M250 Series Troubleshooting

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Taking a Closer Look inside the Foot Pedal

A large part of the time the problem with the wheel can be traced back to the pedal. Even though the pedal was designed to withstand a great amount of pressure, such as the occasional drops and pull. Still, there are some instances that an internal device known as the potentiometer may not be functioning properly.

Here is some information and a quick reference for trouble shooting.

To prevent electrical shock, please remember to turn off and unplug the wheel before doing any kind of repairs.

When do we do these adjustments?

These adjustments are made if the following conditions are observed:

1. Wheel would not turn, after the switch is turned on and the foot pedal is pressed in the “on” position.
2. Wheel would not change speed.
3. Wheel would not stop spinning after the foot pedal is in the “off” position.

Materials Needed:
Philips Screwdriver
Allen Wrench

If the above conditions exist, please refer to the following steps:

1. Open the foot pedal; there are four Philips screws that hold the cover in place.
   *Remember to turn off power and unplug the wheel.

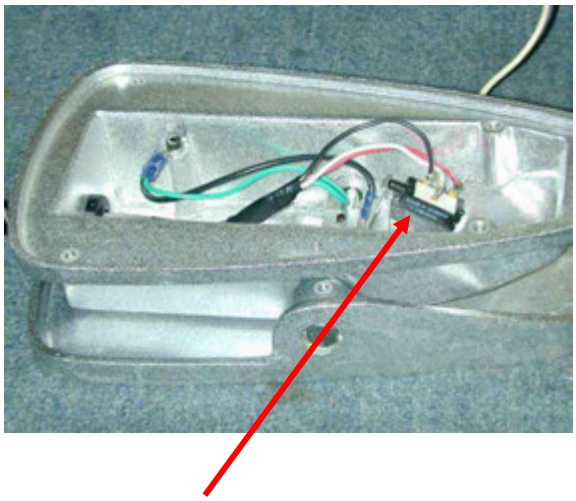
Philips Screws

2. Once the cover is removed, you will notice five different wires inside. Four of the wires going to the controller and the fifth for grounding.
3. The colors are different depending on the model that you have purchased.
   For **Velocities**, the wire colors are:
   Black
   Green
   White
   Black with ring - ground

   Control Wires

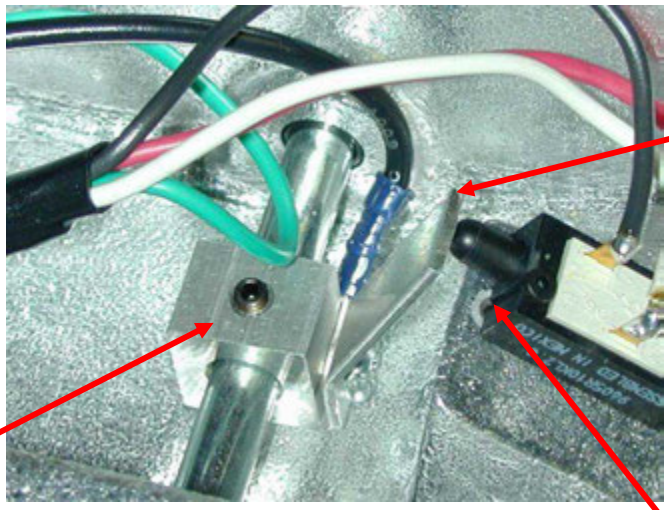
   The fifth wire is green or black. This is attached to the ground wire to ensure the presence of ground to both halves of the pedal.
   For **Masters**, wire colors are:
   Black
   Red
   White
   Green with ring – ground
   Fifth wire, green

4. There is a black rectangular plastic box, that is attached to the middle of the pedal; this is the potentiometer. The potentiometer is the brain of the wheel. Without it, the wheel will not turn or vary speed.



Potentiometer (MASTER PEDAL) NOTE COLOR OF WIRES.

5. Press the pedal back and forth, observe if the shaft of the potentiometer is de-pressed or released. There are occasions that the shaft maybe pressed, but not all the way.
6. Using an Allen Wrench screw, loosen the setscrew; please refer to the picture for step by step description.



