



ARKANSAS DEPARTMENT OF HEALTH

INTOXIMETER EC/IR II Senior Operator Training Manual

**Office of Alcohol Testing
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ARKANSAS BREATH TESTING

INTOXIMETER EC/IR II SENIOR OPERATOR TRAINING MANUAL

This manual is provided for information purposes. Memorization is not required for certification. It is revised as necessary.

Revised March 2023

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RESPONSIBILITIES OF INTOXIMETER EC/IR II SENIOR OPERATOR

1. Ensure that the installation, instrument(s), and operators are currently certified.
2. Ensure that the instrument is working properly.
3. Ensure that the subject has been advised of implied consent rights and that the 20-minute observation period has been adhered to.
4. Operate the breath-testing instrument in accordance with the instructions/questions prompted by the instrument. The printed test record will be evidence that the procedure was followed. (Breath results are reported as g/210L of breath.)
5. Inspect the test record to ensure that all information was printed properly, and ensure the required signatures are present.
6. Make a logbook entry of the test at the time the test is completed.
7. Be prepared to testify in court about the test procedure.
8. Notify the Office of Alcohol Testing when the pressure of a dry gas standard cylinder is low or expired.
9. Perform a supervisor test on the instrument monthly not to exceed 31 days.
 - a) Record the supervisor test in the logbook in red ink.
 - b) Notify the Arkansas Department of Health, Office of Alcohol Testing, of any instrument failure.
 - c) Retain and file a copy of these tickets as produced by the instrument.
10. Analyze proficiency test sample(s) when received and report the results to the Office of Alcohol Testing no later than the 15th of the month to maintain certification.
11. Keep appropriate records as required by the Office of Alcohol Testing.
12. Keep adequate inventory of all supplies.
13. A Senior Operator is to be present for inspections by the Office of Alcohol Testing.

5-65-204. VALIDITY - APPROVED METHODS.

- (a) (1) Alcohol concentration shall mean either:
 - (A) Grams of alcohol per one hundred milliliters (100ml), or cubic centimeters (100cc) of blood; or
 - (B) Grams of alcohol per two hundred ten liters (210L) of breath.
- (b) The alcohol concentration of other bodily substances shall be based upon grams of alcohol per 100 milliliters (100ml) or 100 cubic centimeters (100cc) of blood, the same being percent weight per volume or percent alcohol concentration

Breath may **NOT** be expressed as a percent (%).

PHARMACOLOGY

ABSORPTION OF ALCOHOL

Ethanol can enter the human body in several different ways: injection, inhalation, insertion and ingestion. Ethanol has not been demonstrated to accumulate in the body as a result of absorption through the skin. Injection of ethanol directly into the body is an extremely dangerous procedure because it produces a localized concentration of ethanol that can severely affect the heart and other vital organs (this phenomenon is referred to as the "bolus effect"). Another possible route for ethanol to enter the body is through inhalation of alcoholic vapors. When the alcoholic vapors come into contact with the lungs and mucous membranes lining the nasal passages and throat, then the ethanol can diffuse through these membranes into the blood. The usual method for alcohol to enter the body is by ingestion of an alcoholic beverage. Ethanol is absorbed into the blood stream by diffusion through mucous membranes; in this way, ethanol is not digested, but absorbed unchanged! The mouth, throat, and the entire gastrointestinal tract are all common sites of alcohol absorption. The anal canal, vaginal tract, and ureter are also lined with mucous membranes and could serve as possible sites for alcohol absorption.

Once the alcoholic beverage enters the mouth, absorption begins immediately. Absorption continues as the beverage passes into the stomach and later into the small intestine. Residual alcohol (also referred to as "mouth alcohol") is the alcohol that remains in the mouth and could affect a breath alcohol test. Alcohol can be reintroduced back into the oral cavity under certain conditions. If alcohol present in the stomach were regurgitated into the mouth, a portion of that alcohol would be absorbed by the mucous membranes lining the oral cavity. Regardless of how the alcohol is introduced into the mouth, residual alcohol will dissipate from the mouth cavity within 20 minutes. This is the reason for the 20-minute observation period in breath testing.

When the alcoholic beverage reaches the stomach, approximately 20% of the ethanol is absorbed through the stomach lining directly into the blood stream. This absorption from the stomach is unique because most other substances ingested cannot diffuse through the protective stomach lining.

The rate of absorption of ethanol through the stomach lining and its passage into the remainder of the gastrointestinal tract can vary due to several factors. The type of alcoholic beverage consumed can affect the absorption rate. Carbonated beverages tend to promote absorption while fatty or oily beverages tend to slow absorption. The concentration of ethanol in the alcoholic beverage consumed can also affect absorption. If the alcohol concentration in the stomach becomes too high, this can irritate the stomach lining and reduce the amount of alcohol absorbed from the stomach. The functioning of the pyloric sphincter, which controls the passage of the

stomach contents from the stomach to the small intestine, can also have an effect on the rate of ethanol absorption. The longer the ethanol is held in the stomach, the slower the overall rate of absorption. The most significant effect on alcohol absorption is the quantity of food substances ingested with or immediately prior to consumption of an alcoholic beverage. A large amount of food present in the stomach will serve to delay the absorption of ethanol (see Figure 3-2). If no food is present in the stomach, the rate of ethanol absorption is faster (see Figure 3-1.) The small intestine is the site of the most rapid absorption of ethanol. All of these various factors combine with others to determine the specific absorption rate of a particular individual. Because of these various factors, absorption of ethanol can best be explained using general rules that describe the overall concepts, but may not be specific for a particular situation. Generally, complete absorption of a single alcoholic beverage on an empty stomach is accomplished in forty-five minutes to an hour after consumption.

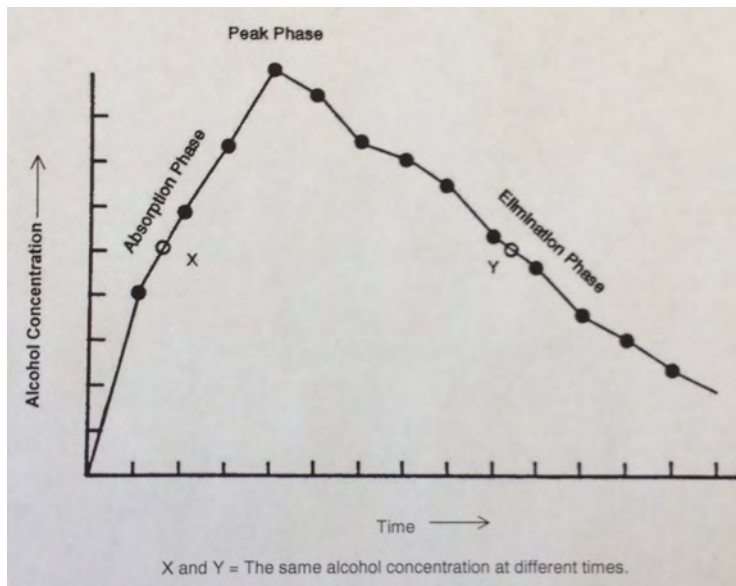


Figure 3.1

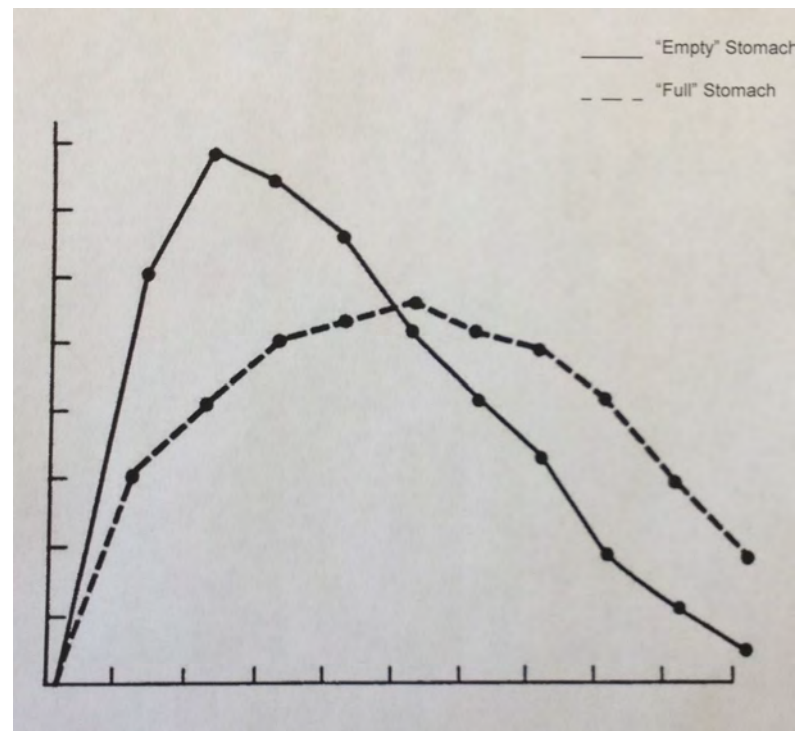


Figure 3.2

Distribution of Alcohol

Once the ethanol is absorbed into the blood stream it is transported to, and passes through, the liver. From the liver, the alcohol travels with the blood to the right side of the heart. The alcohol and blood then travel to the lungs and return to the left side of the heart. When the alcohol and blood leave the heart, they are distributed throughout the entire body. The blood leaving the heart reaches the brain tissue directly through the carotid arteries. Studies have shown that equilibrium between the arterial blood and the brain is reached extremely rapidly.

