San Diego Police Department

Forensic Chemistry Unit

BREATH ALCOHOL INSTRUMENT OPERATOR TRAINING MANUAL

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1. VALUE AND PURPOSE OF FORENSIC ALCOHOL TESTING

Summary

Alcohol-related litigation most frequently pertains to the arrest of drinking drivers, but may include other types of accidents. The technology of breath alcohol analysis has evolved over the years after first being used as early as 1927. Breath analysis provides a rapid, noninvasive means of determining alcohol concentration that requires minimal subject cooperation. Forensic alcohol analysis using breath instruments is the only type of testing done by officers in the field. It is important that operators are properly trained to operate the instruments used by the San Diego Police Department (SDPD). This testing provides the information needed to investigate driving under the influence. This testing must follow certain guidelines and provide accurate results. The evidentiary instruments used by SDPD is the Intoxilyzer 8000.

This Breath Alcohol Instrument Operator Training manual serves as the written instructions for subject testing using the Intoxilyzer 8000 breath alcohol testing instrument. These written instructions are a supplement to the live training provided in the breath test certification course. This training encompasses all of the instrumental, sampling, and procedural instructions contained here-in, and provides operators with hands-on training in the use of the Intoxilyzer 8000.

Training is provided only by those qualified as a Forensic Alcohol Analyst (FAA) by the laboratory in accordance with Title 17, certified operators with 6 months of practical experience, and employed in the San Diego Police Department, Forensic Science Section, Forensic Chemistry Unit.

Breath test operators may only perform subject testing after the completion of this training course. This training course shall be a minimum of 4 hours. This training course must include, at a minimum, the following subjects:

- Theory of operation;
- Detailed procedure of operation;
- Precautionary checklist;
- Practical experience ;
- Written examination.

1. General process of absorption, distribution, and elimination of alcohol

1.1 Absorption

When ingested, ethyl alcohol is absorbed through the mucous surfaces of the body. Approximately 25% of the absorption occurs through the membrane walls of the stomach and 75% in the upper portion of the small intestine. The alcohol passes through these membrane walls by simple diffusion without first being acted upon by enzymes, as is the case with other food materials.

The rate of absorption is dependent, among other things, on the quantity of alcohol ingested, the type of alcoholic beverage consumed, and whether or not there is food in the stomach. When a single alcoholic beverage is ingested, most of the alcohol will be absorbed into the bloodstream within minutes.

1.2 Distribution

As soon as alcohol is absorbed, it enters the blood stream and is then distributed through the entire body to all of the tissues and organs in an amount directly proportional to the water content of the tissues and organs.

1.3 Elimination

Approximately 95% of the alcohol consumed is eliminated from the body by oxidation metabolism occurring largely in the liver. The remaining alcohol is excreted through the breath, urine, and perspiration. Elimination of small amounts of alcohol due to its volatile nature occurs through the breath and urine makes it possible to use urine or breath samples to determine the blood or breath alcohol concentration. This is the theory behind breath alcohol analysis.

In the case of urine, water and metabolic wastes are removed from the blood in the kidneys. The small amount of water removed will carry with it the same concentration of alcohol as water in the blood. This is because alcohol and water are infinitely soluble. It has been well established that the concentration of alcohol found in the urine will reflect the concentration of alcohol in the blood by a ratio that has been determined to be 1.3 to 1. Because the kidneys are constantly producing urine, it is necessary to have a subject void his bladder before giving a urine sample for analysis. The void process eliminates the urine that could have been collecting in the bladder for several hours, which could distort the blood alcohol calculations. A sample collected at least 20 minutes after the void reflects the blood alcohol level over that previous 20-minute period.

In the case of breath, circulating blood travels throughout the lung tissues. The blood exchanges gases with the lung air. At body temperature (37°C), a small amount of alcohol will become a gas. The amount of alcohol in 2100 milliliters of alveolar breath is equivalent to the amount of alcohol in 1 milliliter of blood based upon Henry's Law. The equilibrium between blood and breath is established almost instantly in millions of tiny "pockets" in the lungs called alveoli (deep lung tissue). The breath in the channels leading to

the alveoli (throat, trachea, bronchial tubes, etc.) contains various mixtures of room air and deeper lung air. Consequently, this "top lung" air does not reflect the subject's true breath alcohol concentration. It is a varying amount, less in alcohol concentration, than deep lung breath. For this reason, the first part of an exhale has the lowest concentration of alcohol in the breath. The highest concentration is reached from the last part of an exhale and contains the breath that reflects the true blood alcohol concentration. Breath instruments are designed to analyze a sample of a person's expired breath to obtain a breath alcohol result in order to determine the concentration of alcohol in a person's blood.

The total rate of elimination of alcohol (metabolism, breath, excretion) varies from person to person, but is reasonably constant for any one individual. This rate is approximately 0.01% to 0.02% of blood alcohol concentration per hour.

1.4 Tolerance

There are two types of impairment, mental and physical. Mental impairment occurs first. Individuals who regularly consume alcoholic beverages may become "tolerant" to the physical effects and learn to compensate, or mask, the physical signs of impairment. Mental impairment, however, remains.

1.5 Physiological Nature of Alcohol

Alcohol is a drug that acts as a depressant to the central nervous system. It first affects inhibition and judgment and then impairs motor performance of all kinds, including vision, hearing, and muscular coordination. The effect of alcohol on the brain is always a deterioration of function and never an improvement.