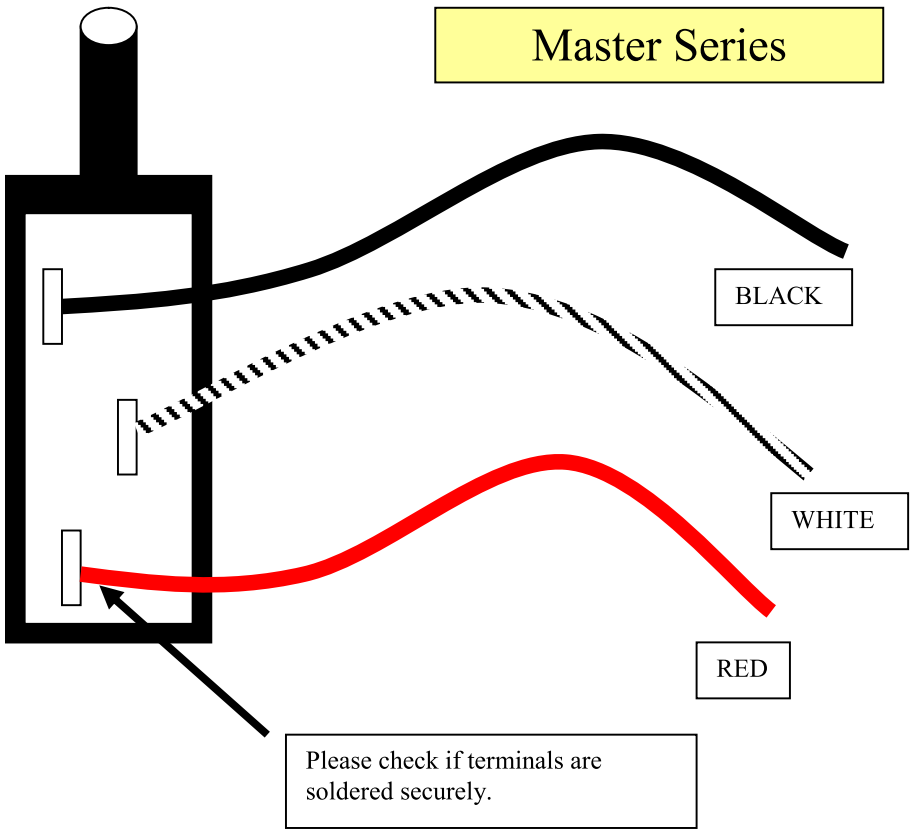
7. After the set screw is loose, adjust it in a way that the shaft of the potentiometer is pressed and depressed. After the condition is satisfied, tighten the set screw and check if it moves as the pedal is pushed back and forth.
8. Check if the terminals of the potentiometer are attached, please take extra care in doing this, the terminals can easily break. If this happen replacement is needed.

To prevent electrical shock, please remember to turn off and unplug unit before doing any kind of repairs.

9. The wires should be attached to the potentiometer as indicated
   For Velocity Series

   Black wire without ring, should be soldered on the terminal near the shaft.
   White wire in the middle and green wire at the last terminal.
   The black wire with ring should be attached securely to the pedal.

   For Master Series
   Please see drawing for details



Please take note of the difference in color.
Remember not to forget the ground wire; this is a must that these wires are re-attached.
Closely examine if the wires are securely soldered to the terminals, erratic and sudden change of speed can be attributed from loose wires.

10. Close the cover and try the wheel if the problem still persists , Call Shimpo Ceramics at (1-800-237-7079)

How to Check if my Potentiometer is Bad?

This question is a common concern that customers have. How do they check if the potentiometer is bad? The potentiometer is a device that controls your wheel; it is hard to tell whether it is good or bad, unless you check it with the proper equipment.

