

# 1 MAINTENANCE AND CALIBRATION

Time Period	Item	Manual Section
Weekly	Error Check	4.16, 8.6
Monthly	Leak Check	4.8
Monthly	Flow Check	6.3
Two Months	Inlet Cleaning	10.1.3
Two Months	New Filter Tape	4.7
Two Months	Clean Nozzle	4.8
Six Months	Replace Pump Muffler	10.1.4
Six Months	Complete Flow Calibration	6.3
12-24 Months	Complete Inlet Cleaning	10.1.5
12-24 Months	Rebuild Pump	Pump Manual
5 Years	Internal Filter	

## 1.1 Met One Suggested Periodic Maintenance

### 1.1.1 Weekly Checks

- a. Datalogger Verification. Review datalogger current concentration value with the concentration displayed on the BAM 1020 LCD. These values should be within 2 ug/m<sup>3</sup>.
- b. Error Check. Make sure the BAM 1020 is in the top menu (Press the exit Hot key until it is no longer available). Press F3 key. This will recall the last 10 errors recorded by the BAM 1020. Review the error and decide corrective action. See Sections 4.16, 5.2, and 9.2 of the BAM manual.

### 1.1.2 Monthly Intervals

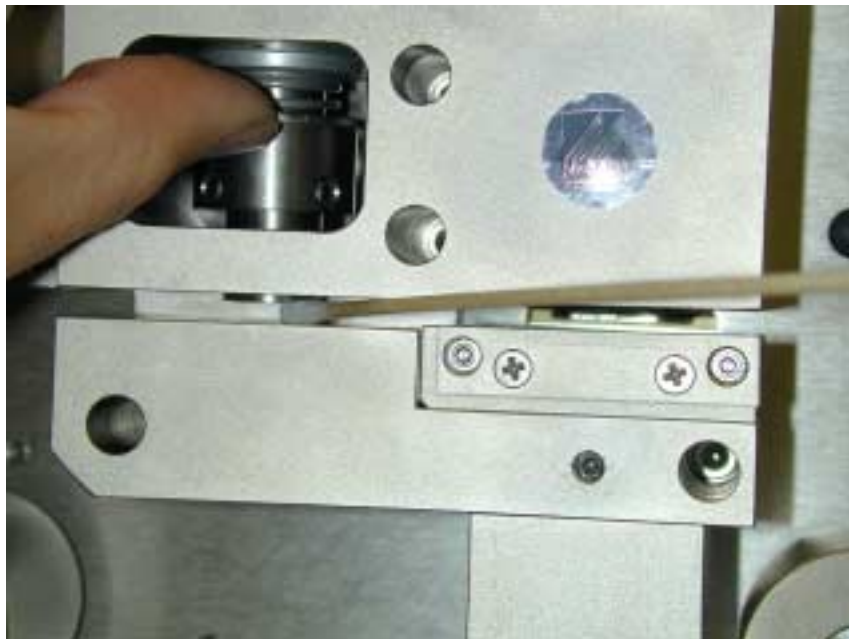
- a. Leak Check see section 4.8 of the BAM manual
- b. Perform an inlet flow check to ensure sampler flow rate is correct. Flow should be measured with the PM10 head removed and flow audit cap in place of the PM10 head. If flow has an error greater than +/-3% recalibration is necessary. See Section 6 for flow calibration procedures.
- c. Visual Inspection. Open the front cover of the BAM 1020. Check for sufficient filter tape. One roll will last for 2 months. Check for condensation near the sample/Tape interface. Clean any build up of dust inside the cover area and on the top of the BAM 1020.

### 1.1.3 Two (2) Month Intervals

- a. Replace filter tape. See section 4.7 for filter tape replacement.
- b. Clean the PM10 Head. BX-344 provides all the necessary items to clean the PM10 inlet. The PM10 inlet requires removal from the inlet tube, disassembly and cleaning. Disassemble the PM10 inlet and wipe clean

- with lint free cloth. Ensure that all Oring surfaces are in excellent shape and are re-installed correctly. If Orings are damaged see Appendix 10.3 for replacement parts.
- c. Clean the PM2.5 SCC. The PM2.5 SCC inlet requires removal from the inlet tube, disassembly and cleaning. Disassemble the SCC and wipe clean with lint free cloth. Ensure that all 'O' ring surfaces are in excellent shape and are re-installed correctly. . If Orings are damaged see Appendix 10.3 for replacement parts.
  - d. Clean the inlet nozzle and nozzle area. The inlet nozzle on the BAM 1020 can have a build up of filter paper in one or more spots. This build up may eventually cause holes to be punched in the filter tape. Symptoms of punched tape can cause the BAM 1020 to have erroneous negative concentration values and flow readings that are incorrect. The nozzle and vane should be cleaned each time the filter tape is replaced. Figure 1 shows the procedure to clean the nozzle.

**Figure 1: Nozzle Cleaning**



Tools Required – Cotton Swabs, Flashlight and ISO Alcohol.  
Remove the filter tape from the BAM1020 see page 30 of the manual. Lower the Nozzle. In the BAM1020 main menu press TEST. In the TEST menu select PUMP and lower the nozzle. Lift the Nozzle by pressing with your thumb on the spring tensioner above the nozzle lip. Place a Cotton swab with ISO alcohol under the nozzle and lower the nozzle onto the cotton swab. Slowly rotate the Nozzle assembly. Eight to ten rotations will clean the nozzle. The Vane (this is the cross piece that sits under the filter paper where the nozzle contacts the filter paper) also needs to be cleaned. In the TEST/PUMP screen lift the

nozzle. The Vane can be viewed by removing the inlet tube and looking down the inlet tube while shining a flashlight into the nozzle/vane area. Use a sharp tool (dental pick) to gently scrape the outside circumference of the vane to remove any filter paper build up. Next scrape the cross hair piece to remove any accumulation of paper. Finally, clean the entire area with a cotton swab and alcohol.

#### **1.1.4 Semiannual Interval**

1. Replace the muffler on the Pump. This is very important to extend the life to the Low noise pump. Check the model of pump and find the replacement part in section 10.3 of the manual.
2. Complete Calibration of the flow system. Calibrate the Ambient Temperature sensor, pressure sensor and flow meter per section 6.  
Note: depending on the BAM 1020 configuration a temperature sensor may not be included.

#### **1.1.5 Twelve to Twenty-Four (12-24) Month Intervals**

1. Check and replace carbon vanes in pump. No maintenance is required for the Medo low noise pump.
2. Clean the inlet system. See BX-341 option.

### **1.2 Calibration Settings**

Calibration is established at the factory, do not change the calibration information without information from the factory regarding new settings. The two flow variables Cv and Qo may be changed according to Section 6.

If it is determined that settings should be changed then the SETUP MODE, CALIB menu is used by the operator to modify the BAM-1020 calibration settings, repeat these settings should not be changed without specific information from the manufacturer. For example, information would accompany a replacement detector assembly and would require use of the Factory Calibration Screen shown in Figure 2.

**Figure 2: Factory Calibration Screen**

SETUP MODE			
	A	ATTN	
Cv	1.000	Qo	0.021
FLOW TYPE:	METERED	FLOW RATE	16.7
ABS	0.805	μsw	0.285
K	1.000	BKGD	-0.009
SAVE			EXIT