

BX-344 BAM INLET CLEANING KIT MANUAL

BX-344-9800 REV C



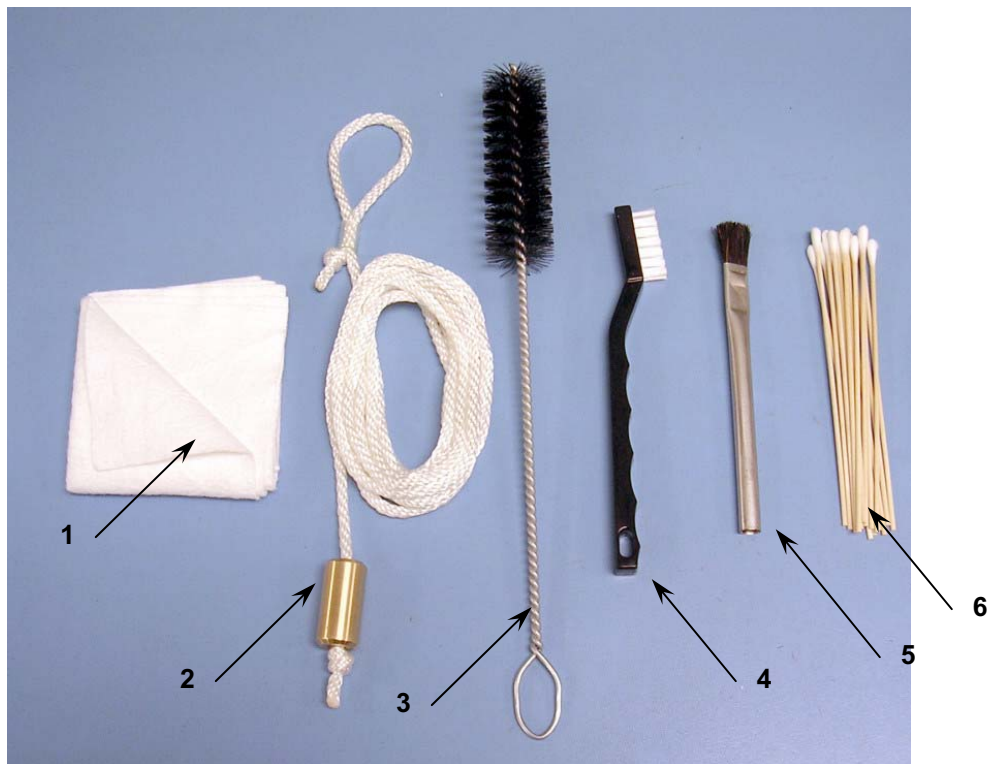
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Overview:

The BX-344 BAM Inlet Cleaning Kit is provided as a convenience for users of the Met One Instruments BAM-1020 and E-BAM air monitors. The kit includes the appropriate tools and supplies needed to clean the PM₁₀ sampling head, the PM_{2.5} cyclone, and the vertical inlet tube as part of the routine maintenance schedule. These inlet components must be cleaned periodically in order to ensure accurate operation of the unit, and to prevent false measurement artifacts due to built up debris.

Met One recommends cleaning the particle traps on the PM inlets once per month, or at least at the same time as filter tape changes. Full disassembly and thorough cleaning of the PM inlets and inlet tube should be performed at least quarterly. However, these parts may need to be cleaned more often in heavy concentration areas. The site administrator should determine the appropriate cleaning schedule for each sampling site.



BX-344 BAM Inlet Cleaning Kit

Equipment Required:

The BX-344 Inlet Cleaning Kit contains the following items:

1. **995219 Lint-free washable microfiber rags.** These reusable cleaning rags are used for cleaning the inside of the vertical inlet tube. Generic shop rags or cleaning cloths may be substituted as long as they fit down the tube. May be used wet or dry.
2. **80344 Pull Rope Assembly, 10'.** This is used to pull the cleaning rags or tube brush through the inlet tube. The brass weight allows the rope to feed through the tube easily. The rope length is ten feet for use with all standard BAM inlet tube lengths, and may be spliced if a longer length is required.

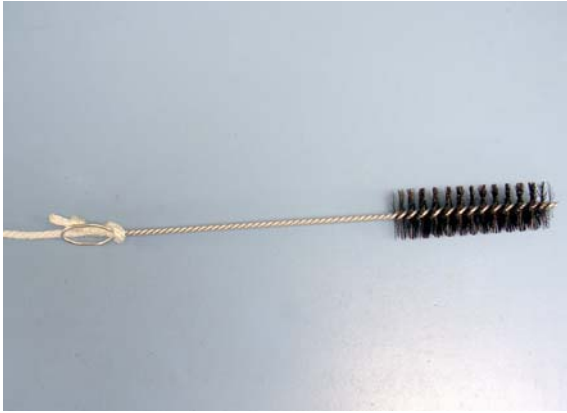
3. **390711 Nylon 1 ¼" Diameter Loop Handle Tube Brush.** This brush is used to remove any stubborn debris inside the inlet tube before using the cleaning rags.
4. **390710 Nylon Scrub Brush.** This brush is used to clean the bug screen on the PM₁₀ inlet, and to clean the threads on the particle traps of the PM₁₀ and PM_{2.5} inlets.
5. **390712 Horsehair Acid Brush.** This brush is used to clean the inside of the particle traps on the PM₁₀ and PM_{2.5} inlets. Also useful for general cleaning in tight areas.
6. **995217 Cotton-Tipped Applicators.** These are used to clean inside the acceleration nozzles of the PM₁₀ and PM_{2.5} inlets. Also very useful for cleaning the BAM nozzle at the filter tape interface. Work well with alcohol or multipurpose cleaner.
7. **995712 O-Ring Grease Packets:** (Not shown) For lubricating the o-rings in the inlet system.

