

Tesoro Ground Balance Mod  
Depth Increase Mod

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Jan 2015

Will work on other Umax providing you have correct value external control pot. Some models have 100K other 50K.  
And you know what value your trimpot was set at by the factory for the fixed value resistor.

**Silver Umax**

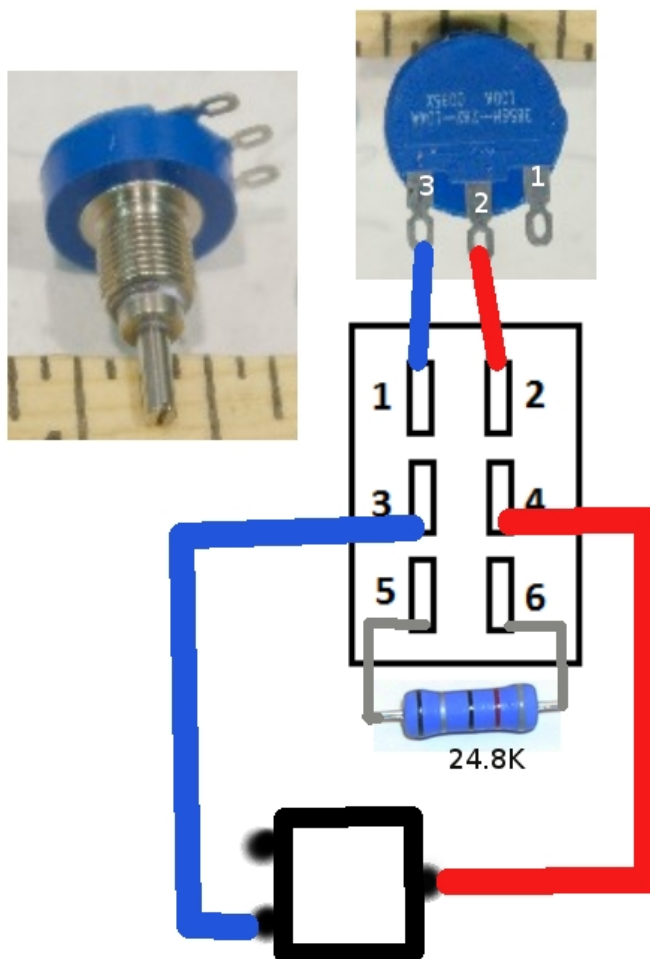
GB Pot 3 3/4 turn 100K. These pots are almost impossible to find, most suppliers will carry them in their catalogs. Special order in 1000 pc. Lots. Tesoro will not sell you one.

Toggle switch Three position

24.8K Metal Film Resistor for fixed GB

Remove 100K Trimpot from PCB. Solder wires to PCB to toggle switch. Solder 24.8K resistor to toggle for fixed GB. Solder wires from toggle to external pot for manual GB.

See picture on next page for trimpot location

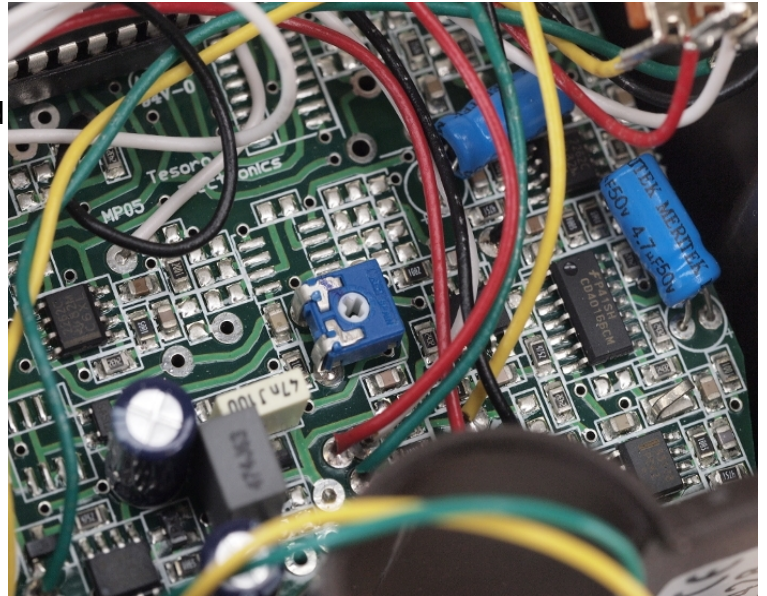


2" Depth Increase when switch out two 4.7uf for 10uf, which also slows down sweep speed needed when swinging search coil.