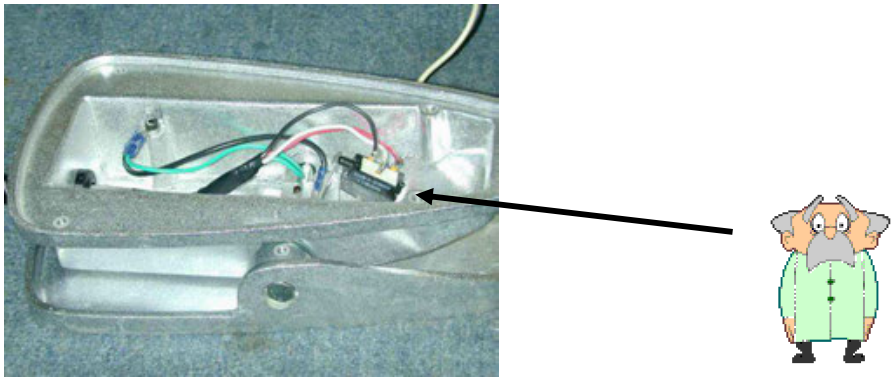
You will need an ohmmeter, which can be purchased through any electrical and hardware store. Inexpensive ones are available; you do not need to purchase the fancy and expensive units. As long as the unit can measure resistance, which is the setting with the **Ω** symbol this will be fine.

To prevent electrical shock, please remember to turn off and unplug unit before doing any kind of repairs.

Steps:

PLEASE MAKE SURE THAT THE LEADS ARE NOT PLUGGED IN TO THE CONTROLLER

1. Open your foot pedal using a Philips screwdriver.
2. Locate the black plastic with a movable rod.

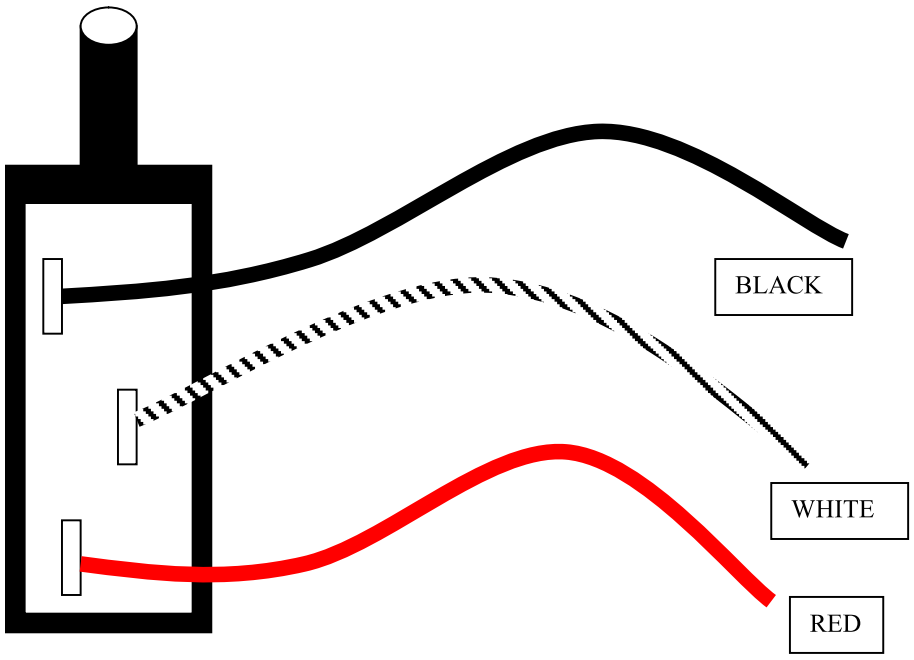


3. Set your Ohmmeter to the right settings, analog meters have to be set to the 20,000 units to be able to get the proper readings. (DO NOT TAKE RESISTANCE MEASUREMENTS WHLE WHEEL IS ON, THIS MAY DAMAGE YOUR CONTROLLER.)
   Disconnect the pedal leads from the board, failure to do so will result inaccurate readings.
4. Put one of your meter leads to the black wire terminals, while the other lead to the white terminal.
5. Move the pedal back and forth; see if there are changes in readings. You should have at least 995 ohms to 8K ohms. There are occasions however that there are 7,500 ohms readings (max), this is fine, but anything lower than this will be considered bad.