In addition to the parts in the BX-344 kit, the following items are often helpful:

1. Plastic spray bottle for rinse water. Distilled water preferred.
2. Multi purpose cleaning fluid in a spray bottle.
3. Philips screwdriver for disassembly of PM₁₀ head.
4. Paper towels for general cleaning.
5. Canned dusting air or a source of compressed air.

Inlet Tube Cleaning:

1. Stop the sample cycle if the BAM unit is in operation.
2. Remove the PM₁₀ head and PM_{2.5} cyclone (if used) from the top of the vertical inlet tube, then loosen or remove any support struts attached to the inlet tube above the roof.
3. Loosen the waterproof seal around the inlet tube where it enters the enclosure or building roof so that the inlet tube can be lifted out of the top of the BAM by a few inches. You will need access to the bottom of the inlet tube to clean it.
4. Cover the BAM to prevent debris from falling onto it during tube cleaning.
5. If possible, inspect the inside of the inlet tube to observe debris levels. If the tube is coated with excessive debris, then the tube brush may be used before the cleaning rag. Insert the looped end of the brush handle through the looped end of the rope and slip the loop up tight around the brush handle as shown. Feed the weighted end of the pull rope assembly down through the inlet tube until it comes out the bottom, then use the rope to pull the brush through the inlet tube. Repeat as needed.



6. Insert a cleaning rag through the looped end of the pull rope assembly and slip the loop up tight around the rag. Note: Paper towels or Kimwipes are not recommended for this. Feed the weighted end of the pull rope assembly down through the inlet tube until it comes out the bottom, then use the rope to pull the rag through the inlet tube. The rag should fit snugly, but should not be difficult to pull through. The rag may be wetted with multi-purpose cleaner or water if needed. Always pull a clean, dry rag through afterwards. This should come out clean.



7. Clean the inside of the inlet tube receiver on the top of the BAM unit before reinserting the inlet tube. Lubricate the O-rings if needed.
8. Reinsert the inlet tube into position and tighten the waterproof gland at the roof. Clean and replace any support struts and inlet heads.

PM₁₀ Inlet Cleaning:

1. Access the particle trap by unscrewing the upper acceleration assembly from the lower collection assembly. Sometimes the fit can be tight. Thoroughly clean the particle trap area with the 390712 acid brush and multi-purpose cleaner as needed.



2. Clean down inside the three particle collection tubes with cotton-tipped applicators and multi-purpose cleaner as needed. Clean the nozzle on the top part as well.
3. Remove the four Philips screws from the top of the PM₁₀ head and remove the top plate assembly. Note: It is sometimes helpful to make a small pencil mark on the top plate to indicate the orientation of the plate for reassembly.



4. Clean the wire bug screen with the 390710 nylon brush and cleaner as needed.
5. Clean inside the funnel with paper towels and multi-purpose cleaner. Be careful as the inside edge of the funnel may be sharp.
6. Reassemble the top plate and screen assembly.
7. Check the large particle trap o-ring and two outlet o-rings for sufficient lubrication. Lubricate with silicone o-ring grease if needed.

8. Clean the threads of the particle trap with the nylon brush. Screw the two halves of the head back together. Be sure not to crash the threads or the unit will be very difficult to disassemble!
9. Clean out the glass drip jar and the outside of the PM₁₀ head assembly with paper towels and cleaner as needed.

Note: Sometimes it is helpful to rinse the PM₁₀ head parts with tap water (if available) or with a spray bottle of water. Be sure to dry thoroughly. Canned dusting air is also helpful for removing dust from confined areas.

PM_{2.5} Cyclone Cleaning:

1. Access the particle trap (grit pot) by unscrewing the cap on the side of the cyclone. Clean the trap with cotton applicators and cleaner as needed.
2. Remove the square air passage part from the other side of the cyclone. It is held on only by o-ring friction pressure.
3. The cyclone chamber can now be opened by unscrewing the nozzle. Thoroughly clean out the inside of the cyclone chamber and nozzle with cotton applicators and alcohol as needed.
4. Clean the inlet and outlet of the cyclone with a cotton applicator or paper towels.
5. Verify sufficient lubrication on all o-rings before reassembly of the cyclone. Lubricate with silicone o-ring grease as needed. Reassemble the unit. Do not over tighten!

