CK2700
Gas Mixing Chamber

INSTRUCTIONS

AMC-CK2700 Gas Mixing Chamber for Gas Sensing Solid-state Sensors and The Vapour Sensing AMC-F4000 Solid-state Sensors

Chamber		Gas Delivery System		Syringe		Extension	
1 - Plastic		1 - Bladder & Hose		1 - 1.0 cc plastic		0 - No extension required	
2 - Glass		2 - Bubbler system		2 - 1.0 cc glass		1 - Multidrop extension	
				3 - 5.0 cc plastic		2 - F4000 extension	
				4 - 5.0 cc glass		3 - Explosion proof	
				5 – 20 cc plastic			

Your Mixing Chamber Part Number is M_____

IMPORTANT:

Please read these installation and operating instructions completely and carefully before starting.

WARNING:

Store cal kit in a cool, dry area. Consult dangerous goods label on each gas cylinder, in addition to supplier's material data sheet, for further safety and first aid precautions.

Revised July 26, 2004
Filename: Manual_amc-CK2700_mixing chamber.doc

The Armstrong Monitoring Corporation
215 Colonnade Road South, Nepean, Ontario, Canada K2E 7K3
Tel: (613) 225-9531 • Fax: (613) 225-6965 • U.S. & Canada Toll Free: (800) 465-5777
E-mail: gas@armstrongmonitoring.com • Internet: www.armstrongmonitoring.com/gas/

TABLE OF CONTENTS

Section Title **Page**

1 PRODUCT DESCRIPTION

The AMC-CK2700 calibration kit is specifically designed for calibrating gas sensing solid-state sensors as well as the vapour sensing AMC-F4000 solid-state sensors. If using the AMC-F4000 solid-state sensor, the CK2700 addendum bubbler system manual is needed. The gas mixing chamber kit consists of the following items:

1. Mixing chamber with built-in fan (plastic or glass jar mixing chamber).

2. Bladder with hose and valve
   or bubbler system (need addendum manual).

3. A 1-cc syringe, plastic or glass (20-cc syringe is optional. Specify when ordering).

4. Sensor extension cable is included with the plastic mixing chamber
   or with the glass jar mixing chamber, three different sensor extension cables available, the type depending on the sensor.

5. This instruction manual.

Contact the factory to order calibration gas cylinders, specify p/n AMC-CK2600-02 and the gas concentration required. Each cylinder contains pure gas, which is diluted in the mixing chamber to obtain the proper mixture to calibrate with.

2 SETTING-UP CHAMBER

NOTE:

The mixing chamber is NOT designed for mixing combustible concentrations of gas. Do not attempt to achieve these concentrations with this apparatus.

To set-up the mixing chamber, prior to applying gas to the sensor, follow the procedure shown in Figure 1 for the plastic mixing chamber and Figure 2 for the glass jar mixing chamber. Once the mixing chamber is set-up, the gas sample can be taken and injected into the chamber for calibration. Measure gas in the 1-cc syringe to obtain the desired concentration (refer to the following charts).

Equivalent Concentration of Pure Gas Volume in Plastic Mixing Chamber

Volume of Pure Gas	* Volume of Pure CO	Equivalent of Concentration
0.1 cc	0.4 cc	50 ppm
0.2 cc	0.8 cc	100 ppm
0.4 cc	1.6 cc	200 ppm
0.8 cc	3.2 cc	400 ppm
** 20 cc		1 %

CHAMBER MUST BE PURGED WITH FRESH OUTSIDE AIR PRIOR TO EACH CALIBRATION FUNCTION.
Allow 5 minutes warm-up for sensor to stabilize before injecting gas sample.
* For CO in ventilation or parking applications, measure Volume x 4 to obtain desired concentration (i.e.: 0.1 cc x 4 = 0.4 cc for 50 ppm).
** To measure a large volume of gas, the larger 20-cc syringe is recommended.