1.6 Tests for Intoxication

It is illegal for a person to drive a vehicle with a blood alcohol concentration of 0.080% or higher. The legal limit for commercial drivers is 0.040%, and for drivers under the age of 21 the legal limit is 0.050%.

The California Vehicle Code section 23152 states: "(a) It is unlawful for any person who is under the influence of any alcoholic beverage or drug, or under the combined influence of any alcoholic beverage and drug, to drive a vehicle. (b) It is unlawful for any person who has 0.080 percent or more, by weight, of alcohol in his or her blood to drive a vehicle. For the purpose of this article, and Section 34501.16, percent, by weight of alcohol in a person's blood is based upon grams of alcohol per 100 milliliters of blood, or grams of alcohol per 210 liters of breath."

The current policy of the American Medical Association supports a blood alcohol content (BAC) limit for drivers at 0.050% for adults and 0.020% for drivers under the age of 21. All states have set adult driver BAC limits at 0.080%, with lower limits for commercial drivers. A standard limit of 0.000% to 0.02% BAC for drivers under the age of 21 is gradually being adopted by most states.

The blood alcohol concentration indicates the condition of the person at the time the test was taken. What a person's blood alcohol concentration was at the time of arrest or accident can be inferred with reasonable accuracy if one can establish the time of drinking. When chemical tests for intoxication are properly made and interpreted, they constitute the best and most impartial objective method for the measurement of levels of alcohol and a measurement of impairment from alcohol.

2. INTOXILYZER THEORY

The Intoxilyzer 8000 is an infrared analyzer that uses no chemicals for the determination of the concentration of alcohol in breath. This instrument measures a physical property, the absorption of infrared energy by a gas, following Lambert-Beer's Law of Absorption.

The Intoxilyzer 8000 employs a slope detector and requires that a number of minimum parameters are met to ensure the sample is adequate and alveolar. These minimum parameters include a continuous breath sample 6 seconds in duration, a minimum volume of 1.1 liter, and a minimum flow rate of 0.15 liters per second. The slope and each of these parameters are automatically monitored by the Intoxilyzer 8000. If the minimum requirements are not met, a sample result will not be will not be obtained.

The Intoxilyzer 8000 assures that alveolar breath samples are consistently obtained. All operator functions for these instruments are automatically prompted and controlled by a microprocessor. Once a test sequence is initiated, a programmed test procedure is indicated by visual instructions on a digital display. The current status or mode of the test cycle prompts the operator through the programmed test procedure. The test results, date, time, and instrument serial number, are printed on a test record card.

3. BASIC OPERATING FEATURES

3.1 The Intoxilyzer measures the degree to which alcohol absorbs infrared energy. The more alcohol present, the greater the absorption of infrared energy. To generate infrared energy, the Intoxilyzer 8000 uses a pulsating infrared source. The infrared energy travels through a sample chamber containing the subject's breath or vapor from a breath alcohol simulator. The energy is focused by a lens onto a highly sensitive photo detector that converts the result into an electrical impulse. An electronic processor interprets the impulses and displays the percent Blood Alcohol Concentration (BAC) on the digital display.

The Intoxilyzer 8000 contains features that the trained operator may need to access. The features are found in a level 1 menu. This menu is accessed by pressing the "esc" key twice on the keyboard.

Menu 1 Options: after pressing the "esc" key twice, select an option by pressing its corresponding letter on the keyboard.

"A" Continuous Air Blank

This option will turn on the air pump and purge the sample chamber until the green START TEST button is pressed. This procedure can be

followed to clear the breath chamber if the operator receives an error message of "Ambient Fail" during the testing procedure.

"C" COBRA Phone Number

This option allows the COBRA phone number to be changed if the phone number used for downloading changes. The COBRA phone number is programmed by the Forensic Chemistry Unit. The operator can change this number if it was incorrectly programmed by the lab.

"D" Diagnostic Check

This option will initiate a diagnostic test. The operator can perform a diagnostic check to ensure the Intoxilyzer 8000 is working properly prior to beginning subject testing.

"E" Preliminary Data Entry

This option allows the user to change the time, date, and location, if necessary.

"P" Printer Test

This option will command the printer to perform a print check. This option is best used after the paper roll is changed.

"R" Reprint Last Ticket

The last test ticket will be printed. Note: this option is the same as pressing F1 on the keyboard. This option can be used to print multiple copies of a test record.

"T" Temperature Monitor

Allows operator to view cell and hose temperatures during the warm-up phase of the instrument.

"Q" Quit Menu 1

This option will take the user back to the main screen.

4. LABORATORY PAPERWORK REQUIREMENTS FOR BREATH TESTING AND SAMPLE COLLECTION

4.1 Paper work requirements

Breath tests are assigned unique numbers by each breath testing instrument for tracking purposes. The unique numbers are comprised of the instrument's serial number, followed by a numerically sequential number generated at the start of each new subject test.

Breath tests collected with the Intoxilyzer 8000s are stored in the instrument's database for subsequent uploading to the Forensic Chemistry Unit's database. Specialized instruction is given to the DUI officers with mobile units by trained personnel. This training consists of the demonstrations of the modem connections, as well as use of the Control "U" function on the keyboard. The data from the stationary units is transferred by trained laboratory personnel only.

4.2 Blood and urine samples collected in room 138 are given unique barcode numbers for tracking. The numbers are generated by the FileOnQ system, and are referenced from the arrest incident number. The sample information is entered into the FileOnQ database. This barcode number is used as a laboratory control number for subsequent paperwork generated during the testing process.