The concentration of ethanol in the various tissues depends upon the tissue water content. The greater the water content of a tissue, the greater its alcohol concentration will be in relation to other tissues. Water content varies according to the different kinds of tissue. For example, the water content of muscle is greater than the water content of bone. The body water content can also vary from one individual to another. An obese person has less water per pound of body weight than an emaciated (thin) person does because adipose (fat) tissue has a very low water content. Body water content also varies according to sex. Females have less water per pound of body weight than males because of the presence of adipose tissue in the breasts, buttocks, and thighs. Since the concentration of alcohol is directly proportional to the body water content (within the limits already discussed) the concentration will vary according to the body weight. As a rule, the heavier a person is the more alcohol that person must consume to reach a specific alcohol concentration in the body. The rate of consumption can affect the distribution of alcohol throughout the body.

ELIMINATION OF ALCOHOL

Ethanol is removed or eliminated from the body by oxidation and excretion. The process of oxidation in the liver accounts for the elimination of 90 to 95% of the alcohol consumed. As the alcohol is transported through the body with the blood, it passes again and again through the liver. During each pass through the liver, the enzyme Alcohol Dehydrogenase (ADH) burns a portion of the alcohol.

The process of excretion accounts for the elimination of 5 to 10 % of the alcohol consumed. A small percentage of ethanol consumed is excreted unchanged into the urine. The amount of ethanol in the urine is proportional, within certain limits, to the ethanol concentration in the blood. The urine is stored in the bladder prior to its elimination from the body. The bladder is very poorly supplied with blood and very little of the urine alcohol is reabsorbed back into the blood stream.

A portion of the ethanol consumed is eliminated from the body through the process of evaporation. Alcohol dissolved in perspiration is transported through the skin and then evaporated into the surrounding air. A portion of the ingested alcohol is also evaporated into the breath and then exhaled from the body. The exchange of alcohol from the blood to the breath occurs in the alveoli of the lungs. The alveoli are tiny tissue sacs in the lungs that are richly supplied with blood from the heart. The membrane separation between the alveoli and the blood capillaries is permeable to certain vapors. This is also where the exchange of oxygen and carbon dioxide takes place.

Regardless of the method, elimination is a physiological process and as such is not significantly affected by exercise or stimulants such as caffeine. Therefore, neither stimulants nor exercise will affect the results of a breath alcohol test. Currently, the only proven method for sobering up is to allow sufficient time for the body to eliminate the alcohol.

The rate at which any one individual will eliminate ethanol is thought to be reasonably constant for that person. However, the rate of elimination may vary considerably from one person to the next. It usually falls in the range between 0.01 and 0.02 percent per hour, the average being 0.015 percent per hour (these figures are understood to mean w/v percent or grams of ethanol per one hundred milliliters of blood). This information can only be used for approximations. It is not possible to draw specific conclusions as to what an individual's alcohol concentration was at some earlier point in time.

BREATH TESTING

Scientists agree that the best alternative to directly testing the brain for alcohol content (obviously not done on living subjects) is to test the arterial blood supply to the central nervous system. This can be done indirectly by testing a deep lung air sample. Many years of testing have validated the breath test as a reliable means of measuring the alcohol in the vascular system. Consequently, Arkansas adopted a law that provides that the breath alcohol concentration does not require conversion to blood alcohol concentration. Either test stands on its own. Urine may be used, but must be collected in a specific manner to ensure accuracy. Refer to Arkansas Rules for Alcohol Testing.

ALCOHOL CONCENTRATION CURVE

As noted before, body weight affects the alcohol concentration reached when a given amount of alcoholic beverage is consumed. Assuming the normal healthy male with a body weight of 150 pounds, the consumption of one drink could produce an alcohol concentration of 0.02 percent in the blood. Recall that the body is capable of eliminating alcohol at the average rate of 0.015 percent per hour or the equivalent of approximately one drink per hour. Therefore, in order to accumulate alcohol in the body, the rate of absorption must exceed the rate of elimination. When consumption stops and absorption has been completed, the alcohol concentration will gradually fall as the alcohol is eliminated by the liver. Figure 3-1 shows a generalized representation of an alcohol concentration curve. This curve can be divided into three phases: the absorption phase, the peak phase, and the elimination phase. The slope of each phase will vary according to the various factors affecting absorption, distribution, and elimination of alcohol. It is important to understand that absorption, distribution, and elimination occurs in all three phases. However, once absorption has produced a peak, the rate of elimination becomes greater than the rate of absorption. This results in a net decrease in the alcohol concentration in the body.

The best method of determining the alcohol concentration in the body, at any particular time, is to conduct an analysis of a suitable specimen. When a breath alcohol test is administered, the results demonstrate the alcohol concentration at the time the sample was collected.

ACCURACY CHECK AND DRY GAS

The EC/IR II uses a Dry Gas Standard for its accuracy checks, which is ruled by Boyle's Law: "as pressure increases and volume decreases the concentration of a gas will increase." The expected ethanol value of a dry gas standard changes with pressure (the lower the pressure the lower the reading), therefore it is necessary to calculate a correction factor to compensate for pressure changes. This correction factor is $[(P1)(V1)]/T1=Constant$. Lower altitude means higher pressure and higher target value than in the mountainous regions.

EX: In North Arkansas (mountainous) if a cylinder has a gas reference value of .100 at sea level (760 mm HG), and the air pressure is 715 mm of HG at that location, then the gas value of .100 is $715/760 \times .100 = .094 = .094\text{g}/210\text{L}$.

EX: In Southeast Arkansas (delta) if a cylinder has a gas reference value of .100 at sea level (760 mm HG), and the air pressure is 755 mm of HG at that location, the gas value of .100 is $755/760 \times .100 = .0993 = .099 \text{g}/210\text{L}$.

The higher the elevation, the lower the pressure, thus the lower the target value.

The EC/IR II automatically calculates the target value of the dry gas sample using an internal barometric pressure sensor. The target value is printed on each ticket when a test is run. When the instrument performs the accuracy check during a test procedure it takes a sample of the dry gas standard and measures the alcohol concentration in the sample. The instrument then compares the reading against the target value. The external standard value must read within $+.003\text{g}/210\text{L}$ or $-.007\text{g}/210\text{L}$ of the target value in order for the test to proceed. If not, the instrument will end the test automatically and disable itself and a supervisor test will need to be performed by a Senior Operator

This accuracy check is performed during every test sequence. This establishes whether or not the instrument was accurate at the time the test was run.

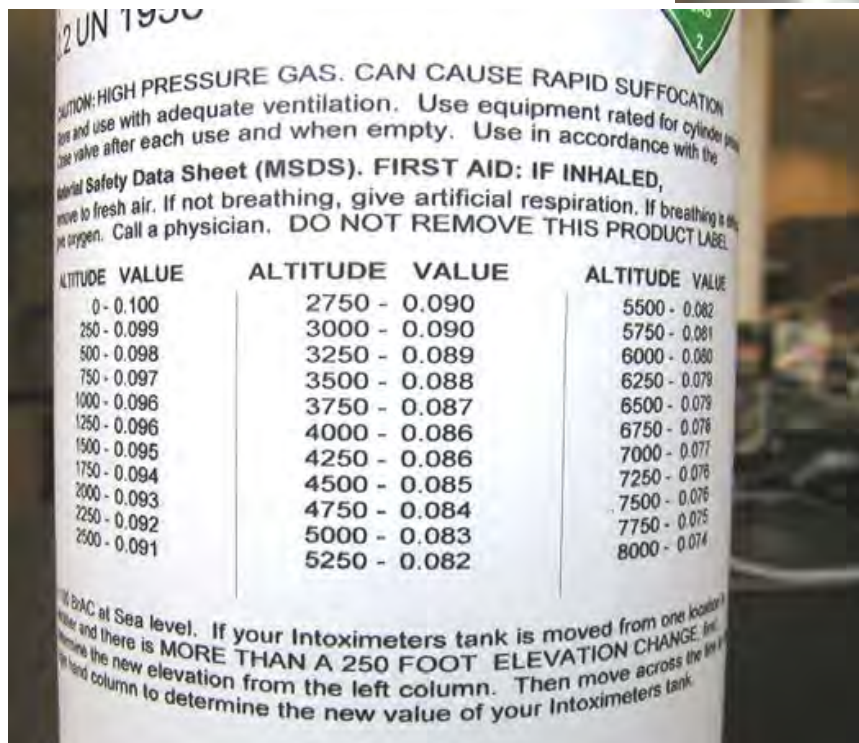
The standards used in Arkansas are a mix of nitrogen and ethanol, mixed to specifications to provide a specific ethyl alcohol reading.

Temperature has no measurable effect over normal usage, as long as the temperature is above the dew point.

The dry gas standards used in Arkansas are National Institute of Standards and Technology (NIST) traceable, meaning the value is verified through NIST. This validates the value of the standard.

The tanks are good for approximately 300 to 400 samples, and expire 2 years after fill date. Tank pressure, lot number, and expiration date are printed on every subject test ticket. The instrument will advise when tank pressure is becoming low (less than 100psi). At this point, the Office of Alcohol Testing should be notified. The instrument will disable itself once the tank expires or pressure drops below 50psi.

Tanks must be replaced by the Office of Alcohol Testing.



HENRY'S LAW

Named after William Henry (1774–1836), the English chemist who first reported the relationship, Henry's Law states that at a constant temperature, the amount of a given gas dissolved in a given type and volume of liquid is directly proportional to the partial pressure of that gas in equilibrium with that liquid. As it relates to ethyl alcohol, this means that when air comes into contact with a solution containing ethyl alcohol, the air will contain the same amount of ethyl alcohol as the solution.

BOYLE'S LAW

For a fixed amount of gas kept at a fixed temperature, P and V are inversely proportional (while one increases the other decreases). The law was named after chemist and physicist Robert Boyle, who published the original law in 1662.

INTRODUCTION

The Intox EC/IR II is manufactured by Intoximeter, Inc. in St. Louis, Missouri. It brings together two separately controlled subsystems. The first is an analog control system that controls all analytical functions of the instrument. The second is an input/output control system that controls all aspects of the user interface as well as controlling various test sequences and protocols.