Equivalent Concentration of Pure Gas Volume in Glass Jar Mixing Chamber

Volume of Pure Gas	* Volume of Pure CO	Equivalent of Concentration
0.1 cc	0.4 cc	77.5 ppm
0.2 cc	0.8 cc	155 ppm
0.4 cc	1.6 cc	310 ppm
0.8 cc	3.2 cc	620 ppm
** 20 cc		1.55 %

CHAMBER MUST BE PURGED WITH FRESH OUTSIDE AIR PRIOR TO EACH CALIBRATION FUNCTION.
Allow 5 minutes warm-up for sensor to stabilize before injecting gas sample.
* For CO in ventilation or parking applications, measure Volume x 4 to obtain desired concentration (i.e.: 0.1 cc x 4 = 0.4 cc for 50 ppm).
** To measure a large volume of gas, the larger 20-cc syringe is recommended.

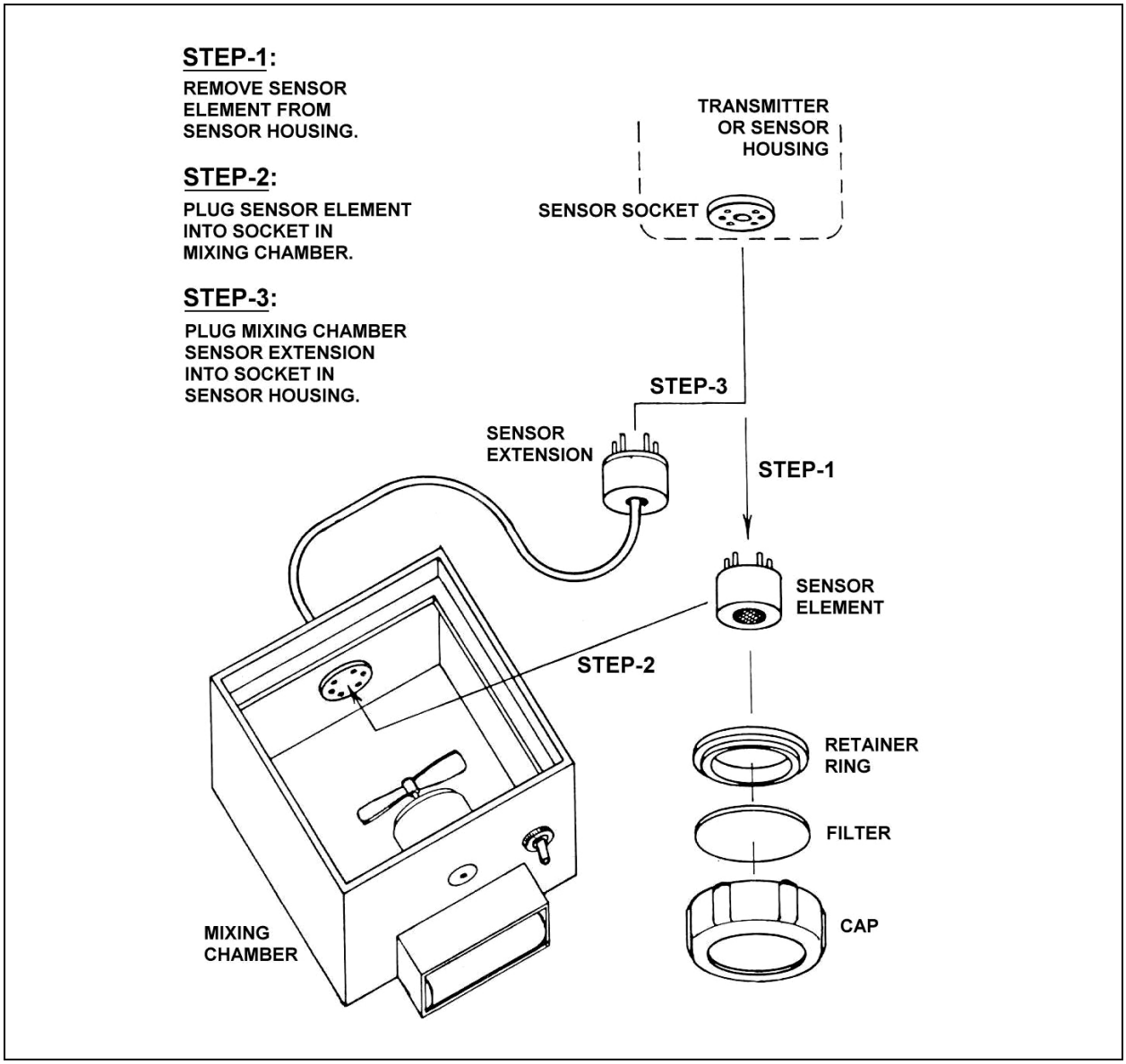

FIGURE 1: Plastic mixing chamber set-up procedure

NOTE:

Please be aware that there are three possible extensions and not all of them are represented in the figures throughout this manual.

