

Breath Alcohol Testing Instrument Operational and Technical Review

The Public Health Electronics Technician of The Vermont Department of Health Laboratory has responsibility to ensure the continued operation of the State of Vermont evidential Breath Alcohol Testing Instrumentation.

The State of Vermont is currently employs the National Patent Analytical Systems Inc. (NPAS) BAC DataMaster. While this system has worked well during the life of the program we have been advised by NPAS that the Chip Set of the CPU that runs the BAC DataMaster is no longer in production and that the BAC DataMaster will soon not be produced. This would also hold true for the supply of CPU boards that are the operating system or CPU of the BAC Datamaster. When the expected life of an instrument like this and the length of time that this system has been employed is taken into consideration one would have to conclude that this instrumentation has served The State of Vermont Very Well.

With this information, the state of Vermont has appropriated some money for replacement instrumentation and has undertaken to evaluate of some instruments as possible replacements for the BAC DataMaster. This report describes positive and negative critique of the instruments that have been tested. The primary focus of this will be on the ease of use, customer service response, maintainability, safety and overall usability of the instruments.

CMI Intoxilyzer 8000

Operational and Technical Review

Unit delivers quick results.

Display, user interface is a two-line alphanumeric display type. That limits the amount of information that can be displayed at any one time.

When calling Customer Service, I was placed on hold for a long time, never was able to talk to a person for help. Left a Message Waiting a call back 12/22/05 1330hrs. Placed another phone call 12/28/2005 and was able to talk to a person in customer service in reference to some errors the instrument gave during testing. Customer service indicated that they wanted to get the instrument back for upgrades.

Instrument did not auto adjust for daylight savings time.

Instrument does not appear easy to maintain, when talking to customer service it was explained to me that it is in fact harder then one might imagine to take apart and reassembling. Before the instrument was shipped, back to the Vendor the instrument was opened and inspected. The instrument is much more difficult and is time consuming, and to change out almost any component requires one to move the optical bench, this in turn would require a recalibration making most field maintenance imposable.

Instrument does not utilize heated simulator hose's thus the possibility of condensation is higher in the simulator hoses this in turn has the possibility of increasing the standard deviation of an accuracy and precision check and all simulator tests may have a negative impact on reliability.

Instrument has a warm-up period if not used for several minutes; the unit takes a minute to warm up.

Instrument comes with a handle, this may encourage subjects to pickup instrument and use in a manor not conducive to the manufactures recommendations or the safety of others in the area of the subject.

The reprint option is only available for the last test performed.

Printer paper is thermal type, has a tendency to fade over time, unit has capability to print on a laser printer.

Thermal printer paper is difficult to change / replace.

Menu of options and technical changes is difficult to navigate, not intuitive, many of the option names are similar to others and it makes operating and repair of the instrument more time consuming and frustrating.

Drager Alcotest 7110 MKIII-C

Operational and Technical Review

Instrument is slow to provide results, while running an accuracy and precision check the instrument took about two times the amount of time to provide results.

When running an accuracy and precision check the instrument does not print out the average or Standard deviation of the Infrared, or Fuel Cell or any combination of the readings. This may be something that is available, considering that this is a very simple calculation one would think that this would not be an option that needs to be asked for.

Menu of options and technical changes is difficult to navigate, not intuitive, many of the option names are similar to others and it makes operating and repair of the instrument more time consuming and frustrating.

Request for service Help 12/22/05 during AM, Response was Tuesday someone should be in to help you. 12/27/2005 @1330 I placed another call for a request for help, while on the phone with them, I requested several things, one was for the tool to remove the security screws so that I could open the instrument and inspect for maintenance feasibility, I was told to use a pair of pliers to remove and replace the screws.

Instrument does not appear easy to maintain.

Instrument comes with a handle, this may encourage subjects to pickup instrument and use in a manor not conducive to the manufactures recommendations or the safety of others in the area of the subject.

Printer paper is difficult to change / replace.

Unit utilizes two printers, one onboard that is a very small impact ink printer and one stand-alone.

Instrument does not utilize heated simulator hose's thus the possibility of condensation is higher in the simulator hoses this in turn has the possibility of increasing the standard deviation of an accuracy and precision check and all simulator tests may have a negative impact on reliability.

Display, user interface is a two-line alphanumeric display type. That limits the amount of information that can be displayed at any one time.

Instrument is dual technology this increases the possibility of conflicting results, Increase in possible maintenance costs, down time and decreases reliability.

N.P.A.S. DataMaster DMT

Operational and Technical Review

Unit has a touch screen display capable of showing a wide variety of parameters within the instrument. The display is graphics capable and as the instrument is set up now has the ability to graph and printout a wide variety of parameters such as breath volume or voltages that the instrument is reading.

Customer service is a known and readily available during calls to N.P.A.S. they have been very responsive to our needs and have completed all requests in a timely fashion.

This instrument is easily opened to perform maintenance, during a recent call to N.P.A.S. they walked me through disassembling and reassembly of the instrument, after this rebuild of the instrument we had not disturbed the optical bench, and once reassembled the instrument still reported accurate readings.

Unit displays and adjustment of voltages when needed can be accomplished without having to open the unit.

Because this instrument is produced by the same manufacturer that we currently have some of the parts that may be needed are already in stock. This will simplify any change over to this new instrument.

Many spare parts can be acquired locally. This instrument uses locally available USB keyboards and printers as the input and output devices.

Windows based operating system is easy to understand, intuitive to people that understand windows based Operating Systems at very a basic level. The Options, nomenclature are very similar to the instruments that are in use in the state now therefore a transition from the BAC DataMaster to the DataMaster DMT would be easier then switching brands for the operators and the maintenance staff.

Reprints of all tests performed on the unit are accessible until download is completed.

Maintenance of the instrument is from my perspective as easy or easier then the current DataMaster.

Intoximeters INTOX EC/IR II

Operational and Technical Review

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Instrument does not utilize heated simulator hose's thus the possibility of condensation is higher in the simulator hoses this in turn has the possibility of increasing the standard deviation of an accuracy and precision check and all simulator tests may have a negative impact on reliability.

Printer paper is thermal type, has a tendency to fade over time, unit has capability to print on a stand-alone printer.

Instrument is designed for Dry Gas use and not for simulator use, although there are simulator connections in the back of the unit.

Instrument has one pc board that controls all functions; this type of design enhances simplicity, but requires that if one portion of the PC board fails the entire Board must be removed. With the exception of the printer, power supply sample bench and the PC board.

Summery of Operational and Technical Review

After testing, working with and becoming familiar with all four instrument there is one instrument that stands out to me as the clear and most practical instrument for The State of Vermont to consider for purchase this instrument has the feel and usability of our current DataMasters, its easy of use and maintainability seem to be leaps and bounds ahead of all the other instruments, It's adaptability is much more enhanced then the any other instrument. The DataMaster DMT is my recommendation.