Please note that the information provided herein is not designed to make the operator an expert on the Intoximeter EC/IR II. It is to provide an understanding of what is happening inside the instrument so that the operator will be able to determine when the instrument is or is not operating properly.



METHODOLOGY

When obtaining a breath sample, the Arkansas Rules for Alcohol Testing require a minimum of a twenty-minute observation period be conducted. The purpose of this observation period is to allow for any residual mouth alcohol to evaporate, so that upon obtaining a breath sample, any alcohol concentration shown will be from a deep lung sample, and not residual alcohol. This observation period is also a deprivation period. The subject to be tested is not to be allowed to take anything by mouth and the mouth must be free of food, tobacco, gum etc. as well, and should be observed for any signs of wet-belching or regurgitation that could potentially re-contaminate the mouth. If this is observed, a new twenty-minute observation should be conducted.

The Intox EC/IR II employs two distinct analytical techniques to measure alcohol concentration. The EC/IR II uses a fuel cell (electro chemical) sensor and an infrared sensor. The instrument uses both of these techniques because each offers different advantages to the sampling process.

The fuel cell sensor is specific to alcohol. It is a linear sensing device and can be calibrated with a simple one-point calibration ensuring stable calibration across the full range of its sensing capabilities. These features make this analytical device ideal for quantifying alcohol.

The IR sensor has several capabilities that the fuel cell sensor does not possess. The most important of these is that the IR sensor is able to make continuous determinations of alcohol concentration thus allowing the Intox EC/IR II to monitor a breath sample in near real time. While the IR sensor does not measure the sample to quantify the alcohol results, it helps determine if the breath sample is acceptable (no residual mouth alcohol and at what point to trigger the fuel cell to take a sample).

In combination, these two analytical systems provide all the necessary information to make precise and accurate determinations of breath alcohol concentration. This sample is one made up of deep lung breath, not a shallow breath sample or one tainted residual alcohol from the upper respiratory tract of the subject.

BREATH SAMPLE VOLUME

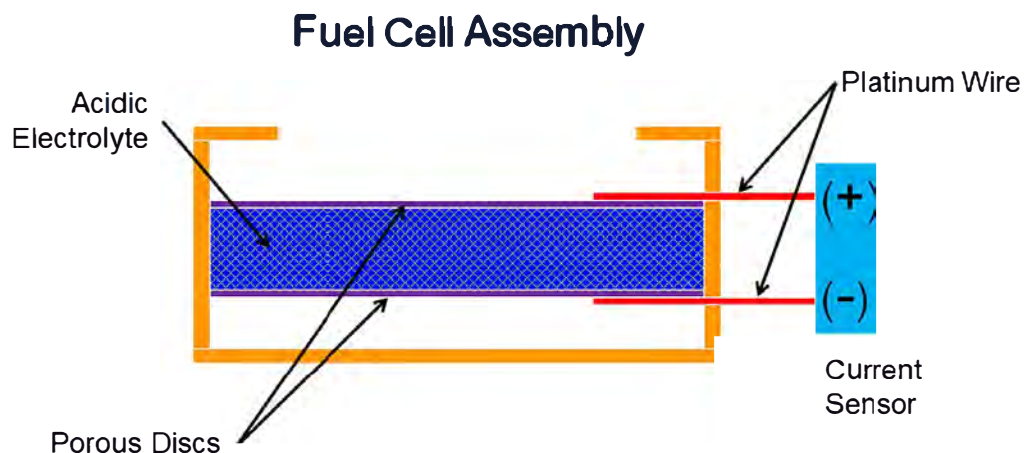
The breath sensing system in the Intox EC/IR II requires that sampling take place at the end of an exhalation if enough breath has been given to reach deep lung breath. The flow rate of the breath through the instrument is monitored continuously, and the microprocessor accumulates an integral of flow rate. Before reaching the required minimum volume, any reduction or cessation of flow rate causes the instrument to stop the test. The subject is then required to provide another breath sample. After the subject has provided the minimum volume, the instrument does not initiate an automatic sample until a reduction in breath flow signifies the approaching end of expiration. At that instant, the instrument takes a breath sample.

NOTE: A minimum volume of 1500cc at a constant pressure is required.

THE FUEL CELL ANALYSIS SYSTEM

The Fuel Cell Sensor

In its simplest form, the alcohol fuel cell consists of a porous, chemically inert disk coated on both sides with finely divided platinum (called platinum black). The porous disk is impregnated with an acidic electrolyte solution, with platinum wire electrical connections applied to the platinum black surfaces. The entire assembly mounts in a plastic case, which has a gas inlet that allows a fixed volume of deep lung breath to be introduced to the upper surface.

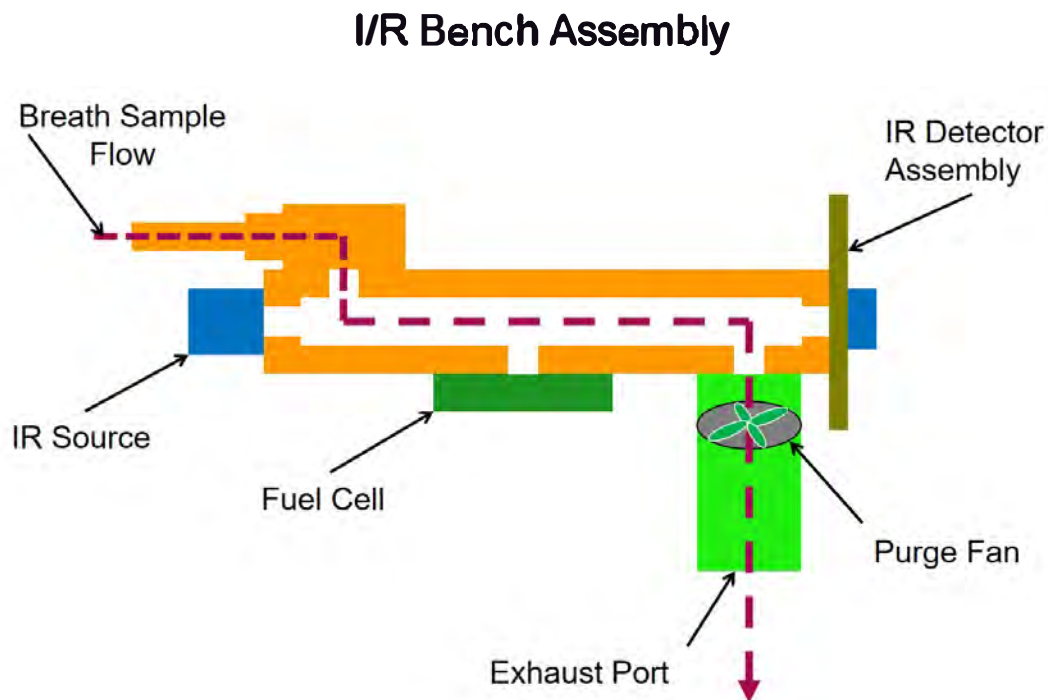


The reaction on the cell surface is basically this:

- Alcohol is converted to acetic acid, and in the process, produces two free electrons per molecule of alcohol so converted. This reaction takes place on the upper surface of the fuel cell.
- H^+ ions are freed in the process, and migrate to the lower surface of the cell, where they combine with atmospheric oxygen to form water, consuming one electron per H^+ ion in the process
- The upper surface has an excess of electrons, and the lower surface has a corresponding deficiency of electrons. If the two surfaces are connected electrically, a current flows through this external circuit to neutralize the charge. With suitable amplification, this current is a usable indicator of the amount of alcohol consumed by the fuel cell.

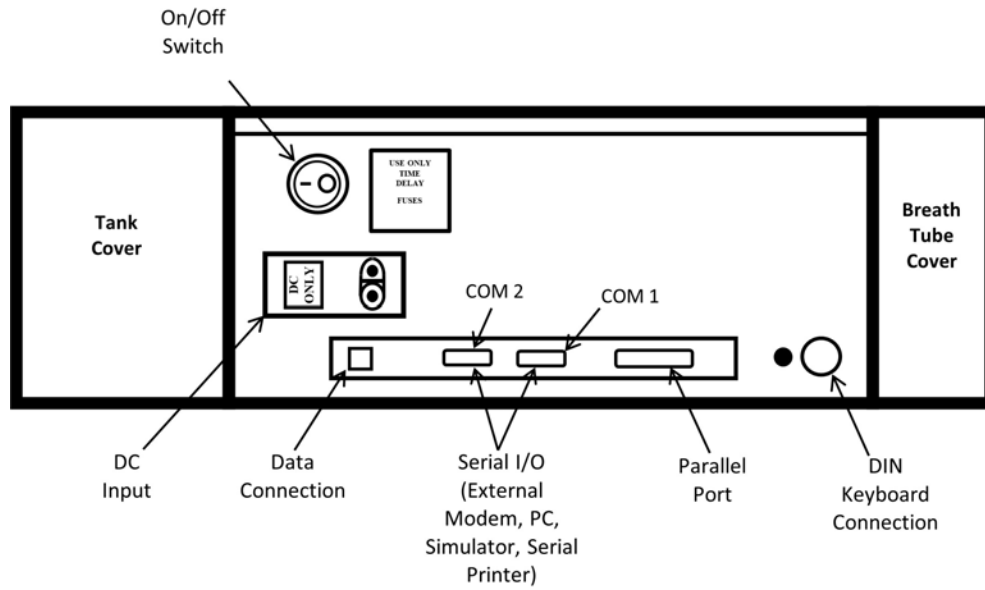
The two systems work in tandem to quantify the sample. While the infrared system is used to detect mouth alcohol but not quantity, the fuel cell system is used to determine the quantity, or value, of alcohol in the breath sample and not the presence of mouth alcohol.