4.2.1 After the information is entered into FileOnQ, a barcode label is printed from the database and affixed to the sample container for blood and urine samples, and the chain of custody tube for blood samples. The following information is printed on the barcode label:

- The suspect's name (listed as the "owner")"The barcode and incident numbers
- "Collected By," "Date," and "Time" "Witnessing Officer/ID#" The charge(s) for which the suspect was arrested
- "1st VOID" Urine (For Drugs) or "2nd VOID" Urine (For Alcohol), collected no sooner than 20 minutes after voiding the bladder.

4.2.2 The following information is recorded on the Toxicology Request Form if drugs are suspected. The information is automatically populated in the corresponding boxes on the request forms and can be printed from the FileOnQ.

- Barcode Number (Listed as the Lab ID number)Sample Type (blood or

urine)

- Charge(s)
- Requesting officer's name, ID number, and e-mail address
- The drug panel requested for analysis.

4.2.3 Samples collect at locations other than SDPD headquarters, such as at local hospitals, must be labeled at the time the sample is drawn, using a pre-printed label with the information hand written. The label must be filled out with the following information in the corresponding fields:

- Incident Number (if known)
- Suspect name
- Witnessing Officer's Name, ID Number
- "Collected By," "Date," and "Time" are filled in by the officer witnessing the collection, or the phlebotomist performing the blood draw.

4.2.4 The precautionary checklist for the Intoxilyzer 8000 is posted with each instrument and is incorporated into the instrument prompts; therefore, it does not require any recording of information.

5. RECORDS

5.1 Operator Training Records:

Class attendees must sign in, and pass a practical and written examination to receive a certificate issued by the laboratory. This certificate will indicate the operator's name, ID/Badge #, agency, and include the instructor's name. The laboratory keeps a database of current, qualified operators.

5.2 Breath Test Records

The results of each test and the identity of the operator performing the test, is recorded on the instrument test strip. This information, as well as all other pertinent information regarding the breath tests and the accompanying quality assurance, is kept in the laboratory for at least seven years.

6. ADMINISTRATION OF THE BREATH TEST

Procedure of Operation

6.1 Subject Observation and General Requirements

The State of California Department of Public Health regulations for forensic alcohol testing, known as Title 17 require that a breath sample shall be "expired breath" and collected only after the subject has been under continuous observation for a least fifteen minutes prior to collection of the breath sample, during which time the subject must not have ingested alcoholic beverages or other fluids, regurgitated, vomited, eaten, or smoked. This 15 minutes wait period ensure there is no alcohol in the mouth that could affect the breath sample. The Intoxilyzer 8000 will ask if this fifteen minute observation was completed and require a yes ("Y") keyboard response in order for the test to continue. Breath alcohol testing shall include analysis of 2 separate breath samples. The duplicate samples must agree within 0.02% of each other.

Using the Breath Instrument

In conjunction with the Precautionary Checklist available for consultation at each instrument, the instrument prompts the operator to administer the breath test. Before starting the test, ensure the breath test hose is warm and the Gaseous Ethanol Breath Standard (GEBS) tank is attached to the instrument. The steps for performing a subject breath test are as follows:

6.2 Verify the Intoxilyzer 8000 is plugged into a power supply. Power the instrument on and press the green START TEST button to ready the instrument for testing. The instrument will take approximately 20 minutes from the time it is turned on to warm up.

6.3 When "READY MODE" is displayed, press the green START TEST button. The instrument will then sound a short tone and display "Operator last name" followed by "Operator ID#". Type in the necessary information and press enter. After the information has been entered, the instrument will display "Review data y/n?" If "n" is selected or, the operator does not select either option in the ensuing 5 seconds, the instrument will proceed with subject information prompts. If "y" is selected, then the instrument will display the operator's name and allow the user to make corrections using the keyboard. It will then proceed to the operator's ID # and allow the user to make corrections.

6.4 The instrument will display "swipe subject DL or press enter." By default, the instrument waits for a card swipe. If, after 10 seconds, no card swipe occurs, the instrument will display "Subject Last Name?" The user will be allowed to enter the name using the keyboard. Dashes can be used for unknown information. The instrument will then display "Subject First Name?" The user will be allowed to enter the name with the keyboard. After the name has been entered, the instrument will display "Subject Middle Name?" The user will be allowed to enter the name using the keyboard. After the subject's name has been entered, the instrument will display the following: "Driver's license #?" The user will be allowed to enter the # using the keyboard. After the license # has been entered the instrument will display "State of issue?" The user will be allowed to enter the state using the keyboard. The instrument will then display "Charge?" After a charge has been entered, the instrument will display, "Beat of Arrest?" The user will be able to enter the beat of arrest if known, or dashes if unknown. The instrument will then display, "Review data Y/N?" If after five seconds no key keystroke has been made, the test will automatically start. If the "Y" key was pressed, each piece of information will be displayed on the screen at which time the user will be allowed to review and correct them. If the keystroke equaled "N," the test continues.

6.5 The instrument will display "15 min obs (y/n)?" If the subject has been continuously observed for 15 minutes immediately prior to the start of the test, select "y" for yes. The test will proceed. If the subject has not been continuously observed for 15 minutes immediately prior to the start of the test, or if the subjected has vomited, regurgitated, or has had anything in his/her mouth during the observation period, select "n" for no. If "n" is selected, indicating that the observation period has not been successfully completed, the instrument will lock itself out for 15 minutes allowing for the completion of the 15 minute observation period. Also, if "n" is selected and the instrument is temporarily locked out, all test information will be saved for use in the next test sequence for the same subject.

