

Vortex Assembly

SAFETY FIRST



This assembly manual requires the builder to have knowledge on constructing electronic circuits. Soldering irons can cause severe burns if not handled correctly.



Electronic solder typically contain rosin-resin compounds and lead, which when heated may create noxious fumes. Prolonged exposure to these fumes is considered potentially harmful and may create health problems including headaches, nausea and eye irritation. A Solder Fume

Extractor or working in a well-ventilated area greatly reduces this hazard by effectively removing these problem fumes from the air.

Before you begin

Your safety is your own responsibility, including proper use of equipment and safety gear, and determining whether you have adequate skill and experience. Improper use of assembly tools is dangerous, unless used properly and with adequate precautions, including safety gear. Some illustrative photos do not depict safety precautions or equipment, in order to show operating instructions more clearly. These products are not intended for use by children. These products are intended for radio control model applications and should never be used on industrial equipment.

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EQUIPMENT REQUIRED FOR ASSEMBLY

Assembling of the Vortex System is straight forward and requires minimal tools. The assembly instructions assume that the builder has a basic knowledge of circuit assembly procedures. If you do not feel comfortable with assembling the Vortex, seek help from an experienced person.

The following tools are required for assembly:



Soldering Iron



Side Cutters



Solder



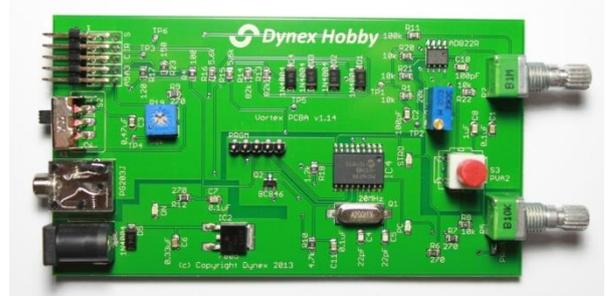
Multimeter

PLEASE CHECK THAT ALL PARTS ARE SUPPLIED ACCORDING TO THE PARTS LIST BEFORE PROCEEDING.

VORTEX SYSTEM ASSEMBLY

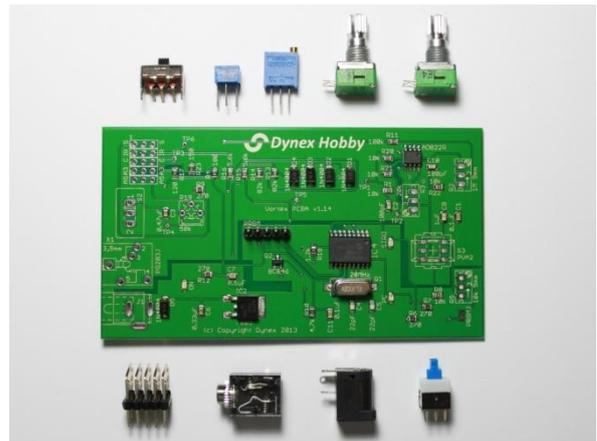
Introduction

Vortex is a combined dynamic balancer and vibration analyzer for hobbyist. It is capable of balancing rotors and shaft assemblies to reduce wear and improve performance. The vortex system can operate as a stand-alone device or it can be connected to a PC for advanced analysis. This manual outlines the Vortex system construction.



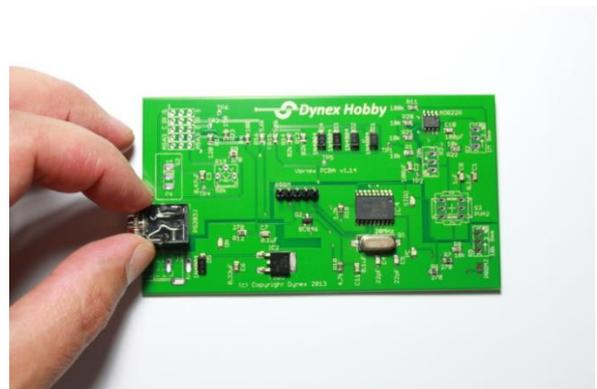
Step 1 - Identify parts

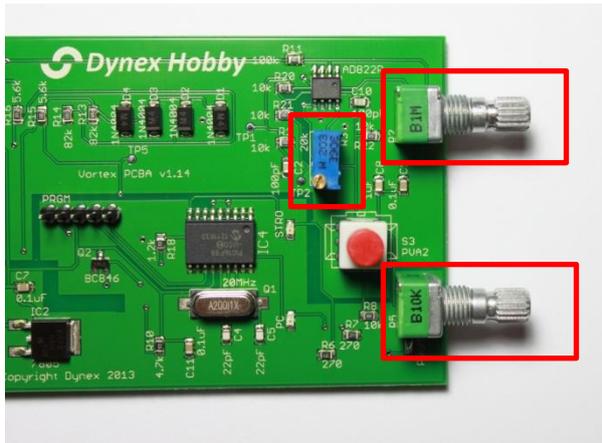
Locate all parts before assembling Vortex. Items should include PCB, potentiometers, switches and sockets as illustrated below.



