Title: Procedure for Cleaning and Maintaining the Hamilton AT Plus 2

Purpose: To aid the laboratorian in cleaning the Hamilton AT Plus 2 each day the instrument is used.

Materials: gloves, 70% ethyl alcohol, 2-3% RBS–Viro solution, de-ionized water, paper towel, Q-tips, spraying bottles and small plastic bags (for waste).

Procedures:

Routine Cleaning Using the Maintenance Program
To enter the Maintenance program, select “Maintenance” in the SUNRISE plus Main Menu on the NEC computer. After each step press return to continue. Always follow universal precautions and wear disposable gloves during the cleaning procedure.

1. Switch off the Microlab AT Plus.
2. Using the 2-3% RBS and paper towel,
   a. Clean inside of the tip drawer.
   b. Clean secondary rack.
   c. Clean spill tray and secondary track, pans under the reagent rack. This should be done immediately after the liquid has spilled by wiping it with a paper towel.
3. Clean the Tip eject plate using 70% ethanol.
   a. Remove and clean the tip eject plate. This is located below the tip-ejecting position. It slides in and out (refer to Fig. 2-3, Hamilton Procedures Manual). Soak in ethanol for 10-15 minutes for disinfecting. This is usually the dirtiest part of the instrument.
   b. Extract any tips which may be present in the instrument.
   c. REPLACE THE TIP EJECT PLATE AS SOON AS POSSIBLE.
4. Clean the primary rack using 2-3% RBS
   a. Remove the primary rack.
   b. Check the bottom of the tube holders. Turn the primary rack over and clean the bottoms of the tube-holders.
   c. Clean the area under the primary rack (see fig.2-4, Hamilton Procedures Manual).
5. Clean the tip-wiping unit
   a. Remove the tip-wiping station by turning the big screw on the front.
b. Clean the inside of the tip-wiping station with 2-3% RBS and the tip-wiping paper holder with ethanol and paper towel. For disinfecting, spray the entire tip-wiping unit evenly with ethanol.

c. Clean the tip-wiping sensor with a Q-tip. This is located at the left-hand side inside the tip-wiping station (see Fig.2-6, Hamilton Procedures Manual).

d. Replace the tip-wiping station.

6. Clean the Wash station
   a. Remove the wash station cover by loosening the screw holding it.
   b. Clean inside the wash station with 2-3% RBS. Clean the wash station inlet and outlet then the overflow sensors to the front of the wash station using Q-tip (see fig.2-7, Hamilton Procedures Manual)
   c. Clean the inlet hose filter, the overflow hoses and the water containers. Empty the waste container as well.

7. Remove completely the primary and secondary racks.

8. Switch on the MICROLAB AT plus 2

9. Clean the tube lifters.
   a. Press F2, the tube lifters are lifted slightly.
   b. Clean the tube lifters by rubbing with a paper towel moistened with RBS-Viro (only moist not wet); see fig. 2-8, Hamilton Procedures Manual
   c. Rub dry.

10. Wash the tip clamps.
    This procedure is done if the tip clamps have come in contact with sample or reagent or as the case maybe can be done twice amount.
   a. Remove all inserts from the secondary rack.
   b. Place the compensation insert (Code 14) on position 14.
   c. Invert the reagent rack insert right code 2/15 and place it on position 12 (left of the compensation insert).
   d. Place the small reagent racks with 3 reagent containers.
   e. Fill the containers with:
       Container 1: 90-100 ml 2-3% RBS-Viro solution
       Container 2: 90 ml de-ionized water
       Container 3: 90 ml 70% ethanol in water
   f. Press F3 to wash the tip clamps (see Fig. 2-9, Hamilton Procedures Manual)
   g. Dry the black clamp sleeves with a paper towel. Do not rub (see Fig.2-10, Hamilton Procedures Manual)
   h. Remove the reagent rack and all inserts from the secondary rack area.
11. Re-install the primary rack and the secondary rack. It is recommended to perform a
BOOT-RUN before turning off the instrument.

Note: After tip clamp washing the Microlab AT plus should not be used for at least 2 hours so
that the tip clamps completely dry. It is recommended that the instrument be left to dry
overnight.

12. Record the date the cleaning procedure was performed on the log found in the
Hamilton notebook.

13. The Hamilton AT Plus 2 is routinely checked for its pipeting accuracy by Hamilton
service personnel and these records are maintained in the Hamilton notebook as well.