6.6 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000."

6.7 Instrument will automatically perform a Diagnostic Check.

6.8 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000." If the instrument does not show a value 0.000, the message "AMBIENT FAIL" and "NOT A SUCCESSFUL TEST" will print. If this

occurs, the operator must restart the test, choose another instrument, or choose another test.

6.9 The instrument will display "Reference" and then automatically perform an accuracy check using the GEBS. If the value is within the established uncertainty not to exceed ± 0.010% of the known value, the test will continue. If not, the test will be aborted. If this occurs, the operator must choose a different instrument or choose a different test.

6.10 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000."

6.11 The display will read "Reference." The instrument will then sound a short tone and the instrument display will read "Please blow until tone stops/R." Attach a new mouthpiece to the breath hose, and instruct the subject to blow into the mouthpiece. The mouthpiece will be attached in the following manner:

- The plastic bag enclosing the mouthpiece is opened at one end.
- The distal end of the mouthpiece is exposed and inserted in to the breath hose, the operator inserting the mouthpiece while holding it with the plastic bag.
- The remaining plastic is then removed, and the subject is asked to blow into the mouthpiece.

A continuous tone will sound if the subject blows into the mouthpiece with enough pressure. Instruct the subject to blow continuously until out of breath. The subject's breath alcohol concentration will then be displayed on the screen.

6.12 The operator will remove and discard the used mouthpiece with the plastic bag originally containing the mouthpiece, and replace the breath hose.

6.13 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000.

6.14 The instrument will then display a 1 ½ -minute countdown.

6.15 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000."

6.16 The display will read "Reference." The instrument will then sound a short tone and the instrument display will read "Please blow until tone stops/R." Attach a new mouthpiece to the breath hose (using steps outlined in 1.2.10) and instruct the subject to blow into the mouthpiece. A continuous tone will sound as the subject blows into the mouthpiece. Instruct the subject to blow continuously until out of breath. The subject's breath alcohol concentration will then be displayed on the screen.

6.17 Remove and discard the used mouthpiece as outlined in 1.2.11 and replace the breath hose.

6.18 The instrument will sound a short tone and display "Air Blank." It will then proceed to clear the sample chamber by forcing air through it. Leave the breath hose in the cradle. At the end of the cycle the display will show "Rslt 0.000."

6.19 If the two tests agree within 0.02%, the instrument will automatically proceed to a second GEBS check. After completion of the second GEBS check, the instrument will perform a second diagnostic test. After completion of the second diagnostic test, the instrument will perform a final air blank. In this way, every successful subject test will be bracketed by both a diagnostic and accuracy check.

6.20 If the two breath test sample readings do not agree within 0.02%, repeat steps outlined in 1.2.15 – 1.2.16.

6.21 The instrument will display "Trombetta Admon Given?" Provide the Trombetta Admonishment. Select "y" for yes or "n" for no. If the operator responds by typing "n" the instrument will instruct the user to give Trombetta Admonishment, wait 15 seconds and repeat question, "Trombetta Admon Given?"

6.22 The instrument will then print out a test record containing the statement "SUCCESSFULLY COMPLETED TEST" or, the statement, "NOT A SUCCESSFULLY COMPLETED TEST." Only test records with the phrase, "SUCCESSFULLY COMPLETED TEST" are considered completed breath tests. Two additional copies must be printed by pressing the "**F1"** key on the keyboard, once for each additional copy to be printed. The arresting officer must sign each of the printed test reports.

7. TEST COMPLETION AND PAPERWORK DISTRIBUTION

7.1 The test is complete if two valid breath results are obtained and the test record contains the phrase "SUCCESSFULLY COMPLETED TEST.". The two breath test results must be within +/- 0.02 grams % of each other. If the first two tests are not within +/- 0.02 grams %, the instrument will request the subject provide a third sample. If two of the three breath results do not agree within +/- 0.02 grams %, the test is not valid. The subject must perform another breath test or a have a blood sample taken. If the subject performs a second breath test, the previous test record must be retained along with any successful test record. To start another breath test, the operator must follow the precautionary checklist as in the first test.

7.2 The test report provides proof that the breath test sequence was started. If the subject refuses to complete a breath test, the operator may press the "**R**" key to identify the test as a refusal at the "Please Blow" prompt. If the subject is unable to complete the test, the operator has the option of pressing the "**R**" key to identify the test as a refusal, or the GREEN START TEST key to abort the test.

7.3 Triplicate copies of Intoxilyzer 8000 test result must be printed. Of the three copies printed, one copy is provided to the subject, one copy is provided to the court, and the remaining copy is retained in the officer's records to be retained or distributed according to the policies of the officer's area command.

7.4 Inspect the test printouts and verify that the date and time are correct. Make any necessary corrections on the test printout and initial the correction.

7.5 Distribute all paperwork as indicated in the Precautionary Checklist, and according to the procedures of the officer's area command.

7.6 Paperwork Distribution

7.7 Distribute incomplete test paperwork as you would for completed test paperwork according to the procedures of the officer's area command.

7.8 Distribute paperwork for all initial, subsequent, and/or terminated testing as indicated previously in this section, on the precautionary checklist, and according to the procedures of the officer's area command.

8. MESSAGES THAT MAY BE ENCOUNTERED DURING BREATH TESTING

If the test strip contains the phrase “NOT A SUCCESSFUL TEST”, one of the following messages will appear:

---"IMPROPER SAMPLE"

Meaning: The subject blew into the mouthpiece before the instrument panel indicated “PLEASE BLOW.” If this occurs, start a new test.