Simplified Diagram of the Breath Sampling System That Contains Both Analytical Systems of the EC/IR II

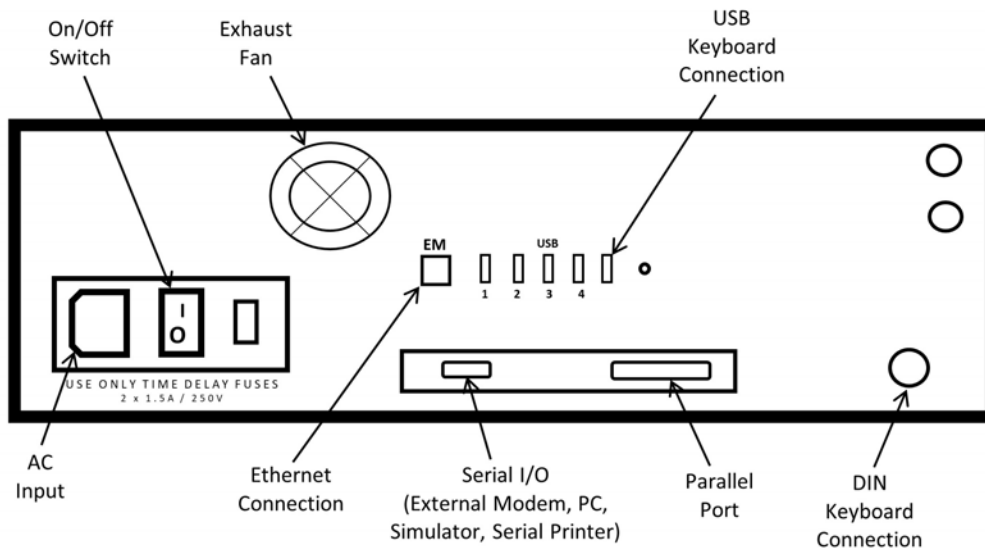


EXTERNAL COMPONENTS OF THE EC/IR II

Transportable Version
Rear-Panel Connections and Controls

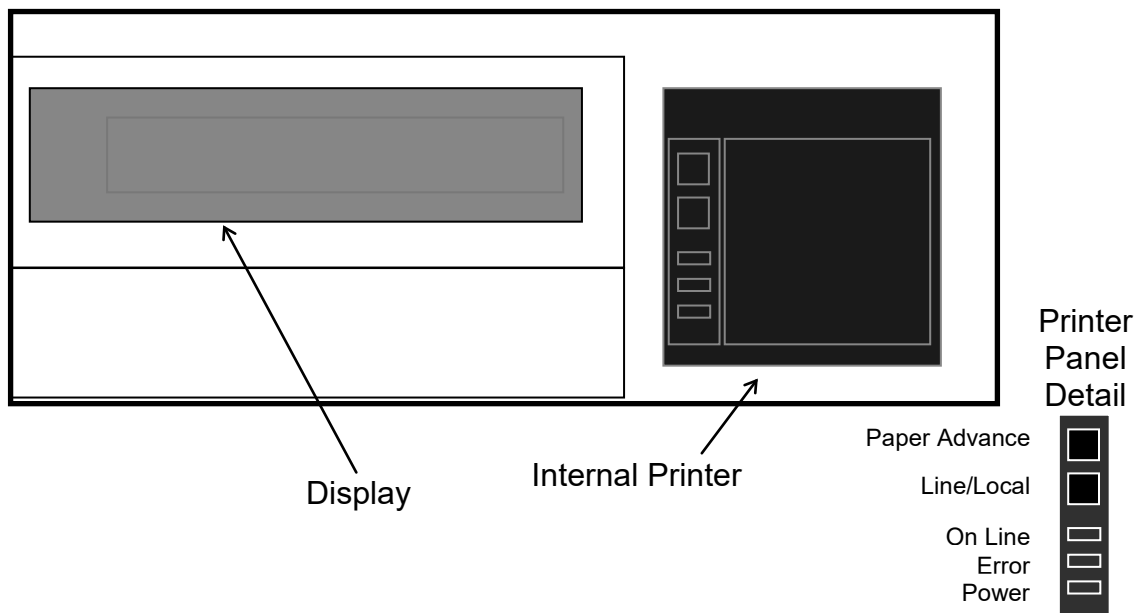


Desktop Version
Rear Panel Connections and Controls



FRONT PANEL AND KEYBOARD CONTROLS AND INDICATIONS

The Intox EC/IR II has two primary components: the analytical instrument itself, contained in a single cabinet that also houses a thermal printer, and a detachable keyboard. Except for advancing paper, operator commands from the keyboard control all instrument functions. A two-line display provides operator instructions and status information. Indicators on the built-in printer light when the instrument is on and also shows the off line/on line status of the built in printer.



Note: These lights are associated only with the Internal Printer and have nothing to do with the Instrument

The Two-Line Display

This display shows operating conditions, menu selections, on-line help, and measurement results. The default display after an initial warm-up period lists such things as date and time of day, instrument serial number, and an instruction to press the keyboard Enter key to start a subject test.

The Keyboard

The Intox EC/IR II is equipped with a smaller AT-compatible keyboard, which is functionally equivalent to a standard keyboard. A larger standard keyboard may be used if desired.



Note: Desktop Instruments have both PS2 and USB keyboard connections

External Printer Controls and Displays

Refer to the User's Manual on the instructions and proper use of the external printer. Should the external printer become inoperable, the Operator can switch the instrument between external and internal printer by pressing Ctrl-P.



Other compatible printers may be used. Intox has reported that not all printers are compatible, they must be PCL5 or lower. Some network printers are an option with the upgraded EC/IR's.

Internal Printer Controls and Displays

The built-in printer has two push-buttons and three indicators:

The **PAPER ADVANCE** push-button advances paper out of the printer when it is Off Line. Press the **LINE/LOCAL** push-button until the **ON LINE** indicator goes off. Then, hold down the **PAPER ADVANCE** push-button until you have advanced the required amount of paper. Be sure to put the printer in on line mode before starting subject tests.

The **LINE/LOCAL** push-button takes the printer off and on line when pressed. When off line, the **ON LINE** indicator goes out.

The **ON LINE** indicator lights when the printer is ready to print results.

The **ERROR** indicator lights when the instrument is first turned on or when there is a printer fault: paper empty, door open, over-voltage or under-voltage condition, or print head over-temperature.



Note: The internal printer uses thermal paper. If not inserted with the correct side up, it will not print. Also thermal ink will fade over time, so this should be avoided for permanent records.

CAUTION: Do not place anything containing liquids on the instrument's top cover. This includes coffee cups and soft drink containers.

UNINTERRUPTED POWER SUPPLY (UPS)

The EC/IR II ***must*** be plugged into the "Battery Side" of a UPS device. **DO NOT** use a standard surge suppressor. **The external printer should not to be connected the battery side of the UPS, but to the surge side of the UPS or a separate surge protector.**

Recommended size: 250-500 VA UPS. This may be obtained from any electronics store.

External Card Reader

In Arkansas, the EC/IR II is equipped with an external card reader. In order for the Senior Operator, or Operator, to initiate any type of a test, an operator card must be scanned through the card reader to begin the test sequence. Also, if the subject being tested has a driver's license, the driver's license may be scanned in order to enter the necessary information. If a driver's license is not available, the information may be entered manually using the attached keyboard.



There are currently two models of card readers. The model M-200 above can only read the 2D barcode on an operator card or drivers license. The model M210 below can also read the magnetic strip that may be on some out of state licenses or ID cards. The barcode must be facing the direction indicated by the arrow on the reader.



TEST SEQUENCES AND PROCEDURES

Initiating a Subject Test

The Arkansas Rules for Alcohol Testing require that a subject be observed for “no less than twenty (20) minutes prior to a test” (see section 6-2).

To initiate a subject test on the EC/IR II, simply press the “ENTER” key and follow the on screen instructions:

Press “ENTER” and you will be prompted to:

SWIPE CARD

The operator card should be swiped according to the diagram on the card reader. The instrument is programmed so that you may only access those functions available for your level of certification.

If an operator’s certification has been revoked or suspended for any reason, the instrument will not accept the card and you may not access any functions.

If an operator loses their card, they may not access any functions nor run a test. The Office of Alcohol Testing should be contacted to report the loss of any card.
Never loan your card or borrow someone else’s card to run a test!

Upon scanning the operator card, the operator’s name and certification number will automatically be shown on the printed ticket.

After swiping your card you will then be prompted:

ENTER PIN

Enter the PIN number assigned to you then press return. Should the PIN number be misplaced or forgotten, contact the Senior Operator in Charge.

The instrument will then display:

EMPLOYED BY:

Enter the place of employment of the operator conducting the test. Press ENTER.

The instrument will then prompt:

DATE OBSERVATION BEGAN: MM/DD/YYYY

Enter the date that the twenty minute observation began.

The instrument will then display:

TIME OBSERVATION BEGAN: HH:MM

Enter the time at which you began the twenty-minute observation. Time must be entered in twenty-four hour (military time) format.

****Note: If the time entered is less than twenty minutes from the current time, at the completion of data entry, the instrument will give a countdown to the time at which it is acceptable to test the individual.**

Press Enter.

The instrument will then display:

TRAFFIC RELATED: Y/N

Enter Y for Yes or N for No. Press Enter.

If the answer is "No", the instrument will prompt:

JUVENILE (Y/N)

If you answer YES to this prompt, the instrument will automatically insert the word "JUVENILE" for the name since the juvenile is protected under the Freedom of Information Act if the offense is NOT traffic related. In this case you will log "Juvenile" in the log book and not their name.

If the incident is traffic related, the juvenile question is skipped.

