

GAS POT MICRO-THERM CONTROL

Note: This thermostat is designed to operate with manufactured gas, which has a pressure of 3 to 5 inches of water. With natural or "bottled" gases, which run to greater pressures, a regulator (Part No. F-7964) should be used to reduce the pressure to the normal operating range.

Two separate thermostats, operated by bulb and bellows expansion units, provide individual control of crucible temperature and mouthpiece temperature. The thermostat barrel located at the side of the pot jacket controls the crucible burner only, and is calibrated to operate at approximately 550° F. The thermostat barrel attached to the base below the left side of the keyboard, controls both the throat and mouthpiece burners and is calibrated at 490° F. A cross section of the crucible thermostat is shown in Fig. 1, and the bulb and bellows unit is illustrated in Fig. 2.

In addition to the thermostats, three needle valves with simple, positive adjustments are provided for the crucible, throat, and mouthpiece burners. A serrated brass dial or knob permits ready adjustment for any type of gas. Each dial has 72 serrations about its circumference; and table A (Fig. 3) shows approximate settings from closed position, for the most common types of gas.

ADJUSTING GAS POT MICRO-THERM CONTROL

The thermostats are calibrated at the factory for commercial manufactured gas of 537 B.T.U. and a minimum of adjustment should be necessary. Proceed as follows for adjusting the Micro-Therm Control to the type of gas in use:

Turn each needle valve cap to the closed position. Then turn each valve cap in reverse direction, and count the number of serrations until the number specified for each valve in Table A (Fig. 3) is reached. For example, when using natural gas of 1,000 B.T.U., the crucible valve cap should be opened 58 serrations. The above will be the approximate valve cap settings, and can be varied in either direction to meet exact requirements after the gas pot is in operation.

After setting the three needle valves to

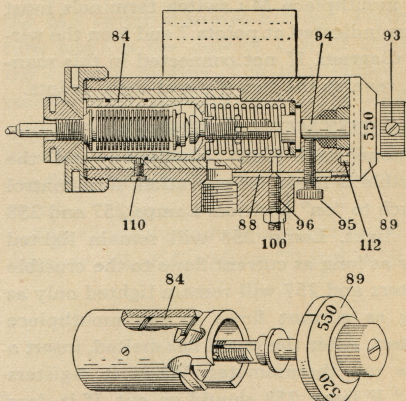


Fig. 1

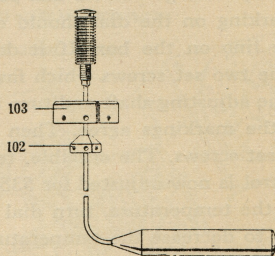


Fig. 2

the proper opening, adjust the air intake shutters above each valve for a steady, blue flame at each burner.

Next adjust the mouthpiece thermostat. Loosen screws 95 and 93 (Fig. 1) and remove dial 89. Using a screwdriver turn shaft 94 clockwise as far as possible. Place dial 89 part way on shaft 94 so that it does not touch stop pin 112, and set one of the dial graduations in line with zero line on housing. Tighten screw 93, and after referring to Table B (Fig. 3) turn dial 93 counter-clockwise for the number of graduations specified in the table for the type of gas used. Count the number of graduations passing the zero line. Now tighten screw 95,

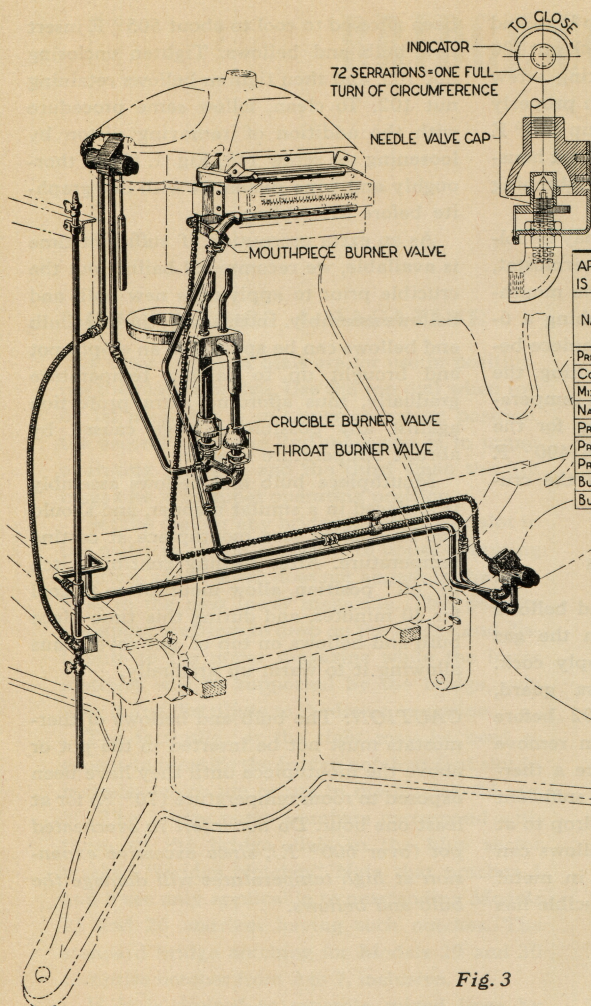


Fig. 3

loosen screw 93, and re-set dial 89 so that the 490° F. mark lines up on the zero line. Move dial 89 all the way in flush with housing and tighten screw 93.

