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**PROBE CONDITIONING  
SYSTEM- P/N 13003  
FOR GENERATOR SAMPLING SYSTEMS  
WITH DELAY**

**INSTRUCTION MANUAL M4513**



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## INTRODUCTION

Thank you for selecting *SSI* P/N 13003 for your generator 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 13003 is designed to prevent that from happening by periodically initiating a procedure to remove the carbon. It is intended for use with generator sampling (reheat) systems only. This system can perform very well with low burnoff flow rates since the sample flow is stopped and displaced by burnoff air. Furnace burnoff systems must provide adequate flow to overcome the atmosphere that is always present. (See P/N 13011 for batch furnaces and P/N 13004 for continuous furnaces.)

## SPECIFICATIONS

- ◆ Reference air flow- 2scfh max
- ◆ Burnoff air flow- 10scfh max.
- ◆ Burnoff time- 1 to 10 minutes
- ◆ Recovery time- 1 to 10 minutes
- ◆ Dimensions- 10"x 10" x 6"
- ◆ Weight- 17.9 lbs
- ◆ Actuation- Cycle timer- 5 to 50 hours.

## DESCRIPTION

The 13003-generator probe conditioning box is designed for use with generator sampling or reheat systems, notably the Bazooka™ Probe. Although many such systems are equipped with programmable controls that could conduct probe conditioning on a regular basis, it has been our experience that this programming capability is seldom used. 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 small reference air pumps to the burnoff fitting without regard to adequate flow. The 13003 provides individual pumps for reference and burnoff air. See Fig. 1 for the wiring and plumbing diagram.

# PROBE CONDITIONING SYSTEM MANUAL

## INSTALLATION

### Location

The compact JIC box is provided with flanges, each having two 1/4" mounting holes. Locate the box within about six feet of the sensor, if possible. Avoid locations close to a source of combustibles such as a natural gas fitting that could develop a leak. Wire and pipe the system as shown on the enclosed diagram. If trim gas is added by a motor operated valve, the control interrupt terminals can be used to interrupt power to the motor, if it is not a spring return model. This will hold the additive gas flow constant during burnoff.

### Commissioning

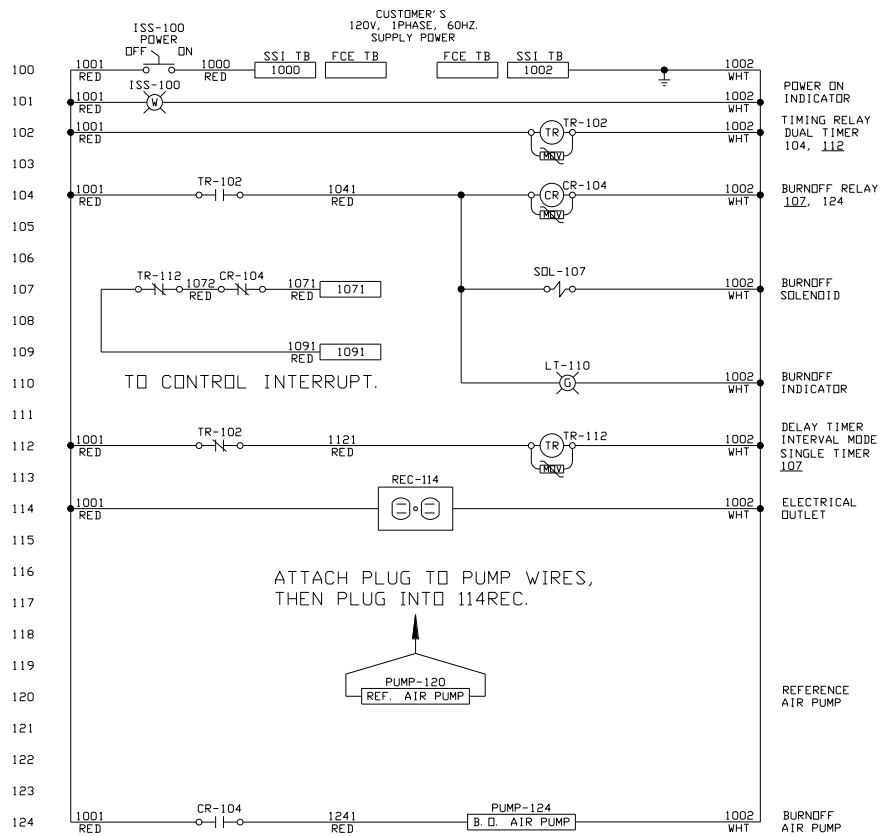
Locate the probe in the generator wall so that the indicated probe temperature is stable between 1400 and 1600°F.