----"RFI DETECTED"

Meaning: High-level radio frequency interference is present. The instrument will automatically cancel the test. Ensure that there are no radio transmissions in the area. Start a new test.

----"SEQUENCE ABORTED"

Meaning: The START TEST button was pressed before the test was completed. If a subject refuses a breath test after it has begun, allow the test to complete on its own (this takes about six minutes), or press the “**R**” key on the keyboard to indicate a subject refusal to complete the test.

----"INTERFERENT DETECTED"

Meaning: The subject's breath sample contains an interfering substance such as acetone. The instrument will terminate the test and “INTERFERENT CHOOSE ANOTHER TEST” will be printed on the test record. Conduct a different test.

----"DEFICIENT SAMPLE"

Meaning: The subject did not supply an adequate breath sample within two minutes. "DEFICIENT SAMPLE" is printed on the test record. Choose another test. If another breath test is selected,

Instruct the subject to provide a continuous breath sample into the mouthpiece for at least six seconds.

Each test sequence gives the subject three opportunities of two minutes each to provide a proper sample. The test can be **stopped** by pushing the GREEN START TEST button or the “**R**” key on the keyboard when “PLEASE BLOW” appears on the screen. Previous

test information is then preserved and will be printed on the test printout. If a proper test is not obtained, and there was no 0.02% agreement by the third breath sample, the error code "NO 0.02% BAC AGREEMENT-REPEAT TEST" will be printed on the test record. Start a new test, or choose a blood test instead.

----"INVALID SAMPLE"

Meaning: The instrument detected the presence of mouth alcohol in the sample being provided. The test will automatically be aborted and "INVALID SAMPLE" will be displayed on the screen. "WAIT 15 MINUTES-REPEAT TEST" will be printed on the test record.

----"AMBIENT FAIL"

Meaning: The sample chamber did not return to 0.00% after purging. The instrument automatically cancels the test. Ensure that the breath hose remains in the cradle and start a new test.

----"SUBJECT TEST REFUSED"

Meaning: Activated by the operator by pressing the "R" key when the instrument displays the words, "PLEASE BLOW".

----"CAL CHECK FAIL"

Meaning: The Intoxilyzer 8000 needs a new GEBS tank, or the tank is not properly connected. Correct the problem and repeat the test. If the problem persists, report the problem to laboratory staff.

----"DIAGNOSTIC FAIL"

Meaning: One of the nine parameters is out of tolerance. Instrument will display information identifying the problem. If the instrument indicates it is out of paper, correct the problem and repeat the test. For all other problems, the operator should choose another instrument or choose another test.

----"LOW TANK PRESSURE"

Meaning: The GEBS tank pressure is below 50 psi. Unscrew the tank from the regulator by turning the tank three turns in a counter-clockwise rotation about the center axis of the tank. Exchange this empty tank for a full tank at the Watch Commander's Desk or the laboratory. Attach full tank by reversal of the above method. The unit is now ready for use. Note: The Intoxilyzer 8000 will not go into READY MODE if the tank pressure falls below 20 psi.

----"MEM FULL"

Meaning: The Intoxilyzer 8000's memory is full. No more tests may be stored. This message should not be encountered as laboratory staff ensures regular downloads. If the operator were to get this message on an instrument, he or she should choose another instrument, or choose another test.

If none of the corrections result in a properly functioning instrument, the operator should use another instrument or choose another test. The operator should notify laboratory personnel that he or she has encountered a malfunctioning instrument. If messages other than those listed above are encountered, the operator should choose another instrument or choose another test.

9. INTOXILYZER 8000 PRECAUTIONARY CHECKLIST

1. Continuously observe the subject for fifteen minutes before beginning the test. During this time, the subject must not ingest alcoholic beverages or other fluids, regurgitate, vomit, eat, or smoke.

2. Press the green START TEST button to start. If the instrument is in STANDBY MODE, a 60 second countdown will bring the instrument into READY MODE.

3. When the display shows READY MODE, press the green START TEST button.

4. Use the Intoxilyzer's keyboard to enter the case information, or swipe the subject's driver's license when directed. The subject's name must be entered as LAST NAME, FIRST NAME, and MI. Review the data when it is displayed.

5. **15 Min Obs (y/n?)** Respond accordingly. Wait another 15 minutes if necessary.

6. The instrument will automatically perform a series of air blanks, a diagnostic check, and a calibration check.

7. When the instrument displays **Please Blow,** remove the hose from the cradle and place a **new** mouthpiece onto the breath hose.

8. Have the subject blow into the mouthpiece until out of breath.

9. Remove and discard the mouthpiece. **Return breath hose to cradle.**

10. **Air Blank**; leave the breath hose in the cradle.

11. The instrument will complete a 1½ minute countdown.

12. **Air Blank**; leave the breath hose in the cradle.

13. When the instrument displays **Please Blow,** remove the hose from the cradle and place a **new** mouthpiece onto the breath hose.

14. Have the subject blow into the mouthpiece until out of breath.

15. Remove and discard mouthpiece. Return breath hose to cradle.

16. If the two breath test results do not agree within 0.02%, the instrument will automatically require a third breath test. Repeat steps 13-15.

17. The instrument will automatically perform a series of air blanks, a diagnostic check, and a calibration check.

18. When the LED prompt reads **Trombetta Adm Given?**, administer the admonishment and press the "y" key.

19. The instrument will print the test results. Verify that "**Successfully Completed Test**" is printed. This message must print or the subject test is not successful and must be repeated.

