

Ace Lab Systems

1550 S. Kingshighway St. Louis MO 63110

Instructions for replacing the G25 Thermostats

Useful for replacing the \$306.00 ET-151 Thermostat with the ACE Thermostat

Potential contact with LIVE! Electrical parts! ONLY Qualified technicians should perform!

READ THROUGH THESE STEPS BEFORE PROCEEDING

Decide if you want to just change the contacts or entire thermostat.

JUST CONTACTS

- 1 Skip to the page showing how to just change the contacts,
- 2 Read below how to adjust the knob and shaft stop.
- 3 Test

Entire Thermostat

- 1 Remove old thermostat(s)
- 2 Fish new thermostat(s) through the hole BEFORE BENDING
- 3 Rotate the screws on the electrical terminals since they are backwards (wrong side for screwdriver)
- 4 Mount new thermostats to the panel with ONLY one screw
Leave the pressure clip off for now, it will get in the way to adjust stop.
- 5 Attach wires and snubber to new thermostat. DO NOT OVERTORQUE!
- 6 Wrap the capillary with the old spiral wrap. THIS MUST BE DONE!
If you do not wrap the capillary, it may short out and RUIN it!
There are a lot of electrical connections it could short to.
- 7 Mount the top panel down CAREFULLY! READ ON!
Some G-25's have a large Variac transformer for speed control.
You MUST position the insulated capillary line where the wiper on the rear of the transformer does not rub ANYWHERE along the capillary tube. DO NOT PINCH THE CAPILLARY!
Turn the speed knob and look for the wiper. As installing the panel look for the position to the side where it will be clear.
NOTE: Not all shakers have a Variac style transformer with wiper.
Some have a small potentiometer and this is not as critical of an issue.
- 8 Once the panel is installed with screws, test the speed knob for free and clear movement. Any resistance could be the capillary rubbing!
- 9 Proceed into the side compartment and follow the instructions for bending the thermostat bulbs. They are 3/16 OD. DO NOT TRY ANY BEND BY HAND! They WILL kink and potentially be ruined!
- 10 Remount the new bulbs in the same position as the old ones.
You may only be able to mount it to One side of the line. This is OK as one is enough. Flex the bulbs so they hang in the center of the grill and do not contact any sides. This is for optimal detection of temperature change.

Ace also has rebuilt bearings, New motor, brushes, etc.

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WWW.AceLabSystems.com

Service@AceLabSystems.com

Replacement Thermostats

DO NOT BEND UNTIL INSTALLED!



Original Thermostats



New Thermostat

This bend MUST be completed with the thermostat(s) hanging out the side of the Shaker!



Both overlaid

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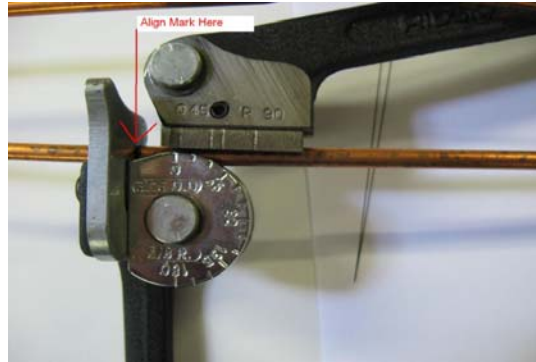
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Start Here

These measurements are intended to be used with a 3/16 OD Tubing bender as pictured. Line up with the beginning of the radius of the tool.



Mark first start of bend at 4 3/4 inches

Unit cannot be bent until installed through
feed through!

Thermostat is rated 32-140 F (0-60 C)

If the contacts are burnt, we recommend only replacing
the burnt contacts, saving you a lot of time.
The capillary and sensing bulb are usually ok.
See following pages.

Mark Second (Last) bend at 10 - 10.5 inches

PICTURE MAY NOT BE TO SCALE. USE RULER

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INSTRUCTIONS FOR CHANGING JUST THE CONTACTS OF THE THERMOSTAT

Inspect the capillary line, sensing bulb and knob shaft. If ok, you may just need to change the contacts!

Step 1 Remove Cover



Step 2 Remove the lower set of contacts



Step 3 Carefully compress spring with flat screwdriver



Step 4 Completely compress spring and work it off the nub



Step 5 Once off nub it tries to pop off. DON'T PULL!



Step 6 Carefully UNSCREW it with needle nose



Step 7 Now you can remove the top set of contacts.



Step 8 Install NEW contacts and reverse procedure CAREFULLY!



!! CAREFUL! DO NOT DAMAGE THE BELLOWS!

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Allen Wrench



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Be careful not to strip the screw. It is loctited, but has always loosened if you use a good Allen wrench and carefully loosen it.

NOTE! You will be doing this above the control panel not how its pictured.

Steps to adjust the stop after thermostat replacement

- 1 Completely finish installing new thermostat(s). Reinstall covers , etc.
- 2 Loosen the Allen screw and make sure the stop is free by using the wrench as a lever to turn it, or turn the knob shaft into the stop and it should then move it freely. **DON'T GET CRAZY!** Adjustment will only be a few turns or less
- 3 Adjust control thermostat to its minimum by turning the shaft down to the stop
Do not move the stop at this time, just turn it to minimum that it came. **REMEMBER!** Step 2 is loosen the stop. **LOOK** and see when it hits as if you blindly turn it, it will just spin the stop in circles going **TOO** far and possibly could damage the bellows or springs!
- 4 Adjust safety thermostat to **MAX**. Once again, if its stop is loose, stop turning it when you reach the stop as it will too turn in circles the other way!
- 5 Turn unit on. (Main switch) Turn heat on (Heat switch) Leave speed off for now.
- 6 The shaker should be at room temp (20-25 C) If you are doing this in a warm or cold room, set to **YOUR ambient!!!!**
- 7 Install knob and tighten the **KNOB** screw and rotate shaft clockwise. Position of the knob is not un-important.
- 8 When the Heat light comes on, turn it back till it **JUST** turns off. **DO NOT MOVE!**
- 9 Carefully remove the knob and then **CAREFULLY** align it to aprox 23 on the Dial
NOTE! The shaker reads from 0-100. **THIS IS NOT NECESSARY** a direct correlation to actual temperature. **IT IS ONLY A REFERENCE!**
- 10 Now Carefully turn it down to **ZERO**. This is where the stop should be located!
- 11 **CAREFULLY** remove the knob and then tighten the stop collar against the shaft pin. **DO NOT DO IT BAKWARDS!** Remember, you want to prevent it to stop turning anymore counter-clockwise (see picture)
- 12 Reinstall the knob and check where it starts heating. If its anywhere between 20 and 25, this is close enough. **IT WILL CHANGE OVER TIME!**
Otherwise repeat steps to adjust for ambient again. Pay attention to the internal temperature of the shaker. I recommend leaving door open!
- 13 Once stop is placed, reinstall the spring clip and then the knob. **NOTE!** This will probably change the value where it starts heating. It should be close to 20-25 still but not the same. **ITS ONLY A REFERENCE**, it will be OK.
- 14 Do the same for the Overtemp (if replaced)
- 15 To set the overtemp, turn the overtemp to min and the control to **MAX**.
Using the same setting of ambient, you can adjust it the same way in previous steps. Don't forget to tighten the stops on the correct side!
- 16 Set it to set point and let stabilize. Find your best **REFERENCE** set point to control at 37 C or wherever. It will change over time.
Set Overtemp higher than control by a few degrees.

NOTE! Sometimes the screw gets in the way to set the stop. Install the other one and remove the one that's in the way
Removing the screw with none installed will obviously cause the thermostat to fall into the panel!!