Press ENTER and the instrument will prompt for the driver's license to be swiped. If the subject has a driver's license or state issued identification card, swipe it according to the diagram on the card reader and the subject's name, driver's license number, birth date, and state of issuance will be automatically entered.

If the individual does not have a driver's license or ID card, press ENTER and manually type in all requested information. If information requested is unavailable, pressing enter will leave that section blank.

If the driver's license is read, the instrument will display:

SUBJECTS LAST NAME: LLLLLLLLLL

Press ENTER and the instrument will display:

SUBJECTS FIRST NAME: LLLLLLLLLL

Press ENTER and the instrument will display:

SUBJECTS MIDDLE INITIAL: L

Press Enter and the instrument will then display:

DATE OF BIRTH: MM/DD/YYYY

You must enter the four-number designator for the year. If the birth date cannot be determined, the instrument will allow for you to skip this question by pressing ENTER.

Press ENTER and the instrument will display:

DRIVER'S LICENSE NUMBER:NNNNNNNNNN

The instrument will allow for entry of up to 23 alpha and numeric characters in this field. If a driver's license or identification card was scanned, the numbers will automatically be entered. If the individual has a driver's license but it is not available, the number may be manually entered. If the individual does not have a driver's license, press ENTER to skip this question. If the individual has a suspended, revoked, DL enter the information anyway. When manually entering the DL or ID number, omit any dashes or spaces.

Press ENTER and the instrument will display:

STATE OF ISSUANCE: LL

This prompt is for the state of issuance of the driver's license. If manually entering data, simply enter the two letter postal code abbreviation for the state of issuance (AR for Arkansas, TX for Texas, MO for Missouri, etc.). If the individual does not have a driver's license, simply press ENTER to skip this question.

Press ENTER and the instrument will display:

SUBJECT INVOLVEMENT: DRIVER/PASSENGER/PEDESTRIAN

Use the "space bar" to toggle between the options of Driver, Passenger or Pedestrian

Press ENTER and the instrument will display:

DATE OF INCIDENT: MM/DD/YYYY

Enter the date the incident occurred and again enter all four numbers of the year.

Press ENTER and the instrument will display:

TIME OF INCIDENT: HH:MM

Enter the time at which the incident occurred in twenty-four hour format (military time).

Press ENTER and the instrument will display:

COUNTY: LLLL

Enter the first four letters of the county where the incident occurred with the following exceptions: **Lee** for Lee County, **Hot** for Hot Spring County, **Van** for Van Buren County, and **STFR** for St. Francis County.

Press ENTER and the instrument will display:

ACCIDENT : Y/N

If the answer to this question is No, press ENTER and the instrument will eliminate the following questions.

If Yes, press ENTER and the instrument will display:

INJURY: Y/N

then

FATALITY: Y/N

Press ENTER and the instrument will display:

REQUESTED BY: (L/S/D/O)

Enter L for Law Enforcement if law enforcement is requesting the test, S for Subject if it is a subject requested test, D for DOT if it is a Department of Transportation requested test, and O for other if it does not meet any of the preceding criteria (court ordered, probation/parole, etc.) or use the space bar to toggle between the options

Press ENTER and the instrument will display:

STARTING TEST SEQUENCE SPACE= BEGIN ENTER=VERIFY

The instrument will prompt to Press Enter to verify or review your information, or press the space bar to continue with the test. Review all information at least once and make corrections as necessary. To make a correction, simply re-type the data. Upon completion press the space bar and the instrument will begin the automatic test procedure.

Automatic Test Procedure

After all information has been entered and the SPACE bar pressed, the EC/IR II will assign a test number to the test, which upon printing will appear in the upper portion of the test record. The instrument will then conduct a short diagnostic test to ensure that all components are functioning properly. The result of this diagnostic test is shown on the ticket as pass or fail.

If all components are functioning properly, the instrument purges itself to make sure there are no contaminants in the system or around the EC/IR II, then performs a blank check and performs the external standard check, testing a sample of the dry gas standard. As long as the external standard is within $+0.003$ and -0.007 of the target value, the instrument will continue the test. If the external standard is outside of this range, the instrument will abort the test and a Senior Operator should be contacted. They will need to perform a Supervisor Test before any other tests can be run.

After analyzing the dry gas standard, the instrument will purge itself in order to cleanse the system.

After checking for a blank sample, the instrument proceeds to "Please Blow." At this time the breath tube should be prepared for the subject to blow into.

Taking the Breath Sample

Taking a clean mouthpiece, tear the plastic away from the mouthpiece, and using the plastic to hold it, place the mouthpiece onto the breath tube, and present it to the subject to blow into. Instruct the subject to blow steadily and continuously into the mouthpiece until instructed to stop. If the subject is refusing to provide the sample, simply press "R" during anytime of the "Please Blow" sequence to generate a refused test record. If no input is attempted within 3 minutes, the display will prompt: **REFUSAL (Y/N)**, Pressing "Y" will produce a refusal ticket. Pressing "N" will produce a "Breath Timeout" result.

A solid tone will be present as the subject blows if an adequate sample is being provided. Two bars will show on the display while the subject is blowing. The top bar indicates the flow rate and pressure, while the bottom bar indicates the volume of the sample.

Note: Only 1500cc volume at a constant pressure is required.

If steady pressure is not maintained or too little volume is provided, the instrument will stop the sample attempt and display "Insufficient Sample". After purging, the instrument will provide another opportunity to obtain a sample. If insufficient sample is obtained three times in succession, the instrument will abort the test.

After the instrument has accepted the sample, ***IMMEDIATELY*** remove the mouthpiece from the breath tube and discard it. A clean mouthpiece must be used for each sample attempt.

The instrument will analyze the first sample, purge, and conduct a blank test. It then will display a clock indicating the amount of time remaining before obtaining the second sample. There will be a minimum of two minutes between the two samples.

When prompted again to "Please Blow," follow the previous instructions for obtaining a sample. **Use a clean mouthpiece for each sample.** If the subject refuses to provide the second sample, press "R" for refused. Two completed samples are required for a completed test.

After analyzing the second sample, the instrument takes the two sample results and reports the lower of the two samples as the alcohol result, as long as the two samples are within .020 of each other. If the samples are greater than .020 of each other, the instrument will show "**Results not Within .020 Re-Test,**" and abort the test, and a new test sequence may immediately be initiated.

When the test sequence is completed, the instrument will display "Database Update: Success" to show that the test record has been saved to the instrument's database.

After the test is completed, the printer will produce three copies of the test record. There will be three places requiring signatures at the bottom of the test record:

1. **Operator Signature:** Requires the instrument operators signature.
2. **Observed By:** Requires the signature of the person who conducted the 20 minute observation.
3. **Rights Given By:** Requires the signature of the person who advised the subject of the Implied Consent Rights

After completing the test, the test must be logged in the logbook. **The test number will be listed in the header of the ticket and should be logged exactly as it appears on the ticket.** This allows for producing a copy of the test record at a later date if needed.

The "**Final Result**" and "**Final Result Time**" found at the bottom of the test record should be logged for the time of test and test result. If the record does not indicate "SUCCESS" then the Final Result will be N/A and should be logged as the result in the log book. Note: If the Instrument produces a record, it must be logged in the book. What ever the record states something other than "Success" ie. Test Refused, Invalid Sample, Insufficient Sample etc. Log that in the "Remarks" column in the log book.

Good Test Example

Intox EC/IR-II: Subject Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010700 Test Number: 862

Test Date: 06/20/2011

Operator's Name: Doe, John B

Operator's Certification No.: 00099

Place of Employment: ADH

Date Observation Began: 06/20/2011

Time Observation Began: 13:00

Traffic Related: Yes

Subject's Name: SMITH, SALLY R

Subject's Date of Birth: 06/10/1960

Driver's License Number: 957013856

State of Issuance: AR

Subject Involvement: Driver

Date of Incident: 06/20/2011

Time of Incident: 12:00

County Occurred: JEFF

Accident: No

Injury Involved: N/A

Fatality Involved: N/A

Requested By: Law

Dry Gas Target: .098

Lot Number: AG113901 Exp Date: 05/19/2013

Tank Pressure: 61 psi

Test	g/210L	Time
DIAG	Pass	13:32
BLK	.000	13:33
STD	.100	13:34
BLK	.000	13:35
SUBJ	.074	13:36
BLK	.000	13:37
SUBJ	.074	13:39
BLK	.000	13:40

Smpl #	Durn (sec)	Vol (cc)	Time
1	6.36	2035	13:36
2	5.65	1690	13:39

Success

Final Result Time: 13:39 CDT

Final Result: .074

Operator Signature

John B Doe

Observed By:

John B Doe

Rights Read By:

John B Doe

Results Not Within .020

Intox EC/IR-II: Subject Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010700 Test Number: 859

Test Date: 06/20/2011

Operator's Name: Doe, John B

Operator's Certification No.: 00099

Place of Employment: ADH

Date Observation Began: 06/20/2011

Time Observation Began: 11:20

Traffic Related: Yes

Subject's Name: SMITH, SALLY R

Subject's Date of Birth: 06/10/1960

Driver's License Number: 957013856

State of Issuance: AR

Subject Involvement: Driver

Date of Incident: 06/20/2011

Time of Incident: 11:50

County Occurred: JEFF

Accident: No

Injury Involved: N/A

Fatality Involved: N/A

Requested By: Law

Dry Gas Target: .098

Lot Number: AG113901 Exp Date: 05/19/2013

Tank Pressure: 71 psi

Test	g/210L	Time
DIAG	Pass	12:52
BLK	.000	12:53
STD	.100	12:53
BLK	.000	12:54
SUBJ	.078	12:56
BLK	.000	12:57
SUBJ	.039	12:59
BLK	.000	13:00