20. Print at least two additional copies of the test results by pressing "F1" for each copy on the keyboard. Verify all information is correct, add observation time, and sign each copy.

21. Paperwork Distribution: One copy is provided to the subject; one copy is provided to the Court; one copy is retained for records.

10. TROMBETTA ADMONISHMENT

The following admonishment will be published in Room 138 in both English and Spanish.

1. The breath testing equipment does not retain any breath sample for later analysis by you or anyone else.

2. If you want a sample retained, you may provide a blood or urine sample that will be retained, at no cost to you. If you do so, the blood or urine sample may be tested for alcohol or drug content by either party in a criminal prosecution.

11. OVERVIEW

The CMI, Inc. INTOXILYZER® 8000 is an infrared-based device, as is shown in the diagram below, and has been designed for both mobile and stationary evidential breath alcohol testing. It has a revolutionary design with several features and software configurations that are shown in the diagram below.

1. Mouthpiece storage area is heated to minimize the likelihood of condensation during the breath test.

2. The breath hose is coiled in the top recess of the instrument to allow easy access. Thirty-six inches in length, the hose is flexible but non-kinking, non-collapsible, and is heated to ensure that no condensation forms when a breath sample is supplied. The temperature of the breath hose is under digital temperature control. Despite this, it is advised that at all ambient temperatures, when not in use, the hose be positioned correctly within the housing. The hose accepts standard mouthpieces.

3. The instrument display panel utilizes vacuum fluorescence technology.

4. The drop-down standard PS/2 keyboard may be detached from main unit to enable data entry to be performed remotely from the testing location.

5. The printer unit, either the "impact" or "thermal" type, has a paper roll that, when it is almost out, displays a thin red line along the edge of the roll. When this occurs, it will be possible to perform no more than five more custom test printouts until the end of the paper is reached.

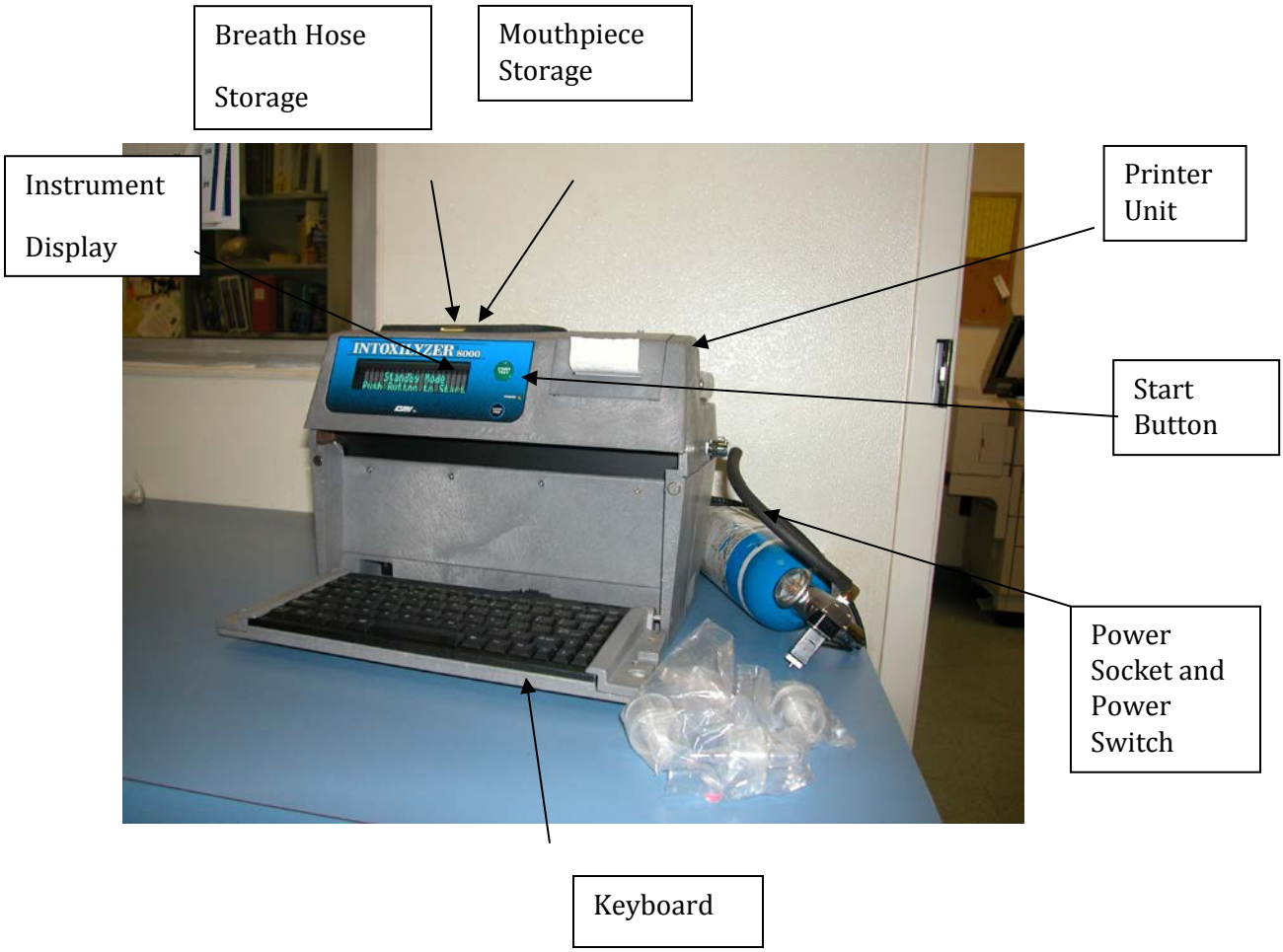
6. The Start Button is used to run an evidential breath test.

