' and 'melody'.

15-1. LED

- Position the switch at 'LED'
- Red and blue LED's are blinking when the Mini-Turbine works.
- The brightness is proportion to the speed of spinning.

15-2. Melody

- Position the switch at 'AC Music'
- You can hear the 'beep' sound repeating instead of melody while the Mini-Turbine works.
 - It tells the current is AC.
- Position the switch at 'DC Music'
- You can hear a melody.
- It tells the current has transformed to DC from generated AC thru the rectifier, the diode and the condenser.

※ You can make this generator to work as a motor connecting dry cells in the place of the gauge.





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