Tevo Tarantula build first steps:

Get 100x #8 / M4 washers, and use a washer anywhere a bolt/screw would touch acrylic, do not over-tighten acrylic. The Washers help spread out force on the acrylic. Make sure your bowden tube goes 1.5"/40mm OR MORE into your hot end and it was cut straight first, (**bottom it out**), tighten your hot end correctly and re-tighten when warm (don't burn yourself). Adjust all carriages with eccentric nuts so there is no wobble, tighten all belts so they sound like a low guitar string, align you Z axis rod so it does not wobble, take your time, check all wiring twice or more, ensure ends of wire twisted at very least, or use Crimp on connectors, soldered even better. watch for loose strands of wire that could poke in strange directions causing a short. know where the emergency stop is and be prepared to use it quickly. the extra time you take to assemble carefully will pay huge dividends later. Use White Lithium grease on your aligned z axis threaded rod will really help with movement and noise. Get a digital multimeter if you do not have one for adjusting pots/variable resistors. Possible options include a terminal block for wiring clean up and extensions for PC board connections and a mains power switch with enclosure for the switch. Enjoy the build!

\*\* **Watch ARCADED videos for good hints even if slightly out of date.** (You Tube).\*\*

( do not take apart wheels, this has been fixed).

Alignment and binding: (If you have troubles here are some hints)

Ok first things first, take off the x/z beam, look at the frame with a **LARGE and ACCURATE square**, make any adjustments to ensure the frame is square in 3 or 4 directions for each column and that top bar is parallel to bottom x. when this is truly secure and straight is the time to introduce the x axis/z beam, tie it about half way up making sure it is parallel to the top (Tie at both ends to top support beam), and add or tighten your wheels to ensure they are in groove and adjust eccentric nuts to tighten snug, not unbearably tight, must still fall with gravity if it were not for z axis threaded rod. now put white marks on wheels (or some visible color, just a dot on each of the wheels) now activate the z axis and watch all the wheels on both sides of each column (4 sides total) to ensure all wheels moving during entire rise from Z0 to Z190+. this will tell you everything is aligned and tightened correctly. hope that helps, but keep checking everything for square and adjust/loosen and re-tighten as required, last check should always be the wheel check. Use any and all braces!

**Clicking Extruder**: (Hints on how to fix)

Two Common issues: 1-Extruder clicking, stepper shaking, 2-Clicking due to hot end clog

1 Extruder clicking\Jittering: Looking at extruder gear when it is issued a command to move it just shudders or rolls back/forth. Check plug on Extruder motor, also check plug on PC board end, ensure both fully plugged in and tight. The normal voltage to activate these steppers is 0.75v now the steppers have a large tolerance and some may need higher voltage. Look for the E0 Potentiometer this one will SLOWLY be adjusted CLOCKWISE to increase the voltage till the motor starts to turn (should have been re-issued large extrude command with bed/hot end heated but can have PTFE tube out of hot end so not waste material.) This may be 1.1v or so just turn it SLOWLY and not fast or you may end up giving it too much! Note if it is the second extruder in a dual set up you will want to adjust the E1 Potentiometer.

2 – Clogged Hot end. Two reasons, first did you ensure the PTFE tube was cut VERY SQUARE/90 Degrees to length of tube? Even a small angle on the end of this tube can cause issues. Also the tube MUST be pushed in till it BOTTOMS OUT inside the transition zone. (This should be 1.5”/40mm or more depending on extruder). This eliminates one spot where material can “Mushroom” and cause a clog. The second reason is that the nozzle (gold/brass pointed tip) is not tightened against the Heat break (The threaded tube, NOT THE SQUARE BLOCK). This should be tightened while cool and re-tightened when hot, again a small gap between nozzle and square heating block does not mater, what matters here is the nozzle is tightened against the heat break which is that threaded rod. This eliminates the second mushrooming area for material and eliminates this as a clog spot.

3 – The print nozzle may be touching the bed or just too close to the bed to allow material to flow out of the extruder correctly, if it has problems for first/second layers then seems to be ok, you are too close to the bed and should adjust your offsets in Configuration.h (Flashing the board), or in your slicer software. If you have not calibrated your extruder, please do so and adjust your configuration.h file or adjust feed rate of your material in the slicer you chose.

**Initial settings**, Before you try printing super-fast and shaking your machine all around, take a look at your JERK settings and reduce these dramatically (Cura settings = Enable Jerk Control – CHECKED, Travel Jerk = 20mm/s Print Jerk = 15mm/s) and turn down your accelerations on the printer too, (Cura settings = Print Acceleration = 1000mm/s2, and Travel Acceleration = 800mm/s2 ) this will help dramatically reduce machine shake when you print, add to this a print speed of 40-50mm/second for the first prints. Once you have made some braces and stiffened up your printer and possibly mounted it to a surface, it will be better able to handle these faster speeds and you can try moving print speed to 50-70mm/second. The faster you go the more chance for shake and wobble, that is also why I do not recommend mounting material spools to the top frame and/or adding weight to the bed or the print head if at all possible ( you do need a cooling duct/fan for printing pla successfully especially at higher speeds.) Start slow and get good prints then make them slowly faster until your bracing and such lets you down and then you will know your limits. Print at 80% of that value and you will not have issues.

Hope these help, let me know what you think!

Bryan M. (With Help From The Whole, Tevo Tarantula, FB Page)

**PS: The Typical questions**:

Yes you should solder all joints or at least use crimp on connectors for all wire ends.

My extruder is clicking, is that normal? – NO, see above.

My Extruder will not extrude when I manually tell it to. – Have you heated the hot end, there is a 180 degree minimum temp before it will extrude.

The fan on my Transition zone on the hot end is wired to the fan spot on the PC board and is not working as it should what is wrong? – It SHOULD be wired DIRECTLY to the power supply, do not piggy back wires in the PC board connector, that’s how melts happen. The FAN plug on the PC board is for a part cooling fan which you have to print a duct for first and then add later, usually controlled in slicer program.

Check all belts for tightness, should sound like a “E” string on a guitar, if not it’s not tight enough, will induce resonance in parts.

My Motors are not running, my bed not heating etc, but Display is on. – Typically, this happens when your connected to the computer with USB cable, it is enough to drive the electronics of the printer but will not power the motors and extruder and hot end and heating elements. Only connect the computer to upgrade firm wear!

My print is stopping half way or will not start. – Are you using the supplied SD card? **THROW IT OUT AFTER BREAKING IT IN HALF!** Get a 2 gig card up to 8 gig (no bigger, really, it may not recognize bigger cards). Print from SD card all the time so your print is never interrupted by windows updates, or power flickers in PC or Sleep modes or computer shutting down usb ports when it thinks no one is using computer etc.

Coupler between Z axis motor and threaded rod. – Make sure they are each only inserted in the SOLID sections of the coupler and there is space between the two inserted parts for the coupler to actually do its job and flex as needed to reduce vibration and wobble. Line these up as carefully as possible. You can download and print out better connectors later.

Wobble; Any wobble in the build is bad, buy, make, print any supports you need to stiffen up the assembly, as well as using washers so screws all tighten up and all goes together snug, go slow, do it right or you will have to go back and do it all again, check for tightness every roll of PLA or ABS you use.

YES you need a cooling fan for PLA and PTG, NOT for ABS, for ABS you should have an enclosure or protected/heated work area.

Yes, Tevo sent you some spare parts, extra screws, t-nuts, a spare thermistor (temp probe), a spare Limit switch, some spare braces etc., there’s are a bonus if you should need them, use all braces found! And you only used one bracket to y motor attachment right?