

# ETX125 focuser assembly instructions

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7/3/16

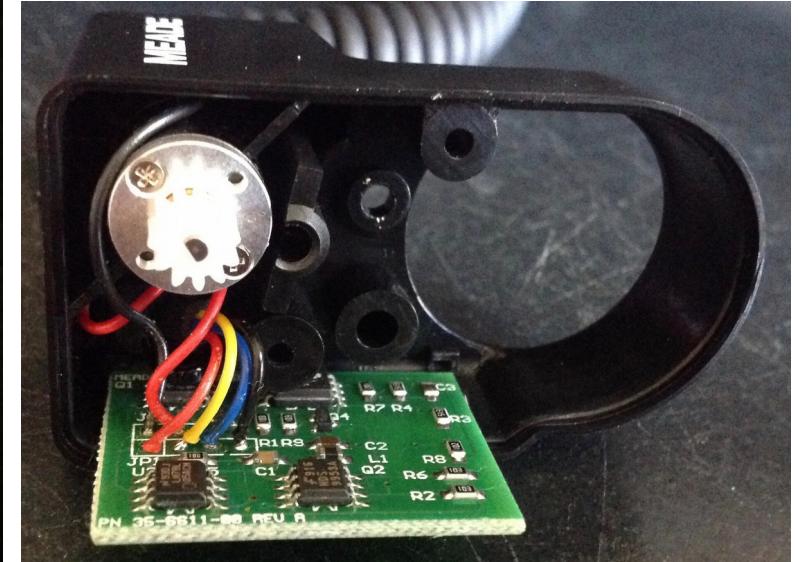
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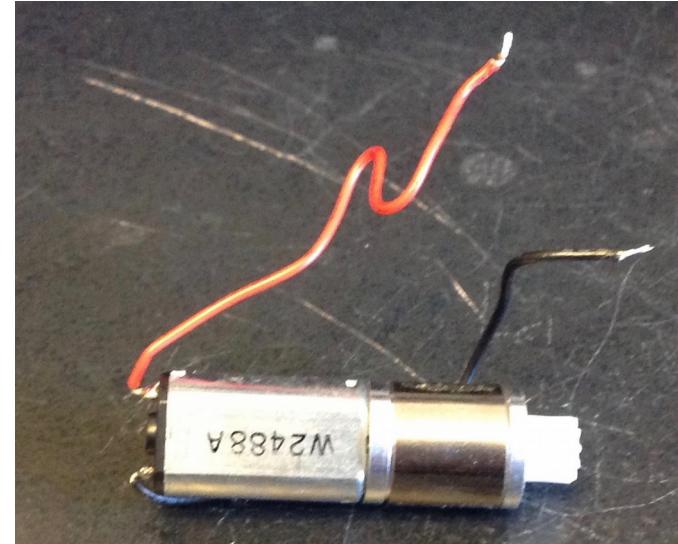
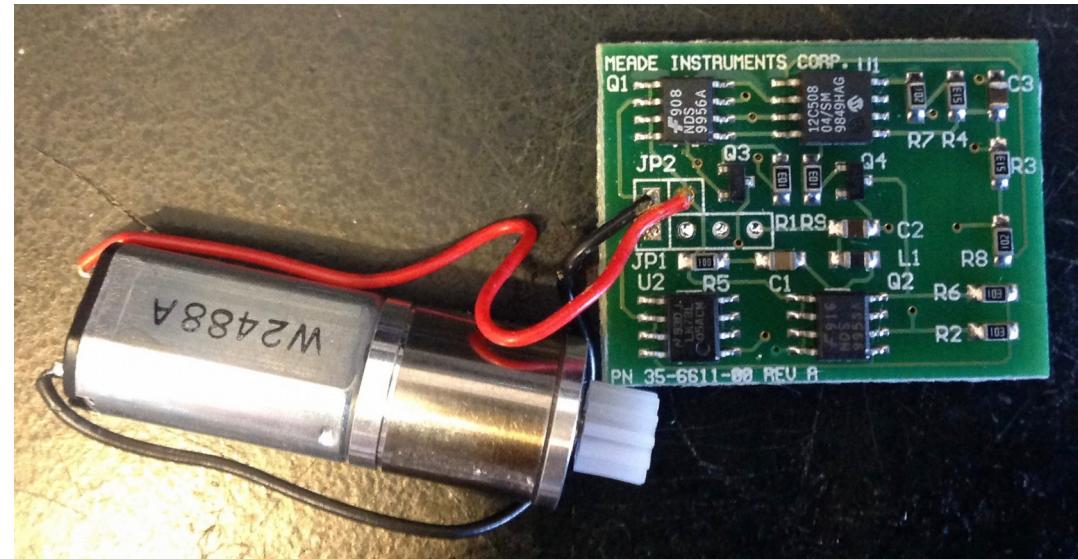
# First buy the Meade #1244 and dismantle it