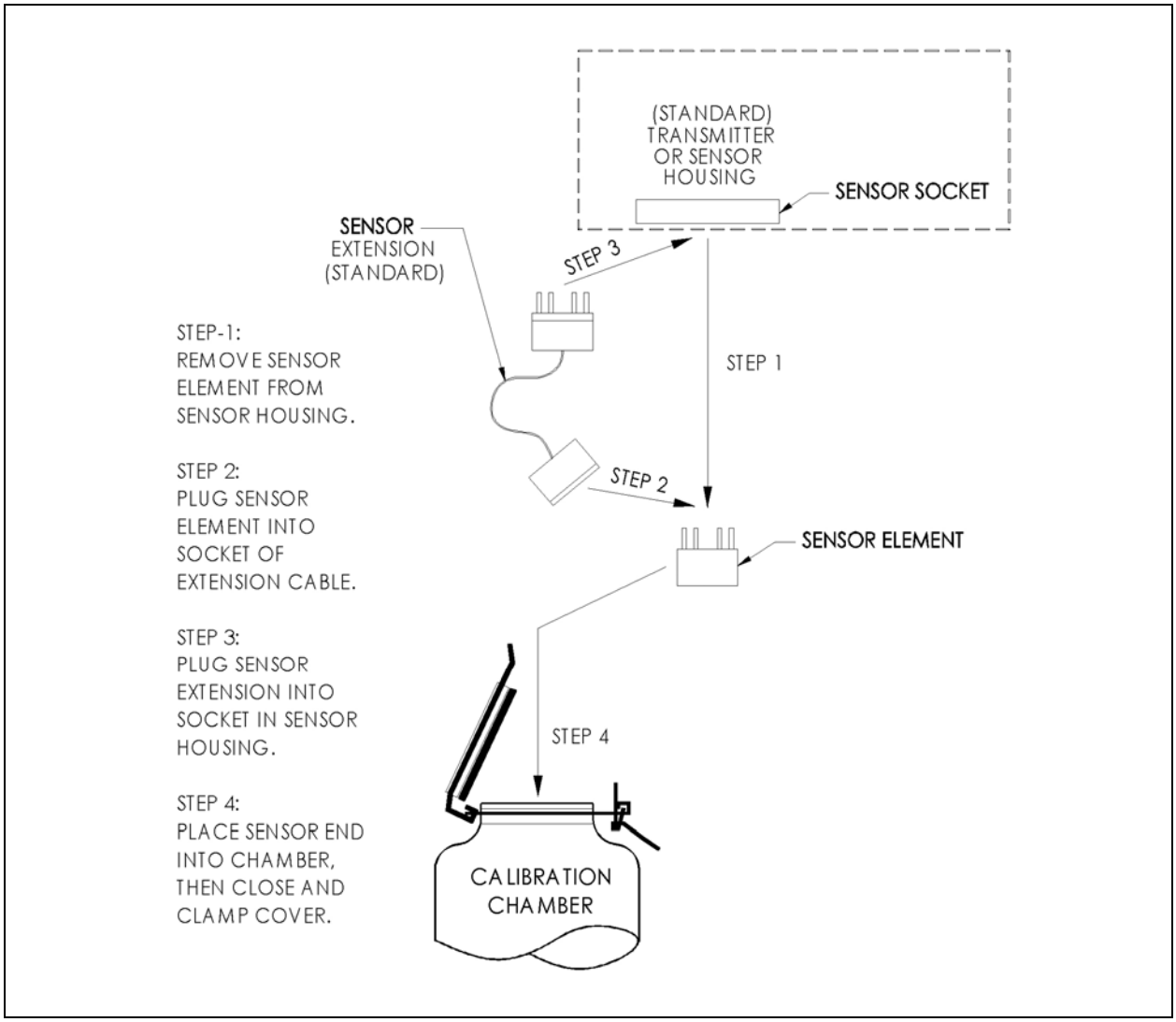

FIGURE 2: Glass jar mixing chamber set-up procedure

3 EXTRACTING A GAS SAMPLE

Refer to the calibration section in the transmitter or monitor instruction manual for specific adjustments and pre-conditioning requirements. First, make all necessary “zero” adjustments with instrument in clean air.