7. The Simulator Return Port is located on the right side of the instrument for simulator use by laboratory personnel only.

8. The Calibration Inlet Port is located on the right side of the instrument for use in dry gas calibrations and accuracy checks by laboratory personnel only.

9. The Power Socket is located on the back of the instrument to connect the instrument to a power source. In a patrol car this would be the 12V DC car battery. In the laboratory this would be the 110V AC wall plug.

10. The Power Switch is located on the back of the instrument. This turns the instrument on and off.


Breath Hose Storage
Mouthpiece Storage
Instrument Display
Printer Unit
Start Button
Power Socket and Power Switch
Keyboard


Calibration Inlet
Simulator Return

12. INTOXILYZER 8000 PRACTICAL TESTS

Practical tests will be performed by each trainee. The practicals may change slightly for clarification. Each trainee must demonstrate successful use of the breath instrument to the instructor. The printouts should be turned in. The instructor will review the tests strips and answers to the practical questions. The trainees should treat each practical like an actual test and follow the precautionary checklist. Make 3 copies of each test and write where each one would be sent.

Practical 1.
Administer an evidential breath test. During the second breath sample, turn on a police radio. Print 3 copies and label each one.

Q1. What happens to the test?
Q2. Is this a successfully completed test?
Q3. What happens next?

Practical 2.

A. Administer an evidential breath test. Assume your subject vomits 2 minutes into the 15 minute observation.
   Q1. What do you do?
   Administer another evidential breath test using a driver's license. Print 3 copies and label each one.
B. Administer an evidential breath test using a driver's license. Once the test is complete you notice gum in the subject's mouth. Print 3 copies and label each.
   Q1. What do you do?
   Q2. Is this a Title 17 compliant test?

Practical 3.

A. Administer an evidential breath test. Using the following information
   Name = Joe B Guy, DL# AK128943, State = Alaska
   When the instrument prompts him to "PLEASE BLOW" he refuses. Stop the test by hitting the "R" key.
   Q1. What is the error message? How does this compare to B?
   Q2. Is this a successful test?
   Print 3 copies and label each one.
B. Administer an evidential breath test. Using the following information
   Name = Kim L Girl, DL# AK128943, State = Alaska
   After the test begins the subject refuses to blow. Stop the test pressing the Green Start Test Button.
   Q1. What is the error message? How does this compare to A?
   Q2. Is this a successful test?
   Print 3 copies and label each one.

Practical 4.
Remove the paper and try to perform an evidential test.

Q1. What happens to the test?

Replace the paper and feed correctly. Perform a print test from Menu 1.

Practical 5.
Administer an evidential breath test. When the instrument displays "PLEASE BLOW" swab a mouthpiece with an alcohol solution and have a person blow.

Q1. What happens to the test?

Q2. Is this a successfully completed test?

Q3. What happens next?

Print 3 copies and label each one.

Practical 6.
Administer an evidential breath test. Have a person blow at the wrong time.

Q1. What happens to the test?

Q2. Is this a successfully completed test?

Q3. What happens next?

Print 3 copies and label each one.

Practical 7.
Detach the GEBS tank. Administer an evidential breath test.

Q1. What happens to the test?

Replace tank and administer an evidential breath test. When the instrument displays "PLEASE BLOW" have a person only provide a small breath sample and then stop. Wait 3 minutes.

Q1. What happens to the test?

Q2. What happens next?

Print 3 copies and label each one.

13. INTOXILYZER 8000 WRITTEN TEST

(A score of 80% or higher is mandatory to pass this course.) Correct answers are highlighted. Slight changes to wording may occur to clarify questions.

1. How long do state regulations require that the subject be under continuous observation before collecting a breath sample during which time he hasn't ingested alcoholic beverages or other fluids, regurgitated, vomited, eaten, or smoked?
   a) at least 15 minutes
   b) No more than 15 minutes
   c) at least 5 minutes
   d) No more than 20 minutes

2. The Intoxilyzer 8000 uses the following method for measuring alcohol in the breath:
   a) a wet chemical method
   b) oxidation-reduction action
   c) an infra-red absorption method
   d) an ultra-violet absorption method

3. What Title do you have to follow for alcohol analysis?
   a) Title 21 under the Department of Justice
   b) Title 17 under the California Code of Regulations
   c) Title 17 under the Department of Motor Vehicles
   d) Title 21 under the Department of Motor Vehicles

4. What is the maximum allowable deviation between the subject breath samples run in the same testing sequence using the Intoxilyzer 8000?
   a) 0.01%
   b) 0.02%
   c) 0.03%
   d) 0.002%

5. The Intoxilyzer 8000 automatically runs an accuracy check (GEBS):
   a) Every day
   b) Every 10 days or 150 tests, whichever comes first
   c) At the beginning and end of each subject test sequence
   d) After each air blank

6. When the Intoxilyzer 8000 states "INVALID SAMPLE" and "XXX" what do you do?
   a) Wait 15 minutes and then start a new breath test
   b) Go immediately to a different Intoxilyzer 8000 and start another test
   c) Get a blood sample
   d) immediately start another breath test on the same Intoxilyzer 8000