Other models may see up to 3" depth increase. You must make sure to replace the correct caps, which there are two. Best if you have schematics of your unit. Find reversed engineered schematics at the Geotech Forums.

Silver pictured

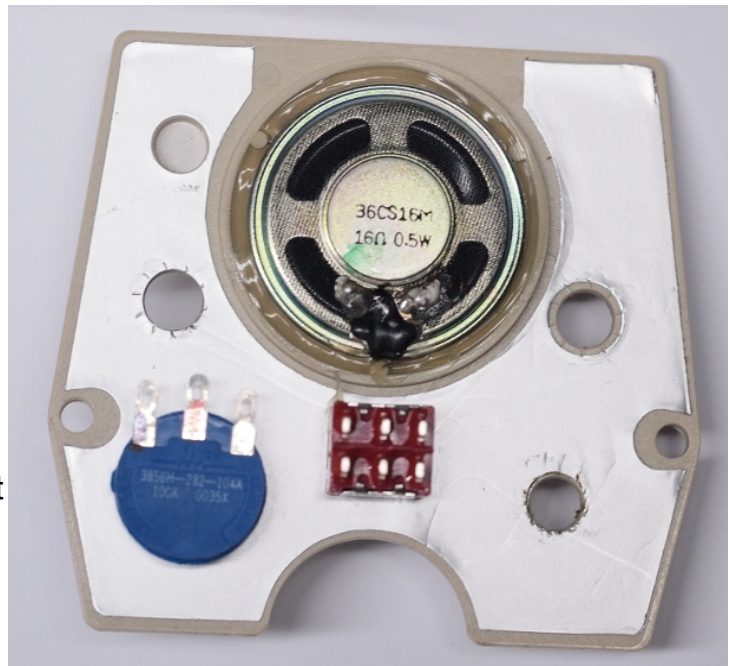
Replace two caps pictured in this Silver they are blue. They are next to the Ground balance trimpot.



Warning Tesoro uses stiff wires to remain in a particular position. They "can" break off easily from where they are soldered to the circuit board. Especially the wires coming from the coil connector to the back of the circuit board.

Also good to take pictures, in case a wire breaks off, you will know where it goes.

Doing any mods to your Tesoro is done at your own risk, if you mess up, kiss your detector good-bye. All mods voids Tesoro Warranty.



Fixed GB set . . Barely cracks on a hot rock. It's slightly negative.

Manual GB 3 ¾ turn pot, slight resistance at end points.

Since its silent search no threshold.

You can take a piece of Ferrite core to manually GB, or GB to hotrock, iron etc.

Use fixed GB as a reference point, if you adjust manual GB so the problem hot rock , ground sounds the same as when your in fixed GB pumping the coil within an inch, you know your manual pot is set slightly negative. From that point you can go more positive or negative.

Or

Use Monte's Power Balancing for the Silver

Power Balancing is a term I coined a log time ago when using different detectors once I figured out how positive the offset was for some of them in the Discriminate mode. I do it with many models in the Discriminate mode, whether Threshold based or Silent Search. It's been almost 30 years since I learned to do this, and I have had a lot of very improved success, especially with Tesoro models since I hunt in some 'bad ground.'

- a.. Locate a metal-free clean spot of ground to adjust the GB. You might pick some of the more mineralized ground in the area you're searching (and if you have an All Metal mode you can help locate such a spot).
- b.. Select the Discriminate mode.
- c.. Set the Discriminate level at the minimum setting (or where you might just reject iron nails on the ground).
- d.. Use the highest Sensitivity level w/o noise or chatter.
- e.. Start with the search coil held about 6' above the ground, and no higher than 8".
- f.. Briskly, bob the search coil toward-and-away from the ground going from 6" down to about 1/2".
- g.. Most likely, the audio is silent during both the down-stroke and up-lift. Slowly decrease (counterclockwise) the Ground Balance control while you briskly bob the search coil.
- h.. When you get a 'beep' on the up-lift of the search coil ... STOP! This indicates you are now adjusted slightly negative in the Discriminate mode.
- i.. Continue to briskly bob the search coil, from 1/2" up to no more than 6", and very slowly increase the GB adjustment just to the point where the falsing on the up-lift is gone. ... STOP!

You are now 'Power Balanced' in the Discriminate mode. You have only enough GB adjustment to be very functional and not have any falsing, and the discriminate circuitry doesn't have to deal with as much ground signal. You will get better depth and target response, especially in more mineralized ground.