Smpl #	Durn (sec)	Vol (cc)	Time
1	4.97	1832	12:56
2	5.28	1746	12:59

Results Not Within .020 - Retest

Final Result Time: 13:00 CDT

Final Result: N/A

Operator Signature

John B Doe

Observed By:

John B Doe

Rights Read By:

John B Doe

Test Refused

Intox EC/IR-II: Subject Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010700 Test Number: 858
 Test Date: 06/20/2011
 Operator's Name: Doe, John B
 Operator's Certification No.: 00099
 Place of Employment: ADH
 Date Observation Began: 06/20/2011
 Time Observation Began: 12:10
 Traffic Related: Yes
 Subject's Name: SMITH, SALLY R
 Subject's Date of Birth: 06/10/1960
 Driver's License Number: 957013856
 State of Issuance: AR
 Subject Involvement: Driver
 Date of Incident: 06/20/2011
 Time of Incident: 11:40
 County Occurred: JEFF
 Accident: No
 Injury Involved: N/A
 Fatality Involved: N/A
 Requested By: Law
 Dry Gas Target: .098
 Lot Number: AG113901 Exp Date: 05/19/2013
 Tank Pressure: 75 psi

Test	g/210L	Time
DIAG	Pass	12:43
BLK	.000	12:43
STD	.101	12:44
BLK	.000	12:45
SUBJ	***	12:45

Test refused

Final Result Time: 12:46 CDT
Final Result: N/A

Operator Signature

John B Doe

Observed By:

John B Doe

Rights Read By:

John B Doe

Subject Blew First Sample Then Refused Second Sample

Intox EC/IR-II: Subject Test

Installation Certificate Number: 001

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010690 Test Number: 156
 Test Date: 07/02/2009
 Operator's Name: Administrator, Adam A
 Operator's Certification No.: POLLYWOG
 Place of Employment: ADH
 Observation Began: 13:00
 Traffic Related: Yes
 Juvenile: No
 Subject's Name: SAMPLE, HARVEY
 Subject's Date of Birth: 01/15/1948
 Driver's License Number: 999041683
 State of Issuance: AR
 Subject Involvement: Driver
 Date of Incident: 07/02/2009
 Time of Incident: 12:00
 County Occurred: JEFF
 Accident: No
 Injury Involved: N/A
 Fatality Involved: N/A
 Requested By: Law
 Dry Gas Target: .099
 Lot Number: AG802101 Exp Date: 01/20/2010
 Tank Pressure: 811 psi

Test	g/210L	Time
DIAG	Pass	13:59
BLK	.000	14:00
STD	.092	14:01
BLK	.000	14:01
SUBJ	.169	14:02
BLK	.000	14:03
SUBJ	***	14:04

Smpl #	Durn (sec)	Vol (cc)	Time
1	3.65	1676	14:02

Test refused

Final Result Time: 14:05 CDT
 Final Result: N/A

Do NOT log result of first sample!

Operator Signature

John B Doe

Observed By:

John B Doe

Rights Read By:

John B Doe

Practice Tests and Demonstrations

It is recommended, in order to maintain proficiency with the instrument, that operators periodically perform a practice test if not testing regularly. Also, should it become necessary, it is permissible to perform a demonstration test on the instrument (i.e., judges, prosecutors, etc.).

To perform a demonstration or practice test, initiate a subject test as normal.

When prompted to swipe the driver's license, press ENTER.

When prompted for "Last Name" type the word TEST. Press ENTER.

When prompted for "First Name" type the word TEST. Press ENTER.

Press ENTER to skip "Middle Initial."

Press ENTER to skip "Driver's License", "State of Issuance", and "Date of Birth".

Enter other information as necessary.

Upon completion, make the appropriate log entry, using the word TEST for the subject's name, and note in the Remarks column that it was a practice or demonstration test.

File a copy of the ticket.

COPY

An operator may produce a copy of the last test performed on the instrument by pressing "P" on the keyboard, then pressing the space bar. When producing a copy, it is not to be entered in the logbook. Senior Operators may obtain a copy of any test in the database, using the CTRL-F5 function

Proficiency Tests

Proficiency samples and testing are a means by which the Office of Alcohol Testing can monitor the accuracy of the breath testing instrument. The schedule for proficiency testing will be set by OAT. The proficiency test result must meet the standard of accuracy of +/- .01. The proficiency sample should be received each month by the 5th of the month. The sample should be tested and the results submitted by the 15th of the month. If the sample results are not received by the 15th, the instrument may be placed out of service until the Office of Alcohol Testing is contacted. Only Senior Operators may perform the proficiency test.

When a proficiency sample is received from the Office of Alcohol Testing, the Senior Operator should check in the box for the proficiency test form and the solution. The sample number will be indicated on the form and on the bottle. The solution should be allowed to come to room temperature and then poured into the simulator. Check the simulator for a good seal, then turn it ON, and allow the solution to come to operating temperature. The sample should be allowed to warm for at least 45 minutes.

The proficiency sample will be analyzed twice as part of the same test procedure. The automatic test procedure will be the same as for a subject test.

- To initiate the proficiency test the Senior Operator should press F-11.
- After pressing F-11, the Senior Operator will be prompted to swipe their operator card and enter their PIN. Enter the PIN and press ENTER.
- The instrument will then display "Sample Number". Enter the proficiency test sample number found on the proficiency test form and on the bottle. Press ENTER.
- The instrument will then display "Press Space to Begin" or ENTER to verify. Review all data at least once, making any corrections necessary. When satisfied with the entered data, and returning to this prompt, press the space bar to begin the test. The test sequence will follow the same format as a subject test.
- **When the instrument displays Please Blow (NOT BEFORE!),** connect the breath tube to the front port (Vapor Out) of the simulator. Check connections carefully to avoid pulling solution into the instrument. Place a small length (approx. three inches) of hose to the top port (Pump In) of the simulator and place a mouthpiece into this hose. Blow through the simulator with adequate pressure and volume to satisfy the requirements of the instrument. See next page for hook-ups of different style simulators.



Guth 34-C



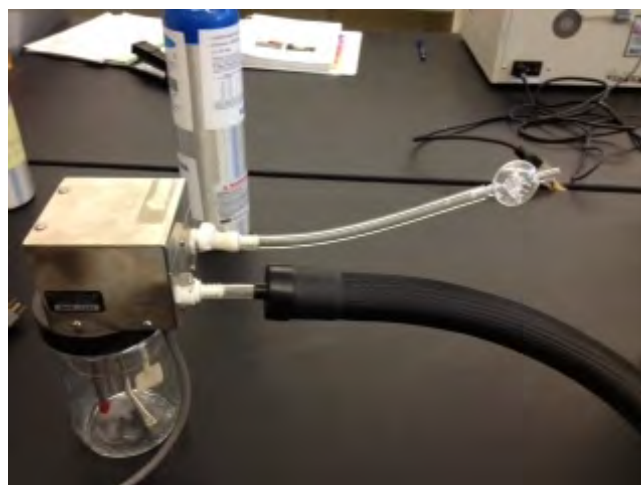
Guth 10-4D



Guth 12V500



RepCo 3402C



RepCo 3402C

As soon as the instrument has accepted the sample, ***Immediately*** remove the breath tube from the simulator. Again, the instrument will follow the same sequence as a subject test.

When prompted to Please Blow the second time, follow the same procedure as on the first sample.

Once the results are printed, log the test in the logbook using red ink use the Final Result and Time for the log entry and record the sample ID number in the remarks section. Record the Final Result on the Proficiency Test reporting form, and email or fax the form and a copy of the Proficiency Test to Alcohol Testing so that it is received by the 15th of the month in order to maintain certification.

Once the sample has been analyzed, and the results verified, the solution may be disposed of, the simulator rinsed with distilled water and dried, and stored until the next month.

If the solution is kept, the simulator should be left in the ON position. The plastic sample bottles should be retained and given to Office of Alcohol Testing personnel at the next inspection. Copies of the test results should be filed and maintained in a retrievable manner. Test results should be recorded in red ink in the logbook.

Turn the simulator off and separate the simulator head from the jar.

Dump out the old solution.

Fill the jar to the water mark (500ml) with water.

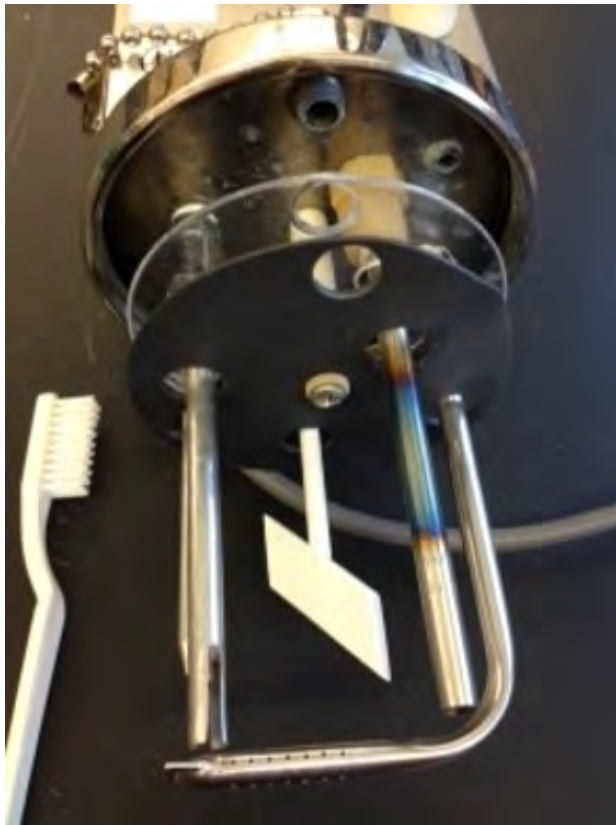
Put one teaspoon of bleach into the water.