If a bladder and hose is included in the kit, follow the procedure in this section. If the kit included a bubbler system, skip this section and refer to CK2700 addendum bubbler system manual and then return to this manual in the next section.

3.1 SET-UP BLADDER AND HOSE PROCEDURE

The calibration kit must be assembled before each use (as shown in Figure 3), and when finished, the kit must be disassembled and put away.
Follow the procedure listed below:

1. Firmly screw the valve onto the top of the cylinder.

2. Squeeze out ALL of the air from the bladder and push the end of the hose onto the regulator nozzle.

NOTE: You must make sure to squeeze out ALL of the air from the bladder before pushing the hose onto the regulator nozzle.

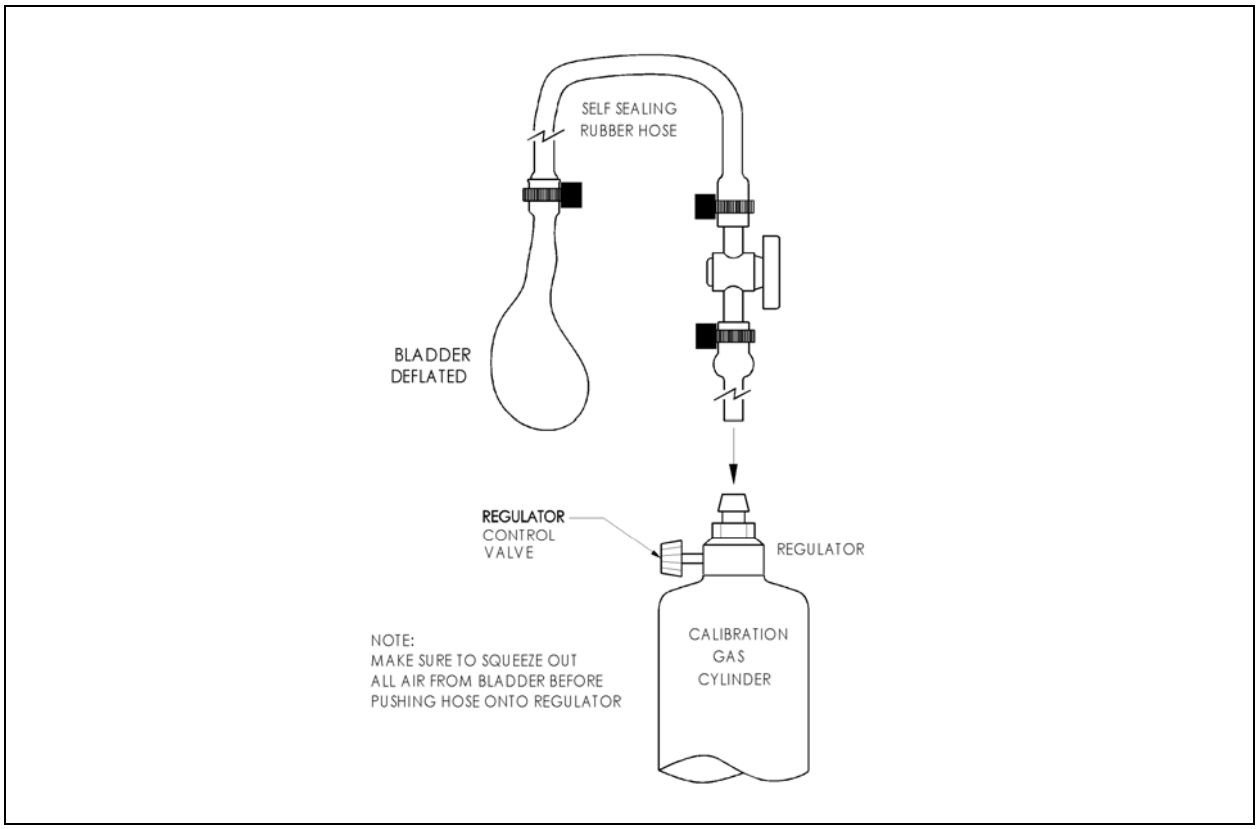

FIGURE 3: Connect bladder and hose to gas cylinder

3.2 ACQUIRING GAS SAMPLE