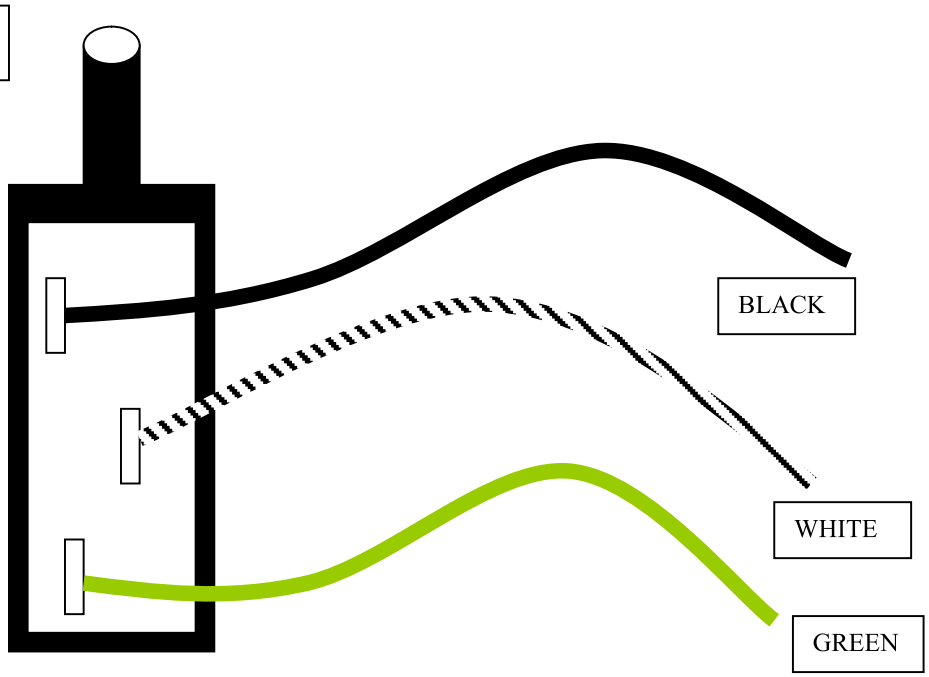
6. After you verified that this condition is true, move the lead from the **white Terminal** to the third terminal. **Color do vary on this third terminal, red is for Masters, Green is for Velocity**. Measurements are now taken out across these terminals. It should read 7,500 ohms or higher. (This reading should stay the same even if you press and depress the pedal.)

Master Series

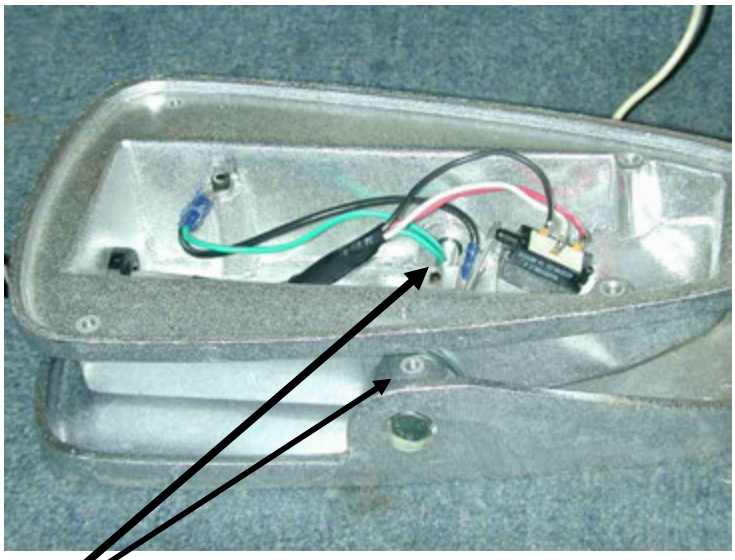
Please check diagram. If you need some more assistance please call Shimpo Ceramics, at (800) 237-7079.



Velocity Series

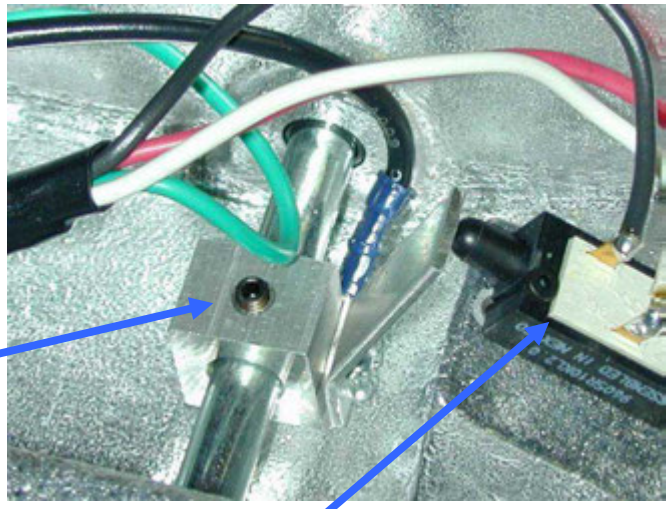


Trouble Shooting with Power on



Set screw location. Please make sure that the set screws are tight.