Place head back onto jar, turn on and let simulator run for no more than one hour.



DO NOT forget and leave the simulator running longer than one hour with bleach water. This will ruin the simulator and cause you to have to purchase another one. Around \$1200.00 new.

Pour bleach water out of jar scrub all parts with a soft toothbrush. If needed you can use a needle to poke through the holes in the "L" arm of the simulator head.



Rinse the head thoroughly with tap water and do a final rinse with distilled water. Dry both the jar and the simulator head and store separately to avoid mildew.

Copy to be sent with form to OAT

Intox EC/IR-II: Proficiency Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010700 Test Number: 863

Test Date: 06/20/2011

Sample ID: .04A

Operator's Name: Doe, John B

Operator's Certification No.: 00099

Place of Employment: ADH

Dry Gas Target: .098

Lot Number: AG113901 Exp Date: 05/19/2013

Tank Pressure: 56 psi

Log in "Remarks" section of logbook

Test	g/210L	Time
DIAG	Pass	13:48
BLK	.000	13:49
STD	.100	13:50
BLK	.000	13:51
SUBJ	.039	13:52
BLK	.000	13:53
SUBJ	.039	13:55
BLK	.000	13:55

Smpl #	Durn (sec)	Vol (cc)	Time
1	5.47	1838	13:52
2	7.27	2159	13:55

Success

Final Result Time: 13:55 CDT

Final Result: .039

Operator Signature

John B. Doe

Supervisor Tests

A Senior Operator must perform a supervisor test to verify the value of the dry gas standard (external standard) and the operation of the instrument. You may run as many supervisor tests during the month as you need; HOWEVER, a supervisor test MUST be done every 31 days. The supervisor test may be run by any Senior Operator. If a supervisor test is not run within the 31 days, the instrument will disable itself until the test is run.

To initiate a supervisor test, press the F-3 key on the top of the keyboard. The instrument will instruct to swipe your operator card. Only a Senior Operator card will allow access. After swiping the card, enter the PIN number and press ENTER.

Operator information will be imported to the instrument from the operator card. Press ENTER to navigate through each field.

- The instrument will then display “Press Space to Begin/Enter to Verify.” If all information has been entered properly, press “Space” to begin the test.

The instrument will perform a diagnostic test to ensure that everything is working properly. Upon successful completion of the diagnostic test, the instrument will analyze the dry gas standard three times. The instrument will conduct a purge and blank test after each sample. After analyzing the three samples, the instrument will print out the test results. The instrument averages the three samples and compares the result against the standard concentration.

The information printed at the bottom of the evidence ticket includes:

- N is the number of external standard tests;
- CYL is the standard concentration;
- AVG is the arithmetic mean of the values obtained from those tests;
- S.D. is standard deviation, the root mean square of the deviations of the values from the mean; and
- S.E., systematic error, is the difference between the known ethyl alcohol value and the mean expressed as a percent of the known value.

When making the corresponding log entry, the average “AVG” should be entered for the test result, entering all three digits to the right of the decimal. In the “Remarks” column note the dry gas target. (see sample log sheet in back of manual)

Intox EC/IR-II: Supervisor Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OAT

Serial Number: 010700 Test Number: 861

Test Date: 06/20/2011

Operator's Name: Doe, John B

Operator's Certification No.: 00099

Place of Employment: ADH

Dry Gas Target: .098

Lot Number: AGL13901 Exp Date: 05/19/2013

Tank Pressure: 66 psi

Log in "Remarks" column of logbook

Test	g/210L	Time
DIAG	Pass	13:10
BLK	.000	13:10
STD	.100	13:11
BLK	.000	13:13
STD	.100	13:13
BLK	.000	13:15
STD	.100	13:15
BLK	.000	13:16

Success

N = 3

CYL = .098 g/210L

AVG = .100 g/210L

S.D. = -.0000 g/210L

S.E. = 2.04%

Log in "Results" column of logbook along with the letters "AVG".

Operator Signature

John B Doe

Diagnostic Test

The instrument automatically performs a diagnostic test of all operating components with every test run. This will be noted on the test record as "DIAG" followed by "PASS" or "FAIL." The instrument does baseline testing of the components, checks temperatures of the components, and the blank air. These checks will be indicated on the print out with PASS or FAIL. Should the instrument indicate a FAIL, the instrument will abort the test. If at any time a "FAIL" occurs, an independent diagnostic test should be performed.

To perform an independent diagnostic test, the Senior Operator should press Control F-11 to initiate.

After pressing Control F-11, the instrument will prompt to swipe the operator card, enter the PIN, the place of employment, and then will begin the test.

When conducting the independent diagnostic test, each item will be listed on the printout followed by "PASS" or "FAIL". Refer to page 4-27.

The diagnostic test should be entered in red ink in the logbook, logging the test number from the top of the ticket, and using the test time indicated in the header of the ticket.

Diagnostic Test Abbreviations

When a diagnostic test is run on the EC/IR II, the ticket will indicate the components tested by abbreviated these components on the test record as follows:

Baseline Tests

IR=Infrared system

FLO=Flow Sensor

FC=Fuel Cell

Temperature Tests

BA=Board Ambient

BR=Barometer

DT=IR Detector

SC=IR Source

BT=Breath Tube

F1=Fuel Cell (1, there is no FC2)

S2=Standard 2 (Wet sim line)

Blank Test

AIR=Air blank

Printer Status

PRNT=default printer, on, on line, no errors

CRC Tests (Cyclic Redundancy Check)

COMP=Complete CRC

CAL=Calibration CRC

Printer diagnostics should be the full alphabet, lower and upper case, and numerals 0-9.

DIAGNOSTIC TEST

Intox EC/IR-II: Diagnostic Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH
OATSerial Number: 010698 Test Number: 1665
Test Date: 08/10/2011 Test Time: 13:07 CDT
Operator's Name: Doe, John B
Operator's Certification No.: 00099
Place of Employment: ADH
System Check: Passed

Baseline Tests

Test	Status	Time
IR	Pass	13:08
FLO	Pass	13:08
FC	Pass	13:08

Temperature Tests

Test	Status	Time
BA	Pass	13:08
BR	Pass	13:08
DT	Pass	13:08
SC	Pass	13:08
BT	Pass	13:08
F1	Pass	13:08
S2	Pass	13:08

Blank Tests

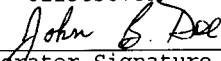
Test	Status	Time
BLK	Pass	13:09

Printer Tests

Test	Status	Time
PRNT	Pass	13:09

CRC Tests

Test	Status	Time
COMP	Pass	13:09
CAL	Pass	13:09

SuccessPrinter Diagnostics:
abcdefghijklmnop
nopqrstuvwxyz
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
0123456789
Operator Signature

Purge Sample Chamber

If the instrument is possibly exposed to something in the ambient (surrounding) air it may be necessary to purge the sample chamber.

To purge, simply press "F" on the keyboard. The display will ask "Purge Sample Chamber (Y/N)." Answer Y for yes and the instrument will begin purging. Press the "ESC" button to end the cycle. The instrument will display "Press ESC to Exit." Press "ESC" again to exit.

Other Functions

The EC/IR II will allow you to print a menu of commands available. To do this, simply press the F-1 key, swipe your card, and enter your PIN number. The available menu for the operator's level of certification will be printed. For Senior Operators, the list may include:

- 1) **F1** Print Command List
- 2) **F3** Supervisor Test
- 3) **F5** Print Test
- 4) **F8** Date and Time Set Up
- 5) **F9** General Setup
- 6) **F11** Proficiency Test
- 7) **Shft F1** Passcode Information
- 8) **Shft F2** Print Software Version
- 9) **Shft F3** Test Menu
- 10) **Shft F5** Print Test Summaries
- 11) **Ctrl F1** View Software Version
- 12) **Ctrl F2** View Firmware Version
- 13) **Ctrl F5** Browse and Print Test
- 14) **Ctrl F11** Diagnostic Test
- 15) **Ctrl F12** Subject Test
- 16) **Ctrl P** Print Device
- 17) **Ctrl Q** Shutdown EC/IR - II
- 18) **Alt P** View Tank Pressure
- 19) **"D"** Display Last Test
- 20) **"F"** Purge Sample Chamber
- 21) **"P"** Print Last Test
- 22) **ENTER** Run Subject Test

F1 - Print Command List

Prints a list of those menu items/functions available for that operator's level of certification. This can be printed at any time.

F3 - Supervisor Test

Allows for the conducting of the supervisor test as described earlier.

F5 - Print Test

Allows a Senior Operator to print a copy of a previous test. The Senior Operator must have the test number from the earlier test in order to perform this function. In the event of a printer malfunction, this will allow the instrument to be used and test records printed later. To obtain the test record, press "F5" then swipe the card and enter the PIN. Press return. Enter the test number of the test to be printed, then press "ENTER". The test record will then be produced.

F8 -Date/Time Set-up

The instrument is to be connected to an uninterrupted power source at all times and has a battery back-up system. The date and time are updated periodically by the Office of Alcohol Testing during polling. However, should it become necessary, a Senior Operator may use this function to manually re-set the date and time on the instrument. Press F8 and swipe the operator card and enter the PIN.

Date/Time Setup: will appear showing "Current Date." Press the "Down" arrow and the date will be displayed. Press the "Down" arrow again and the date will be highlighted, allowing for the date to be changed if necessary. Enter the correct date, using **MM/DD/YYYY**, and press enter.

To advance, press the "Right" arrow and "Current Time" will be displayed. Press the "Down" arrow and the time will be highlighted. Using military time, enter the correct time and press "Enter". Next, hit the "ESC" key three times to exit setup.