Open the regulator control valve on the gas cylinder by turning it counter-clockwise to start the flow of gas, inflate the bladder to shape (approximately 2” in diameter) then close the control valve.

The valve on the bladder assembly can be closed to allow transportation of the gas-filled bladder to sensor locations without having to carry the gas cylinder with it.

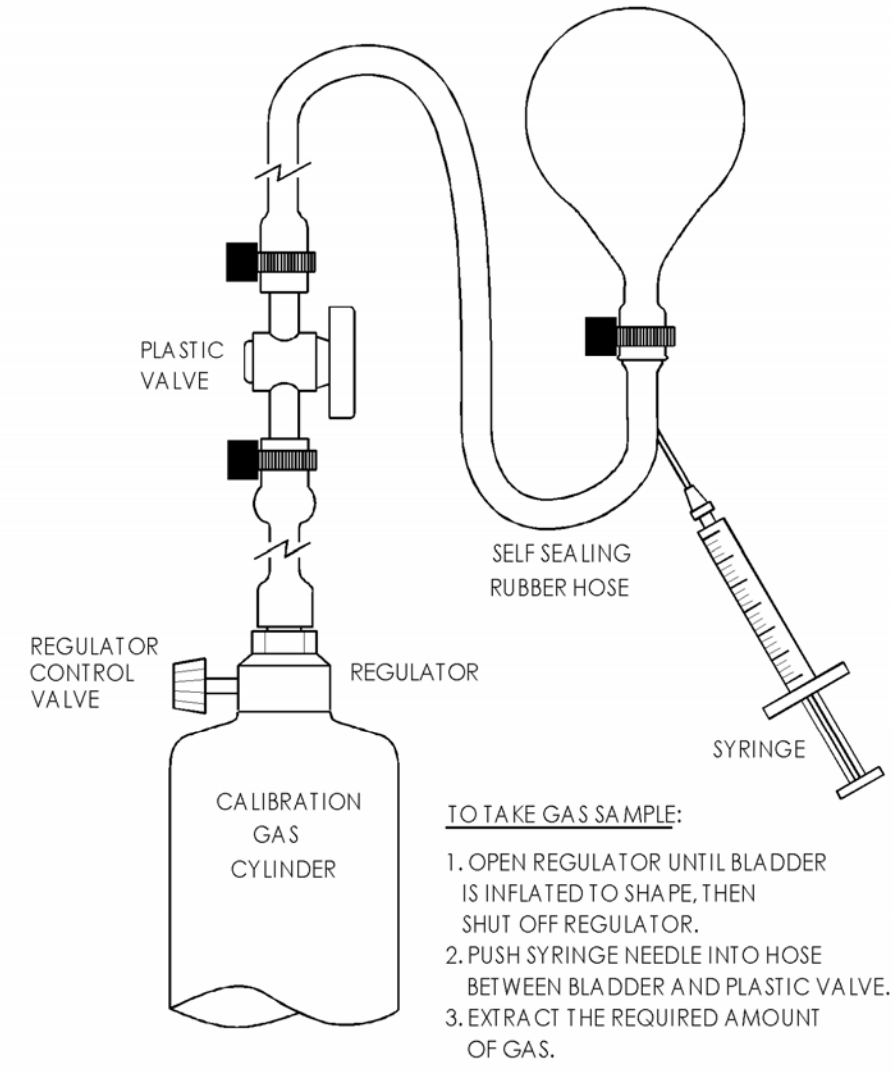

FIGURE 4: Extracting a gas sample from bladder and hose

4 APPLYING GAS TO MIXING CHAMBER

Once a gas sample is collected from either the bladder and hose or the bubbler system, it is injected into either the plastic or glass jar mixing chamber. Follow the procedure shown in Figure 5 for the plastic mixing chamber and Figure 6 for the glass jar mixing chamber. Refer back to the monitor and/or the transmitter manual to finish the calibration procedure.