With the power switch off, set the burnoff time T1 to 3 minutes, the cycle time T2 to 24 hours and the Delay Timer TR106 to 10 minutes. Close the burnoff flow meter valve and turn on power switch SW-1. Set reference airflow close to, or above full scale.

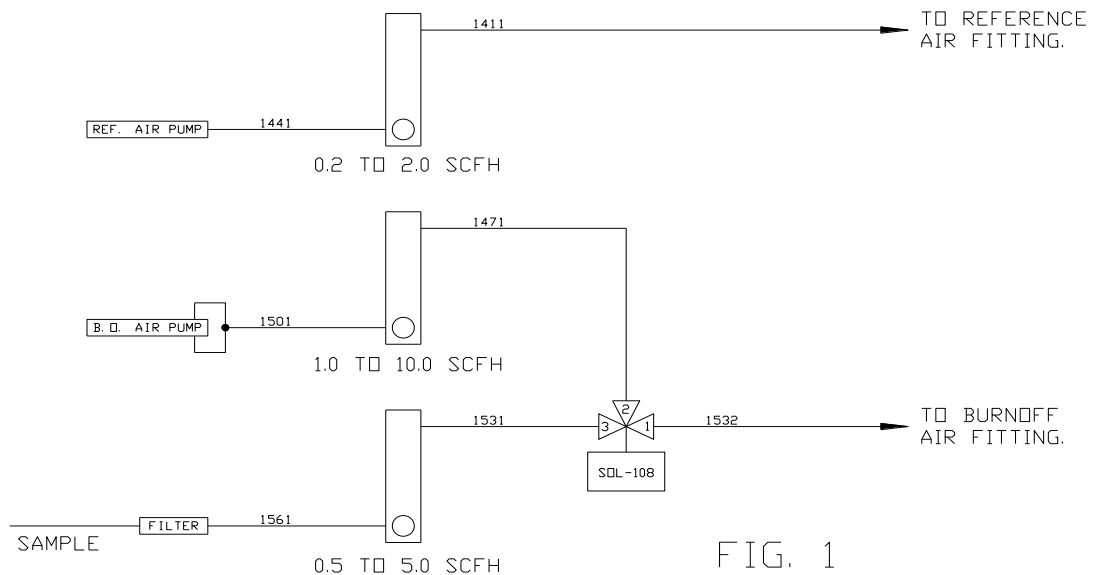
Adjust burnoff airflow to about 3 cfh and observe the probe millivolt reading. If it doesn't drop well below 200mv (preferably to zero) before the burnoff time is up, increase the time until it does during a subsequent burnoff cycle. (To start a new burnoff at any time, turn off the power switch to reset the timer, then turn the power back on.) Observe the time for the observed dew point to return to within 1°F of the set point, and set this value on timer TR106. Your system is now operational. Values of 24 hours cycle time, 3 minutes burnoff time and 8cfh burnoff flow are typical for this application. When operating at dew points lower than 35°F, it may be desirable to reduce the cycle time to 12 hours or less. If you encounter difficulties, contact SSI for advice and assistance.

## OPERATION

When power is first applied, reference air starts flowing and burnoff timing (T1) starts with timer contacts energized. On completion of burnoff, cycle timing (T2) and the delay timer (TR 106) start. When the delay timer times out, control is restored and timer T1 continues. To do an immediate burnoff at any time, turn the power switch off to reset the timer, then back on to initiate burnoff. Refer to the **GOLD PROBE™** instruction manual for a more complete discussion of probe conditioning. 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. Call us at 1-513-772-0060. We listen. And we respond.



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## Revision History

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

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