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Environmental Facilities Corporation**

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**Use of the TIF Model 505A**

Part 232, Perchloroethylene (perc) Drycleaning Facilities, requires drycleaners to check for leaks using an electronic leak detector. Many drycleaners have opted to use the TIF Model 5050A (5050A) which can be purchased from many vendors at a cost of \$100 to \$150. If you are using the 5050A or are considering the purchase of an electronic leak detector, you may find the following tips useful.

**You must take the 5050A OUTSIDE OF YOUR DRYCLEANING FACILITY to get clean air.**

This is very important because the 5050A is equipped with automatic calibration. Therefore, whatever the concentration of perc surrounding the 5050A when it is switched on, is set or re-set to zero. For example, when the 5050A is switched on near a leak of 100 parts per million (ppm), the 5050A will re-set its zero point to 100 ppm and cannot detect any leaks smaller than 110 ppm (see next paragraph for detection limit). Never begin your leak detection by switching on the 5050A while standing next to your drycleaning machine.

**If the 5050A starts "beeping rapidly" as you approach your machine, it is NOT broken.** In most cases, you have a LEAK. Based on my experience, the 5050A is fairly sensitive and will detect a perc concentration of about 10-20 ppm. I determined this by using both a 5050A and a Photovac Microtip at several drycleaning facilities (the Photovac Microtip has a digital display indicating the concentration of perc measured in ppm.) If your 5050A starts to beep rapidly, you probably have a leak somewhere in your drycleaning machine that is greater than 10-20 ppm, which is a level that most drycleaners could not detect with their noses. While it is possible that the 5050A could be defective, it is more likely that you have a leak. Also, if you have a leak detector other than the 5050A and have never found any leaks, please be cautious, it is possible that your detector does not work. A quick test to determine if your detector is working at all would be to place the detector near or at the door of your drycleaning machine while unloading your clothes. CAUTION: This procedure will only confirm that your detector "beeps". This does NOT mean that your detector is capable of detecting perc leaks of at least 50 ppm.

The normal procedure for detecting leaks would be to hold the detector tip of the 5050A at a distance of **ONE INCH** from valves, fitting, gaskets, etc. Try not to move too quickly since the 5050A does not have a pump that sucks air into the detector. Perc must diffuse into the tip of the 5050A to be detected. If the 5050A "beeps rapidly", but then stops, try to go back to where the leaks were first detected. The idea is to get the 5050A to reliably beep at a specific spot, thus identifying the exact location of the leak. **HINT: Check for leaks when they are most likely to occur.** For example, it is unlikely to find leaks during the wash cycle, when perc liquid is being agitated in the drum and the condenser is not running. Instead, check for leaks during the drying cycle because the drycleaning machine is operating under pressure due to the clothes being heated to recover perc in addition to perc vapors circulating through various pipes and filters. Also, check for leaks around the distillation unit while it is running. You are unlikely to find a leak when the distillation unit is cold.

**Once you have determined that you have a leak, you can use the re-set feature of the 5050A to help you locate a leak.** Some people think 'Great, one inch from a gasket. It beeps, fix it. It doesn't beep, move on to the next item.' However, the drycleaning is done in the "real world". Often, the 5050A is "beeping like crazy" near the drycleaning machine and it doesn't matter if you move the 5050A three feet left or right, it still beeps. Basically, the 5050A is telling you that the perc concentration at your drycleaning machine is greater than 10-20 ppm. In this case, the autocalibrate feature may be helpful. Theoretically, you pick a spot near your machine, switch the 5050A off and then switch is back on. The 5050A has now re-set and is detecting say 40 ppm as zero. Now, the 5050A will not "rapidly beep" until it sees about 60 ppm. In theory, you would repeat this process until you trace the leak to a particular source. In reality, I have found this nearly impossible to do. If you encounter this situation, it means either that you have many small leaks or one very large leak that completely blankets your machine. First you could try to retighten/replace every gasket, fitting, seal, etc. and if you are still unable to find the leak, you may have to call a professional.

**The Tiff Model 5050A is very good at DETECTING the presence of perc resulting from leaks but not so good at finding the exact location of a leak.**

\*The following article is based on personal experience with using the TIF Model 5050A and the Photovac Microtip at drycleaning facilities. This article does not endorse nor guarantee the use or performance of the TIF Model 5050A or the Photovac Microtip.