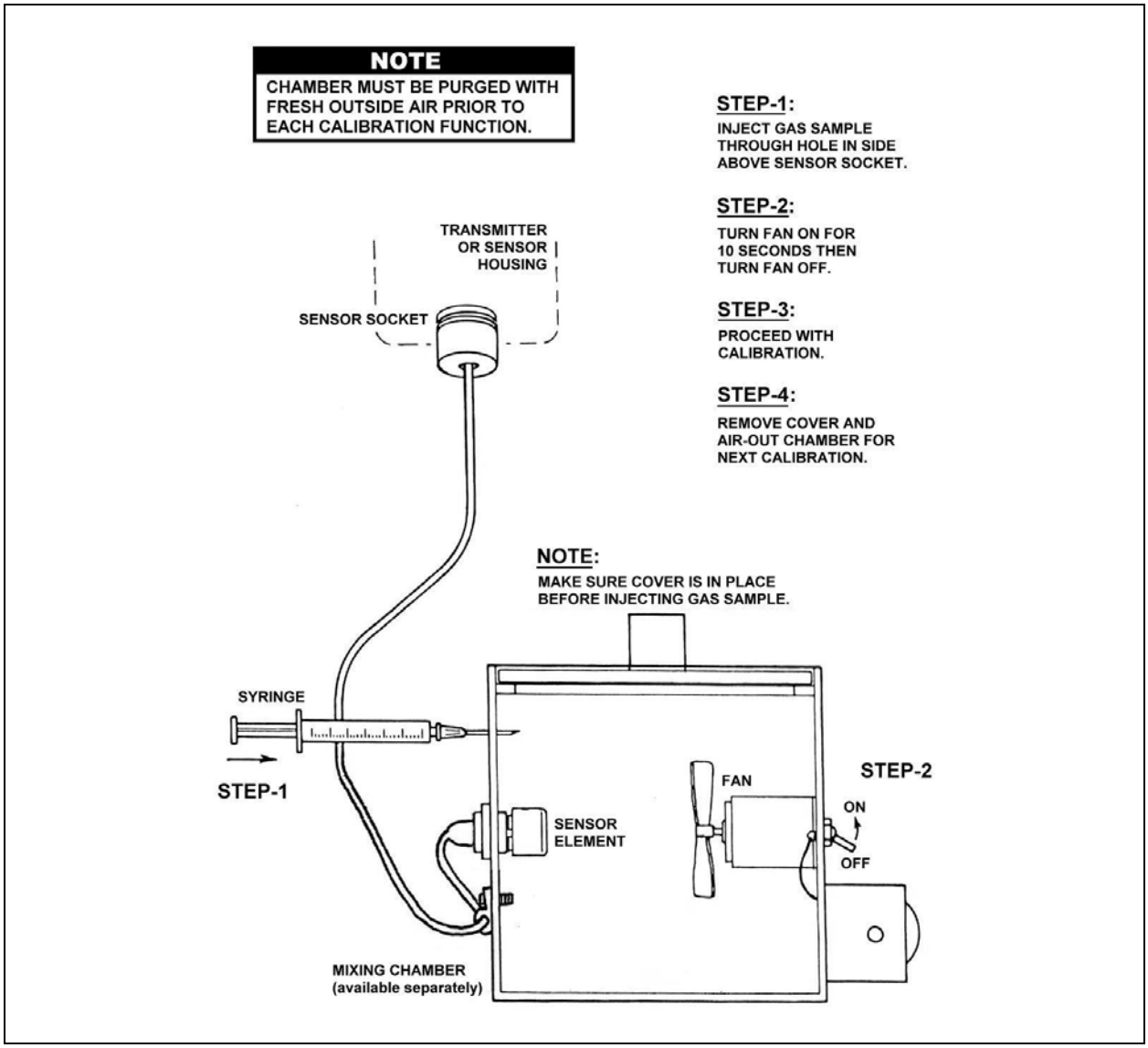

FIGURE 5: Injecting gas sample for calibration in plastic mixing chamber

