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**PROBE CONDITIONING
SYSTEM- P/N 13039
FOR BATCH FURNACES
INSTRUCTION MANUAL M4522**



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INTRODUCTION

Thank you for selecting *SSI* P/N 13039 for your batch furnace, probe maintenance application.

You lubricate critical machine parts on a regular basis if you want them to last. Your zirconia carbon sensor also requires regular maintenance. Buildup of carbon in the space between the zirconia sensing element and the sheath, as well as at the sensing point, will eventually adversely affect the proper operation of the probe. If carbon (soot) is allowed to accumulate to the extent that atmosphere cannot penetrate to the sensing surface, control is impossible. The 13039 is designed to prevent that from happening by accepting signals from the AC20 controller to conduct a procedure to remove the carbon. It is intended for use with batch and continuous furnaces. (See P/N 13036 for generators.)

SPECIFICATIONS

- | | |
|--------------------------------------|------------------------------|
| ◆ Reference air flow- 2 scfh max | ◆ Dimensions- 10" x 10" x 6" |
| ◆ Burnoff air flow- 10scfh max | ◆ Weight- 17.4 lbs |
| ◆ Actuation- N.C. inner door switch. | |

DESCRIPTION

The 13039 probe conditioning box is designed for use with batch and continuous furnaces. Existing burnoff systems that are designed to work with a programmable controller cannot be used as "stand alone" systems without significant modification. Further, most cannot provide adequate air for burnoff because they simply switch the output of low flow reference air pumps to the burnoff fitting without regard to adequate flow. Fig. 1 shows the piping and wiring diagram of the 13039 PC Box

INSTALLATION

The compact JIC box is provided with flanges, each having two 1/4" mounting holes. Locate the box within about 6 feet of the sensor, if possible. Avoid locations close to a source of combustibles such as the vent pipe of an oil quench tank, or a natural gas fitting that could develop a leak. Because the reference air pump aspirates air from its immediate vicinity to pump to the probe reference air fitting, it is possible to experience a significant error in measurement due to reaction of the combustible with air inside the probe. The result is a low reading of carbon potential, which will cause the controls to add excess natural gas and overcarburize your work piece.

OPERATION

Once you have conducted the brief startup procedure outlined here, you need only sit back and enjoy safe, effective probe conditioning. No special programs to write, no scheduled operator routines.

With the system wired as illustrated in Fig. 1, the furnace at normal operating temperature, and the valve on the burnoff air flow meter closed, a burnoff at the AC20 is initiated. Set the burnoff flow to about 5cfh. Observe the probe temperature and O₂ millivolt reading, and adjust the burnoff airflow until the millivolt reading is below 200 millivolts, preferably at 0. The temperature will pass through a maximum as the flow is increased, then drop to a value close to the normal probe temperature. Burnoff will now occur each time the inner door is opened, and then closed. A manual burnoff can be conducted at any time from the AC20.

Refer to your **GOLD PROBE™** instruction manual for a complete description of probe conditioning theory. System operation is described on Fig. 1.

THANK YOU

We think you will be delighted with the performance of your probes once you have installed this engineered conditioning system. If you have any questions, suggestions or problems, your **GOLD PROBE™** team is only as far as your phone. We listen. And we respond. Call 1-513-772-0060.