Open the cover and notice the orientation of the gears.  
Remove them, we will use them later.

Take a picture of the wires that are soldered to the PCB. We will need to unsolder all the wires next.

# Unsolder wires



# Cleaning the holes of the PCB

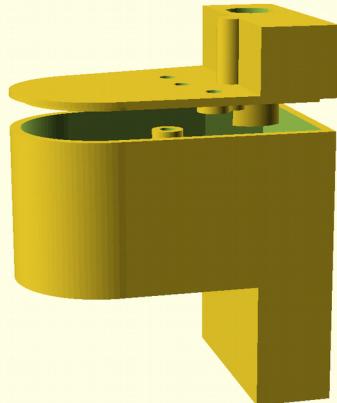


You have to remove most of the solder from the holes that used to hold the wires.

**WARNING!** You have to have some skill in desoldering here. The traces on the PCB are **extremely** thin. Overheating the traces **will** make them come off and the repair will be a pain. So if you are not experienced, ask some one who is to do this.

Trick: You do **not** need to completely clear the holes of solder. You only need to remove enough. See slide 7.

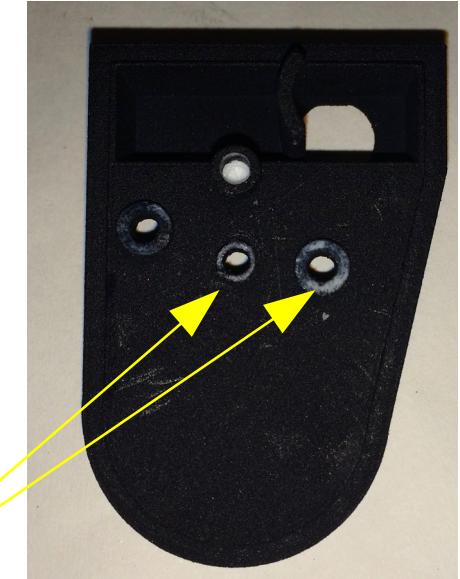
# Make the focuser case and preassemble



You will have to use a 3D print or a commercial 3D printer service like [Shapeways](#) to print out the focuser case.

You will need to install the motor with its gear and the other two gears to make sure everything fits. It should!

The cover standoffs may need to be filed down a little so that the cover and its base fit well.



The hole holding the long bronze gear may need to be enlarged or smoothed out. If it gets stuck, the gear on the motor might break. Extra gears can be bought from [gizomo's zone](#). Part number: GM0.5-11-D

# Install the control cable



Install the control cable into the front cover.

Cut the outer sheath of the control cable so that there is enough wire exposed so that the cover can be uncovered from the main body of the focuser after they are soldered to the PCB.

Solder wires into the holes for the motor in the PCB. We need to extend the length of connection to the motor.

Solder in posts to the JP1 holes for the controller. The posts are made from resistor leads. If you heat up the post first and then push it into the hole, the post will melt the residual solder and go into the hole.

The reason why I do this is because the controller wire is very thin and will break unless it is reinforced.

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# Install the focuser gear



Remove the focuser knob.  
Install the shoe from the #1244 focuser onto the focuser stem.  
Of course, the focuser gear does **not** fit on the stem.  
You will need to wrap tape around the stem to increase its diameter. Use good tape.



Advice: Focus the telescope first! This will give you the right amount of stem for you to attach the gear.

Warning! Too many stem rotations will detach the mirror from the telescope!  
Leave enough room for +/- 5 turns.