Repeat the above procedure for the crucible thermostat, but in last step, line up 550° F. dial mark with zero line on housing.

CALIBRATING THE MICRO-THERM CONTROL

In some instances it may become necessary to calibrate the Micro-Therm Control, if thermostat settings are disturbed, if a new bulb and bellows unit has to be installed, or if the gas in use does not approxi-

mate the B.T.U. ratings of the various gases listed in Table B (Fig. 3).

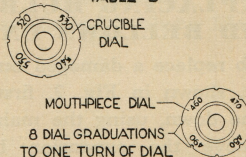
To calibrate the crucible thermostat, place a glass thermometer in crucible, loosen dial screw 93 and shaft screw 95 (Fig. 1). Remove dial 89, and with a screw driver turn shaft 94 clockwise to lower the temperature or counter-clockwise to raise the temperature. Adjust until thermometer reaches 550° F., and then turn shaft 94 clockwise until main burner flame is cut down to a pilot flame. *Permit pot to idle for at least 15 minutes to make sure that the 550° F. temperature will not be exceeded during idling periods.* If temperature has a

TABLE A

APPROXIMATE NEEDLE VALVE SETTING WHEN POT IS AT 550° F. GAS LINE HAS 5" WATER PRESSURE

NAME OF GAS	B.T.U.	NUMBER OF SERRATIONS FROM A CLOSED POSITION	
		CRUCIBLE	MOUTHPIECE
PREPARED MFG.	460	216	57
COMM. MFG.	537	216	57
MIXED	800	58	31
NATURAL	1000	58	28
PROPANE AIR	1500	33	16
PROPANE AIR	2000	33	16
PROPANE	2519	33	16
BUTANE AIR	2900	33	16
BUTANE	3200	28	16

TABLE B



FROM CLOSED POSITION APPROX. THERMOSTAT SETTING

NAME OF GAS	B.T.U.	DIAL GRADUATIONS	
		CRUCIBLE	MOUTHPIECE
PREPARED MFG.	460	550°-24	490°-15
COMM. MFG.	537	550°-24	490°-15
MIXED	800	550°-16½	490°-15
NATURAL	1000	550°-14	490°-15
PROPANE AIR	1500	550°-15	490°-15
PROPANE AIR	2000	550°-15	490°-15
PROPANE	2519	550°-15	490°-15
BUTANE AIR	2900	550°-15	490°-15
BUTANE	3200	550°-15	490°-15

tendency to rise, pilot flame is too high and should be cut down by loosening lock nut 100 and adjusting pilot light regulating screw 96. When the pilot light has been properly adjusted, replace dial 89 and line up 550° F. mark with zero line on the thermostat housing. Lock dial in position by tightening screws 93 and 95.

Precisely the same procedure may be followed in setting the mouthpiece thermostat, except that the temperature of the mouthpiece can be determined by rubbing a 6-point slug slowly across the mouthpiece below the lock-up area. With pot idling, the corner of the slug melts when the temperature is 490° F. Final dial setting for the mouthpiece thermostat should be 490° F. instead 550° F. as in the case of the crucible thermostat.

REPLACING BULB AND BELLOWS UNIT

To replace a damaged bulb and bellows unit, shown in Fig. 2, first turn the gas flame down, using the main supply cock. Remove the expansion bellows guard, loosen bellows retaining nut 102 before loosening enclosing nut 103, then remove expansion bulb and bellows. Place a thermometer in crucible, and allow sufficient time for crucible temperature to drop to at least 505° F. A new bulb and bellows can be easily damaged if immersed in metal above this temperature. When crucible has

been allowed to cool to about 505° F. insert new bulb and bellows. Tighten enclosing nut 103, and then tighten bellows retaining nut 102. To clean, follow same procedure with the addition of removing piston by loosening set screw 110, Fig. 1. Clean thoroughly and wipe piston 84 with dry graphite before assembling.

As an extra precaution, if sufficient time is available, we recommend bailing out the crucible prior to applying a new bulb and bellows assembly. In this way, the new bulb and bellows can be applied to an empty pot and brought up to casting temperature gradually, thus affording extra protection against any possible damage caused by abrupt temperature changes.

Mouthpiece bulb and bellows assembly is replaced in a similar manner, and should not be applied to a mouthpiece at casting temperature. After turning control switch to "off" position, allow mouthpiece to cool for 30 minutes, and during this time place bulb and bellows on top of pot cover, thus allowing it to warm up gradually.

CAUTION: The bulb and bellows of thermostats must not be inserted in the pot or above the mouthpiece until they have been exposed to room temperature (70° F.) for at least one hour. *Do not insert in overheated pot (over 600° F.), since excessive expansion at high temperatures will damage the bulb and bellows.*