F-9 – Print Device

This allows the Senior Operator to change the printer selection from External to Internal. To do this, press F9, and "Print Device" will be displayed. Use the "DOWN" arrow key, and the selected print device, external or internal, will be displayed. Use the space bar to change the print device. When the desired device is displayed, press "ENTER" and wait on the screen to change. Next, press "ESC" to exit and return to the main screen. Make certain that the "ON LINE" light is illuminated. If not, press the "LINE/LOCAL" button on the printer.

F11 – Proficiency Test

Press F11 to initiate the proficiency test as described earlier.

Shift- F3 – Test Menu**Ctrl F5 – Browse and Print Test**

Allows the Senior Operator to browse through tests run and to print test records of those tests. After pressing Ctrl and F5, find the test you wish to produce using the scrolling (arrow keys) keys. After finding the particular test, press “ENTER” and the test record will be produced.

Ctrl F11 – Diagnostic Test

Allows you to run a diagnostic test.

Ctrl P- Print Device

This allows the Operator to change the printer selection from External to Internal. To do this, press F9, and “Print Device” will be displayed. Use the “DOWN” arrow key, and the selected print device, external or internal, will be displayed. Use the space bar to change the print device. When the desired device is displayed, press “ENTER” and wait on the screen to change. Next, press “ESC” to exit and return to the main screen. Make certain that the “ON LINE” light is illuminated. If not, press the “LINE/ LOCAL” button on the printer.

Ctrl Q – Shutdown EC/IR-II

This function allows for a “soft” shutdown of the instrument, eliminating any potential software conflict.

Alt P – View Tank Pressure

Allows you to view the remaining dry gas standard tank pressure. The remaining pressure will also be displayed on all test records.

“D” – Display Last Test

Will display the last test results on the display screen.

“F” – Purge Cycle

Allows Senior Operators to purge the sample chamber as described earlier. Press “ESC” to exit.

“P” – Print Last Test

Allows Operators and Senior Operators to make a copy of the last test run on the instrument. After pressing “P,” the instrument will prompt the operator to press the space bar and the test record will print. Only one copy at a time will be produced using this method.

STATUS MESSAGES DISPLAYED BY THE INTOXIMETER EC/IR II

MESSAGES DISPLAYED ON A DIAGNOSTIC TEST

Only a Senior Operator level card will allow access to perform an independent diagnostic test. As listed previously, diagnostic tests are run with all tests. On subject, proficiency, and supervisor tests, this will be indicated on the ticket as "DIAG." If any item on the test is not within operating limits, the word "Fail" will appear beside "DIAG" and the test will be aborted. After performing a second test, if the "Fail" is repeated, contact the Office of Alcohol Testing Laboratory.

When an independent diagnostic test is performed, each component and test will be listed separately, followed by "PASS" or "FAIL." If any item indicates a "FAIL," conduct another diagnostic test. If repeated, contact the Alcohol Testing Laboratory.

MESSAGES DISPLAYED ON SUBJECT, PROFICIENCY, OR SUPERVISOR TESTS

The Intoximeter EC/IR II will invalidate a printed record of the test when all conditions are not completely acceptable. The instrument does this by aborting the test in progress, displaying a message on the LCD display, and printing the message on the test record. The instrument is following proper operating procedure when it does this. There are specific status messages that can be displayed on a subject test, proficiency test, or supervisor test.

Anytime the test is aborted, any alcohol results shown on the ticket may not be used and the subject must be re-tested.

INSUFFICIENT SAMPLE

When obtaining a subject sample, the EC/IR II displays two bar graphs on the display. The bottom indicates the volume of the sample, and the top indicates the flow/pressure. If there is a drop in pressure or the subject stops blowing before the sample volume is met, the instrument will stop the sample attempt and display "Insufficient Sample". The instrument will the purge and return to "Please Blow" for another attempt. If an insufficient sample is obtained three times in succession, the instrument will display "Insufficient Sample Test Aborted" and print the test record which must be entered in the logbook. Each sample attempt will be shown on the test record indicating the duration and volume each attempt. This along with the operators observations can be used to demonstrate whether the subject is making a valid attempt to complete the test, or is refusing to comply with the given instructions.

The subject can then be retested on the Intoximeter or offered another type of test (ie. Urine or Blood), or appropriately charged.

Insufficient Sample

Intox EC/IR-II: Subject Test

Installation Certificate Number:

State of Arkansas
AR DEPT OF HEALTH

OAT
Serial Number: 010700 Test Number: 860
Test Date: 06/20/2011
Operator's Name: Doe, John B
Operator's Certification No.: 00099
Place of Employment: ADH
Date Observation Began: 06/20/2011
Time Observation Began: 12:30
Traffic Related: Yes
Subject's Name: SMITH, SALLY R
Subject's Date of Birth: 06/10/1960
Driver's License Number: 957013856
State of Issuance: AR
Subject Involvement: Driver
Date of Incident: 06/20/2011
Time of Incident: 12:00
County Occurred: JEFF
Accident: No
Injury Involved: N/A
Fatality Involved: N/A
Requested By: Law
Dry Gas Target: .098
Lot Number: AG113901 Exp Date: 05/19/2013
Tank Pressure: 71 psi

Test	g/210L	Time
DIAG	Pass	13:04
BLK	.000	13:04
STD	.100	13:05
BLK	.000	13:06
SUBJ	.***	13:08

Smpl #	Durn (sec)	Vol (cc)	Time
1	0.87	375	13:07
2	1.47	580	13:08
3	2.48	987	13:08

Insufficient sample

Final Result Time: 13:09 CDT

Final Result: N/A

Operator Signature

John B Doe

Observed By

John B Doe

Rights Read By:

John B Doe

DISPLAY	CAUSE	ACTION
Result Not Within. 020 – Retest	Sample results outside of .020, and the results are invalid.	Retest the individual.
High Blank Check Ambient	Instrument is detecting unsatisfactory ambient conditions.	Check for causes such as used mouthpiece on breath tube, cleaning solutions present, strong odor of intoxicants on subject, paint fumes, etc. and remove if possible. Purge "F" then retest.
I.R. Source Fail		Retest, if repeated contact OAT Lab.
Invalid Sample	May indicate mouth alcohol	Wait 20 minutes then retest.
Result over Range	The subject has registered in excess of .440	Seek medical treatment.
Breath Timeout	Time limit has been exceeded. (3 minutes)	Retest
Check ambient Conditions	Breath sample provided too early or unacceptable ambient conditions	Attempt retest, following prompts.
Standard out of Range	The external standard check has measured outside of the +.003 through - .007 range of the target value.	Contact OAT Lab if repeated.
Insufficient Sample	The subject either provided insufficient pressure or insufficient volume to satisfy the sampling requirements of the instrument	Up to operator to retest or charge accordingly.
RFI	Radio Frequency Interference was detected	Retest and contact OAT lab
Diagnostic Test Failed	Failure condition detected during system diagnostic test	Contact OAT Lab if repeated.
Dry Gas Tank Expired	Dry Gas Standard has reached expiration date	Contact OAT Lab

Breath at Improper Time	Air flow detected during any portion of test other than "Please Blow"	Retest
Exceeds Maximum Flow	Too much pressure from suspect sample.	Retest
Deficient Sample	In the 3 minutes allotted to provide a sample, regardless of the number of attempts, no sample was provided which met the minimum volume, AND when prompted to respond to "Refusal? Y/N" the operator selected "N" for NO	Retest, offer alternative test, or charge accordingly.
Dry Gas Tank Empty	Tank pressure is below 50 psi	Contact OAT Lab
Dry Gas Pressure Low	Tank pressure is below 100 psi	Contact OAT Lab
Dry Gas Std Malfunction	An error has occurred with the dry gas standard	Contact OAT Lab
Printer not Ready	Check to make sure printer has power and is on line	
Flow in IR System		Contact OAT Lab
Flow Baseline Error		Contact OAT Lab
I.R. Source	I/R source malfunction	Contact OAT Lab.
Ethanol Baseline Error		Retest/Contact OAT Lab if repeated
CO2 Baseline Error		Retest/Contact OAT Lab if repeated
Sample Solenoid Error		Contact OAT Lab
Calibration Error		Contact OAT Lab
Set Solenoid Error		Contact OAT Lab
IR Delta too High		Contact OAT Lab

SAMPLE LOG SHEET

COL.1	COL.2	COL.3	COL.4	COL.5	COL.6	COL.7
TEST NO.	DATE	SUBJECT NAME (L/F/MI)	TIME OF TEST	BREATH RESULTS g/210 L	PRINT NAME AND NUMBER OF OPERATOR/ARRESTING OFFICER	CHARGE/REMARKS
2698	8/28/12	Sample, Harvey O.	16:27	.16	Ken Doit / 104	DWI
2699	8/29/12	Thyme, Justin R.	22:08	N/A	Reah Pete 111 / A. Gann 321	INVALID SAMPLE
2700	8/29/12	Thyme, Justin R.	22:30	.06	Reah Pete 111 / A. Gann 321	DWI / CDL driver
2701	8/31/12	Proficiency Test	08:45	.18	U. C. Howe 103	Sample # .18A
2702	8/31/12	Supervisor Test	09:30	AVG .099	U. C. Howe 103	Target value .101
2703	8/31/12	Diagnostic Check	09:41	PASS	U. C. Howe 103	
2704	9/5/12	Dover, Ben	18:56	.32	Ware 122 / Green 327	DWI
2706	9/17/12	Amuck, Ron	18:20	.18	NA Hurry 211 / IM Green 327	DWI
2707	9/17/12	Amuck, Ron	18:27	.17	NA Hurry 211 / IM Green 327	Subject requested
2708	9/19/12	Smaht, Natu	19:24 19:22	N/A	Brett Aliser 1387	DWI / Refused

Corrections are made by drawing a single line through the mistake, make the correction and initial. **DO NOT** scribble out, heavy write over, or use whiteout. Do not skip lines for missing test numbers.