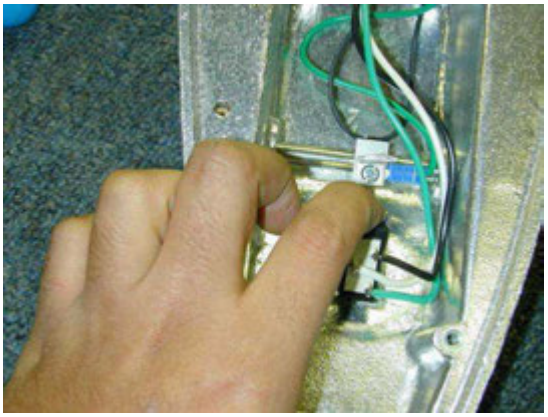
Please be advised not to touch terminals from the picture below, while doing this test. Failure to follow these guidelines will result to both electrical shock and damage to the controller.



Recommend to loosen this allen screw completely, to make sure that the potentiometer is initialized.

Please do not touch these terminals while doing this test.

1. Please open the foot pedal as indicated above.
2. **Visually** check if all the terminals on the potentiometer are attached.
3. Plug the unit and turn on switch; using your finger, manually press and de-press the plastic rod (make sure that you are not touching the terminals).



Take note if the wheel head is running, or if the motor is turning on.

If not, turn off the wheel and unplug; check the condition of the copper terminals. They may be broken off the plastic. Check the resistance values with a multimeter, follow the steps on the section on Checking the potentiometer.

Black and Red terminals should read 8,300 ohms – 10,000 ohms

Black and White terminals should vary resistance depending on the position of the movable rod.

Please refer to the controller picture file for a more descriptive detail of the controller.

- Tighten the two set screw as indicated above, these maybe loose and need to be tightened. Speed problems can be attributed to these screws.
- If additional speed is required refer to the control board picture for board adjustments. This is however, not recommended, since faster speed has the tendency to throw the clay off the wheel head.

For additional information, please call Shimpo Ceramics at 1-800-237-7079.

How to Re-connect your Controller to your M400 Shimpo Wheel

1. Please do not plug-in the unit, until the following steps are checked and done.
2. Lay the unit on its' side, you will need the following tools, a Philips screw driver and a Long nose pliers.

3. With the use of your Philips screwdriver, loosen the three screws from the plate. There are two in both sides and one in the middle.
4. Unscrew the four plastic feet from the metal plate. You can do these by simply turning the knob counter-clockwise.
5. There are three terminals on the side of the controller. These terminals are for the foot pedal. They are labeled as follows:

   L – Black (S1)
   W- White (S2)
   H – Red (S3)

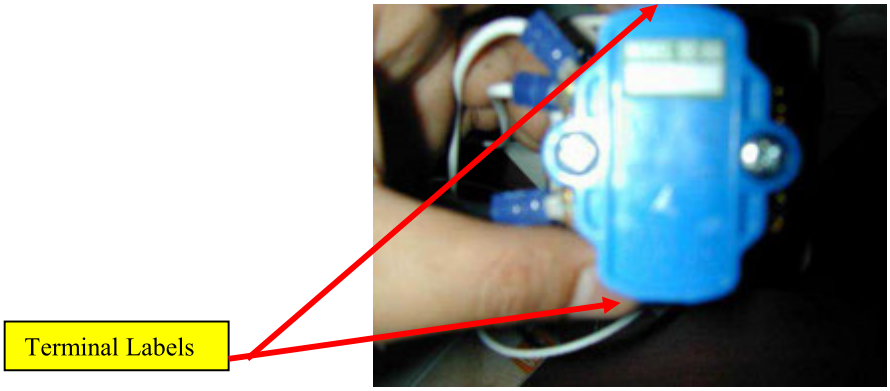
   The fourth wire, with the ring (green) is the ground for the pedal. Please do not forget to attach this wire to the body of the unit.
6. There are two terminals near the capacitor; these are for the motor, terminals are labeled **A+** and **A-.** Please take note that since the M400 can only do one direction, switching the wires would reverse the direction of the wheel.