Step 2 - Insert parts

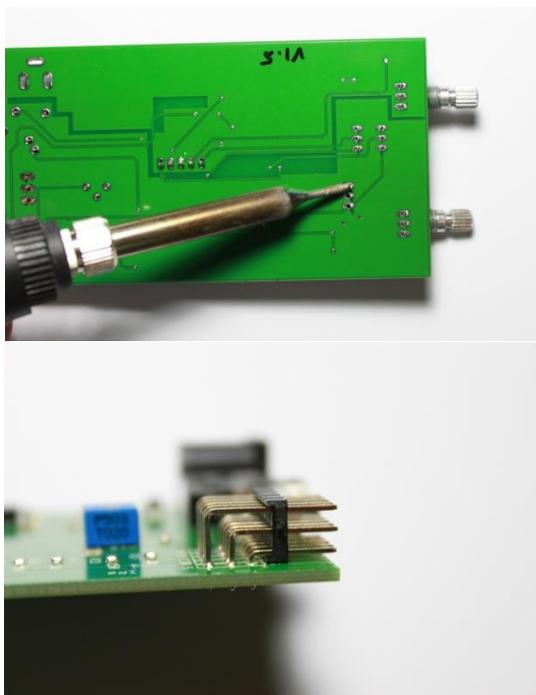
Insert all components into the printed circuit board. You may need to bend the protruding wires of the components to hold them in place prior to soldering. Ensure that potentiometers R2, R3 and R5 are positioned correctly.





Step 3 - Soldering

Next solder the components to the PCB.



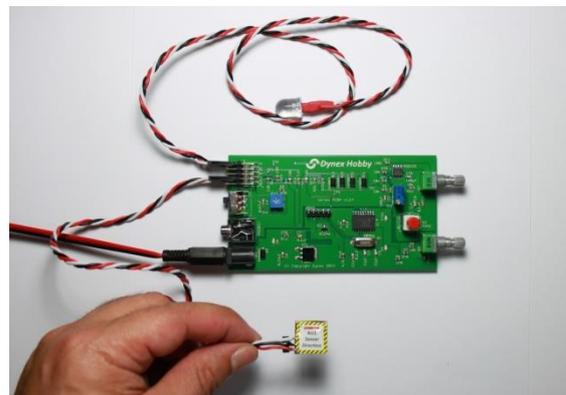
Step 4 - Calibrate sensor circuit

1. Connect the center pin and upper pin from the port labeled "C" on the PCB to a multimeter.
2. Connect the accelerometer sensor to port labeled "A3" on the PCB. Ensure the accelerometer is sitting still on a flat surface.
3. Using a small screw driver, turn the potentiometer labeled "R3" until the multimeter reads approximately 0mV.



Step 5 - Simple Circuit Test

4. Connect the Vortex to a 9~12VDC power supply. Refer to User Manual for connection polarity.
5. Connect the accelerometer sensor to port labeled "A3" on the PCB.
6. When power is connected, the "PC" light should appear.
7. Press the "mode" button.
8. The "PC" light should disappear.
9. Wiggle the accelerometer sensor for 5 seconds.
10. After 10 seconds, the "Strobe" light will start to strobe when the accelerometer sensor moves from side to side.
11. If the proceeding events occur then the device is operating normally.



For a full functional test, follow the balancing procedures in the User's Manual.

Step 6 - Finalize assembly

1. Insert the completed PCB assembly into the Vortex case.
2. Insert the 4 screws on both ends. Insert the dials onto the 9mm pots.
3. Ensure there is adequate clearance with connectors and casing endplates.



ELECTRONIC PARTS LIST

Part	Value	Package	Library
PCB	V1.14	Dynex	PCB
J1	SPC4078	con-jack	con-jack
R2	1M	RJ9W	9mm pot
R3	20k	RJ9W	pot
R5	10k	RJ9W	9mm pot
R19	50k	B25P	pot
S3	PVA2	PVA2F	switch-misc
X1	PG203J	PG203J	Stereo Socket
S	S	90 deg header	90 deg header
IR3	IR	90 deg header	90 deg header
C	C	90 deg header	90 deg header
A3	A3	90 deg header	90 deg header
A5	A5	90 deg header	90 deg header

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Missing Parts

Before assuming that a component value is incorrect, or missing, check the parts listing carefully to see if it is a critical value such as a specific semiconductor or IC, or whether a RANGE of values is suitable (such as "10uF to 47uF"). Sometimes, a different value component may be substituted in a non-critical application. If you believe we packed an incorrect part or omitted a component clearly indicated in your instruction manual as supplied, please contact us with information on the component so we can send a replacement as soon as possible.

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