7. The Intoxilyzer 8000 measures _____ to determine the subject's alcohol level:
   a) Air in the subject's mouth

b) The subject's deep lung air
c) The subject's blood
d) Air around the subject

8. If the subject does not have a driver's license, or has an out of state driver's license that does not have a magnetic strip, you must:

a) Have a blood sample drawn
b) Enter the subject's information using the keyboard
c) Abort the test and go off the Standardized Field Sobriety Test results to determine the subject's alcohol level
d) Keep hitting the "Enter" key and handwrite the information at the end

9. How can you check to make sure you replaced the paper correctly?

a) Start a new test on a subject
b) Hit the "F1" key to reprint the last ticket
c) Access Menu one and perform a print test
d) Either b or c

10. If three breath sample results are obtained and the values are 0.15%, 0.18%, and 0.16% and all other checks on the instrument pass, the Intoxilyzer 8000 will:

a) Print "successfully completed test" on the breath strip
b) Print "Not a successful test" on the breath strip
c) Require a fourth test
d) Have the operator start a new testing sequence

11. The deep lung air contains the highest concentration of alcohol in the breath:

a) True
b) False

12. If during a breath test the subject refuses to blow a second time into the Intoxilyzer 8000, and you want your printout to read "Subject Test Refused", you as the operator should:

a) Push the "R" key on the keyboard when the Intoxilyzer 8000 displays "PLEASE BLOW"
b) Push the green start test button to stop the test
c) Wait three minutes when the Intoxilyzer 8000 displays "PLEASE BLOW"
d) Push the green start test button once the Intoxilyzer 8000 displays "PLEASE BLOW"

13. What list must you follow to conduct a test on the Intoxilyzer 8000?

a) Title 17 list of duties
b) Precautionary Checklist
c) Police Department Policy list of procedures
d) Crime Lab Policy list of procedures

14. If during the 15 minute waiting period, the subject is observed placing anything into their mouth, the appropriate step to take is:

a) To write the test up as a refusal
b) To request a urine sample
c) Continue with the 15 minute wait period
d) Stop the 15 minute wait period, clear the mouth and wait an additional 15 minutes

15. If, while conducting a breath test, the Intoxilyzer 8000 detects radio frequency interference, the instrument will display:

a) "INVALID TEST"
b) "INTERFERENT DEFECTED"
c) "RFI DETECTED"
d) "Successfully Completed Test"

16. When "DEFICIENT SAMPLE" appears on the display of the Intoxilyzer 8000 it means:

a) The subject did not provide enough of a breath sample
b) The subject blew at the wrong time
c) The subject had something on their breath other than alcohol
d) The subject's lung size is not allowing them to provide an adequate breath sample

17. If one of the Intoxilyzer 8000s does not appear to be working properly, the operator should:

a) Attempt to use a different Intoxilyzer 8000 before requesting a blood sample, and notify the Forensic Chemistry Section or the Watch Commander that the instrument is not working
b) Immediately request a blood sample, and then notify the Forensic Chemistry Section or the Watch Commander that the instrument is not working
c) Attempt to use a different Intoxilyzer 8000 before requesting a blood sample, but do not notify the Forensic Chemistry Section or the Watch Commander that the instrument is not working
d) Arrest the subject based on your training and experience and do not get an evidential test

18. If the subject's breath contains acetone, the Intoxilyzer 8000 will display "INTERFERENT DETECTED". The operator should do the following:

a) Get a blood sample from the subject
b) Use a different Intoxilyzer 8000 and obtain a new breath strip
c) Attempt to use the same Intoxilyzer one more time to see if you get the same test message
d) Use a different Intoxilyzer 8000 to obtain a new breath strip and also get a blood sample

19. Who is authorized to perform breath tests on subjects using the Intoxilyzer 8000?

a) Any law enforcement officer
b) Certified operators who have completed the Intoxilyzer 8000 course
c) Any crime lab personnel
d) All law enforcement officers that work at traffic division

20. When a printout is generated from the Intoxilyzer 8000 and a correction is needed with date and or time:

a) Ignore the error
b) Draw a line through the error, initial and date it, then write in the correction
c) Discard the printout and start a new breath test
d) Discard the printout and hope someone in the lab fixes the error once they see the uploaded records

21. The same mouth piece can be used for both subject tests:

a) If you take it off during the air blank and then put it back on
b) Without removing it at all
c) As long as there is no visible liquid in the mouth piece
d) Never. You must always change the mouth piece

22. When the Intoxilyzer 8000 reads "IMPROPER SAMPLE" and "IPS" what happened?

a) The subject was handed the breath hose too early and blew at the wrong time
b) There wasn't enough alcohol for the instrument to detect
c) The instrument detected an interfering sample
d) The subject didn't blow hard enough

23. How many printouts of the tests do you need, and for what?

a) Two, one for your paperwork and one for the subject
b) Two, one for your paperwork and one for the DMV
c) Three, one each for your paperwork, the DMV, and the subject
d) Three (as in c), but only for successful tests, zero for unsuccessful

24. To get an instrument from standby mode and ready for testing you must:

a) Press the "START TEST" button and begin test
b) Press the "START TEST" button, wait for "READY MODE", and then press the "START TEST" button again
c) Nothing, it is ready to use
d) Remove the breath hose from the holder to wake up the instrument

25. What should you do if you get a low pressure warning for the GEBS tank on an Intoxilyzer 8000?

a) Move to another instrument
b) Contact the Watch Commander to have them change the tank
c) Contact lab personnel to have them change the tank
d) Change the tank