   (A-) for the Black Terminal
   (A+) for the White Terminal

   A third wire from the motor, will be the ground. Please attach this to the body.
   (Clockwise Direction)
7. The cable for the plug has three terminals: Black, White and Green.

   Black wire is attached to terminal 3 of the switch, please refer to the drawing.
   White wire is attached to terminal 1 of the switch
   Green wire is attached to the body as shown in the diagram (earth ground).

The switch has labels on it. Terminal numbers can be seen from the sides.



8. From the switch a black wire coming from **terminal 4** should be attached to the fuse holder.
9. Two black wires should be coming out from the fuse holder. One is going to the pilot lamp and the other one to the filter of the controller. (Filter is located underneath the controller).
10. **Terminal 2** from the switch should have two white wires coming out, one going to the filter and the other going to the pilot lamp.

11. Please check the wires again, refer to the diagram.

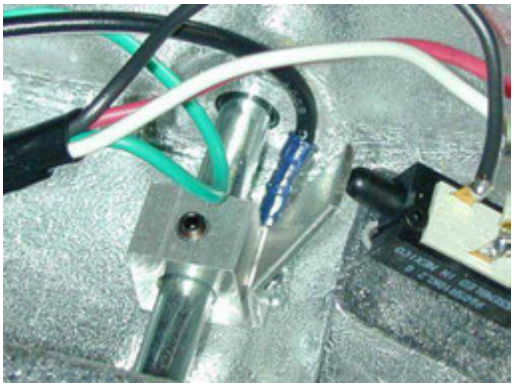
After the wires are checked, you are now ready to plug in your Shimpo Wheel.

Quick Reference for Possible Problems and Solutions

Problem: Wheel will not change speed when pedal is pressed.
Solution: The pedal contains a potentiometer that controls the speed of the wheel. Although the pedal is designed to withstand sudden drops, there are occasions that the set screw might turn. If this happens the metal piece that pushes the rod will not function properly.

1. Turn off power and unplug the unit.
2. Open the foot pedal. Using a Philips screwdriver, loosen the four screws.

3. Check if all the terminals of the potentiometer are attached. (black plastic with an adjustable rod)
4. Observed the potentiometer, which is the black plastic with an adjustable rod, as you press the pedal back and fourth.
5. The rod should be pressed and depressed all the way depending on how the pedal is pushed.

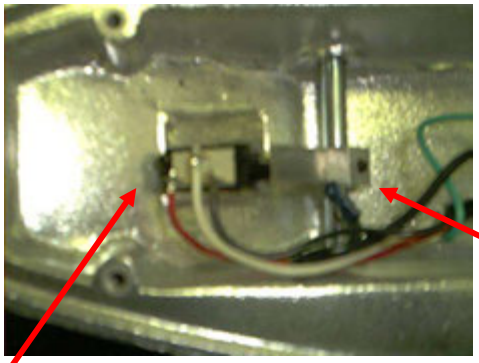


6. If the rod is not pressed properly, do the following:
   a. Use an Allen-Wrench to loosen the metal piece that pushes the rod. Allen Wrench this size can be purchased through any hardware store.
   b. Position the metal piece, depending on how the rod of the potentiometer is pushed.
   c. Make sure to tighten the set screw, if this piece turns the potentiometer will not function properly.
7. Re-attach the plastic cover and tighten the screw. Please be careful not to damage the terminals from the potentiometer.
8. Plug the unit and observe the wheel.

90 percent of the time, the problem of the wheel can be traced back to the potentiometer.

To reduce electric shock please turn off and unplug the unit as you do any kind of repairs.

Problem: When power is turned on, the wheel would not run.
Solution: Check the fuse, replacement can be purchase from any electrical or hardware store. Ratings are indicated on the bottom. Please do not substitute with a higher or lower rating.



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