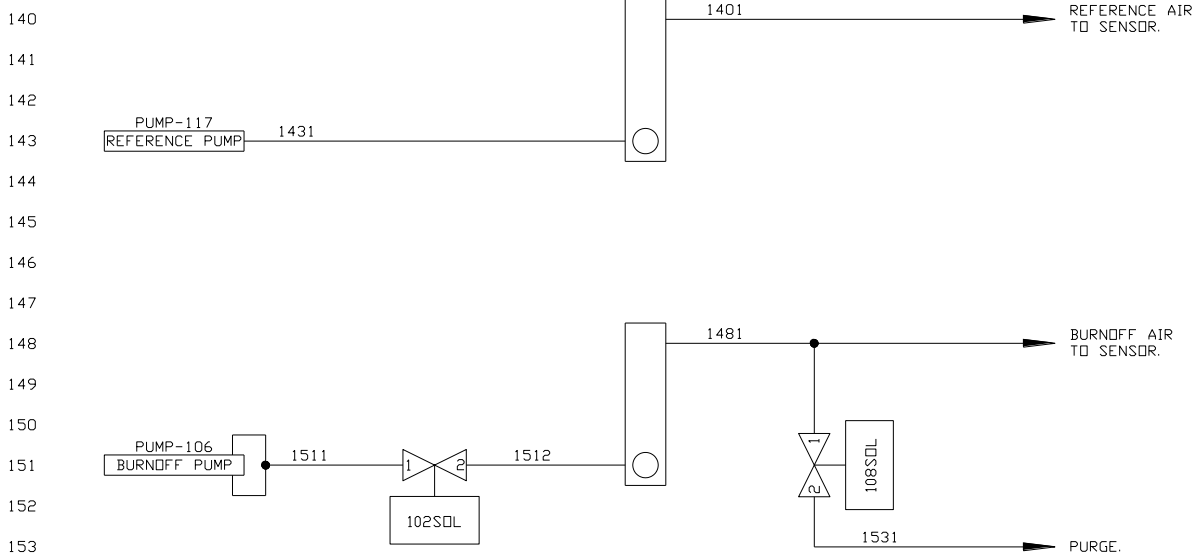
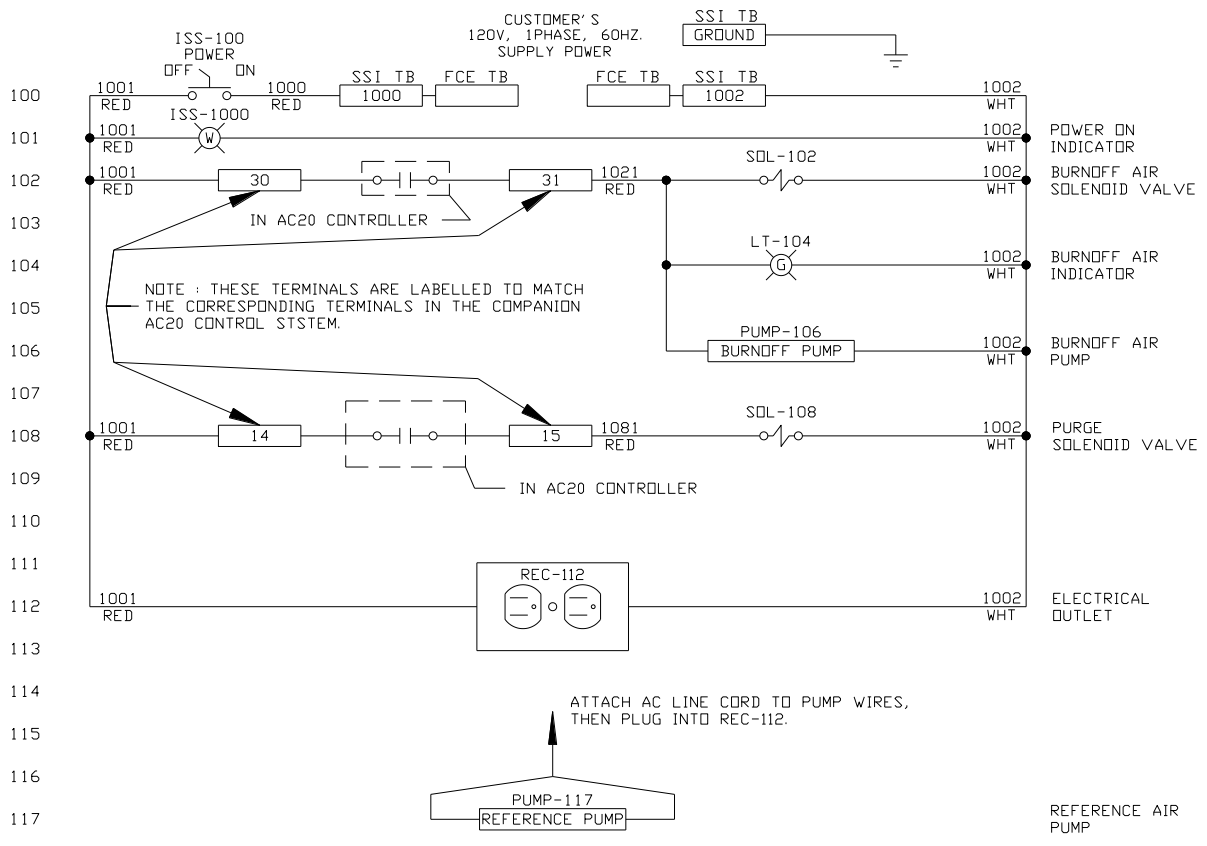


FIG. 1

Revision History

Rev.	Description	Date
A	Initial Release	04-24-2001
B	Added Revision History	07-11-2001
C	Revised Drawings on Page 3	11-06-2002
D	Revised Drawings on Page 3	10-18-2004
E	SSi Address Update, General Update	04-12-2005

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