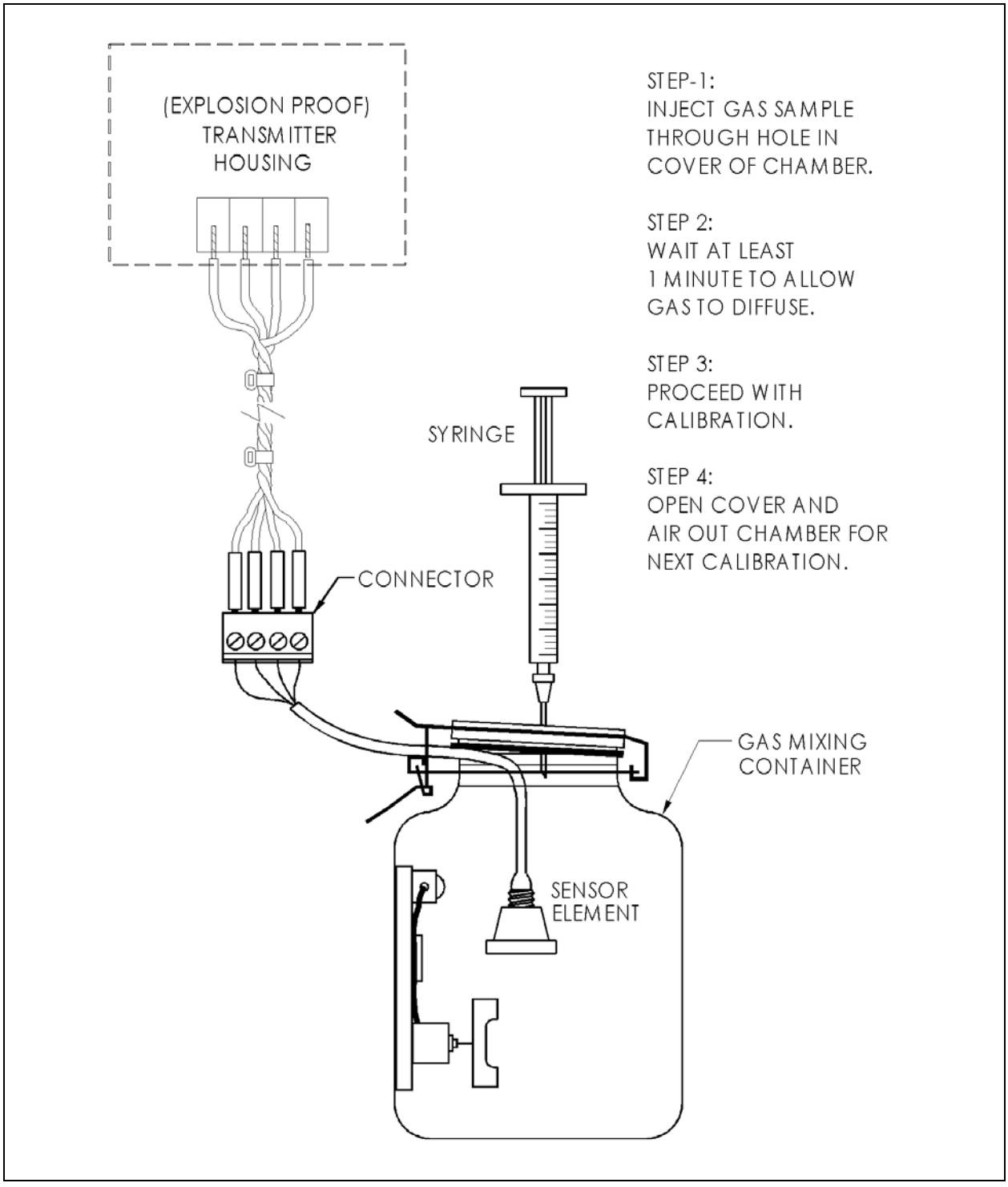

FIGURE 6: Injecting gas sample for calibration in glass jar mixing chamber