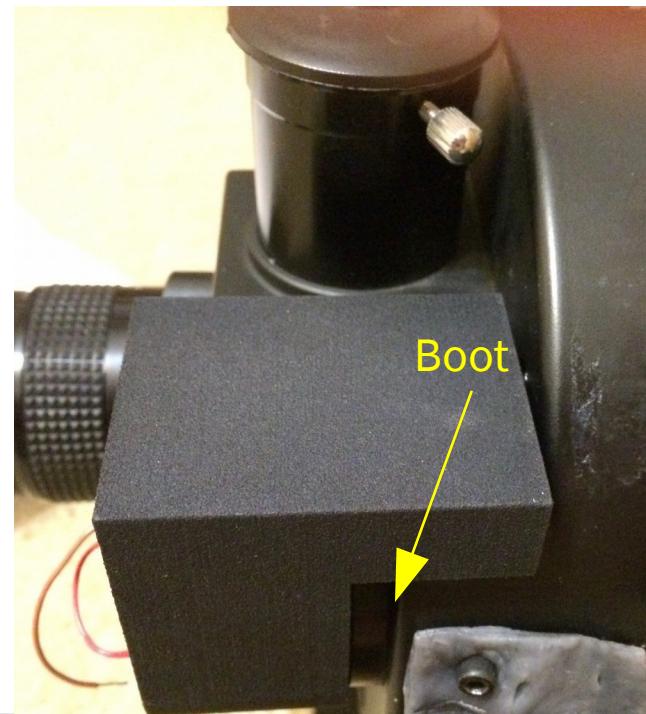
# Install the motor and nuts into the main body of the focuser and install onto the ETX125



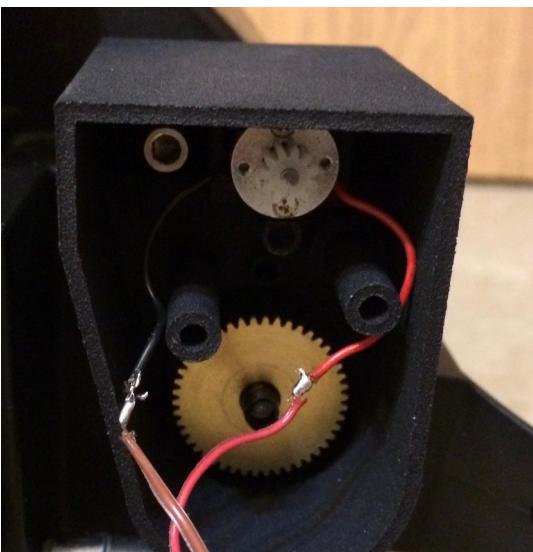
Super glue the nuts into the holes for the screws. (Note: in this picture, I have not yet installed the boot onto the telescope which I had already done on the previous slide)

Solder the wires for the motor from the PCB to the motor wires.

Rotate the boot so that it fits properly for the installation.



The long screw that is supplied with the #1244 is used to screw into the pre-existing hole at the back of the ETX125. There is a screw in the pre-existing screw that has to be removed first.



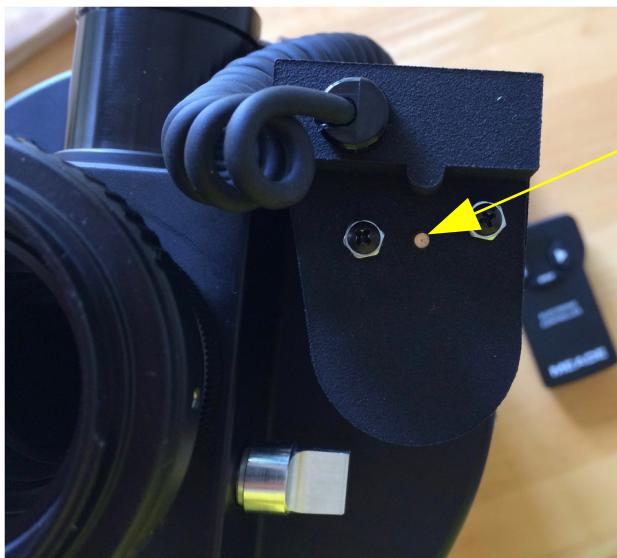
# Install the PCB and gears



Insulate the motor wires.

Insert the PCB and arrange the wires so that they don't get in the way in the main focuser body.

Finally put on the cover and the screws to hold the cover to the main body of the focuser.



You can check that the electric focuser is rotating the gears by observing the brass stem of the gear.

# ETX125 with the electric focuser

