



## Illinois State Police

### 16 Hour Breath Alcohol Operators Course

Introduction, Disc  
and Folder contents



# Course Qualifications

- 2 days/16 hours
- 70% passing grade (written test)
- Certification on ALL instruments
- Complete 50 Subject Tests and 50 Operator Tests
- Must complete all Lab exercises
- Can not miss more than 10% of class
- No BrAC in class

# Breath Analysis Licensing

- A license shall be valid for a period of 3 years after the printed date of issuance. If the license is not renewed as provided for in Section 1286.110, it shall expire 3 years after the printed date of issuance.
- There is a 1 year grace period after the 3 year expiration date. The operator **MAY** **NOT** perform evidential tests during this 1 year grace period.

# Licensing continued:

- The B.A.O. may renew their license prior to the 3 year expiration period or during the 1 year grace period by means of:
  - 1. An Instructor led B.A.O. renewal course
  - or
  - 2. The computer based B.A.O. training course
- Upon completion of the 4<sup>th</sup> year without renewal the B.A.O. must attend the full 16 hour training course to renew their license.

# Breath Testing Instruments



# Power Points

- Intro
- Instrument Theory  
Pharmacology & Physiology
- RBT IV
- EC/IR & EC/IR II
- Intoxilyzer 8000
- ASV XL P.O.A.
- Legal
- PBT-E Certification
- Helpful Websites

# Forms in Folder

- Notes page
- Retrieval of Records from EC/IR's
- RBT IV Void Codes
- B.A.O. Lab Worksheet
- 16 Hour B.A.O. Course Evaluation

# PDF Files

- **Testing of Breath, Blood and Urine for Alcohol, other Drugs, and Intoxicating Compounds**  
**20 Illinois Administrative Code 1286**  
**Revised 2015 IVC ILCS 5/11-501.2**

# The Legal Environment



# Objectives

- **Identify the six criminal DUI statutes.**
- **Discuss the provisions of the implied consent law.**
- **Discuss the Statutory Summary Suspension.**
- **Discuss the types of chemical tests.**
- **List the elements required for emergency room reporting, and non-consensual blood draw.**

# Key Points and Terms

- Per Se (IL Law)
- Blood Conversion
- Presumptive Level
- Implied Consent
- B.A.C. – Br.A.C. – U.A.C.
- First Time Offender –vs- 2<sup>nd</sup> Time etc.
- B.A.I.I.D.
- Zero Tolerance

# **DUI Statute**

**625 ILCS 5 / 11-501**

**Driving while under the  
influence of alcohol  
other drug or drugs  
intoxicating compound  
or compounds  
or any combination  
thereof**

**(a) A person shall not drive  
or be in actual physical  
control  
of any vehicle  
within this State while:**

- Remember that is public or private property

# **(2) under the influence of alcohol**



**1) 11-501a1**  
**Alcohol over .08**

**The alcohol concentration in a person's blood or breath is 0.08 or more; Illinois Per Se Law.**

**(This is a secondary ticket after the results of the chemical test are received)**

**2) 11-501a2**  
**Basic alcohol**

**Under the influence of alcohol;**

**3) 11-501a3**

**Under the influence of an intoxicating compound or combination of intoxicating compounds to a degree which renders the person incapable of driving safely;**

**4) 11-501a4**

**Under the influence of any other drug or combination of drugs to a degree that renders the person incapable of safely driving;**

## 5) 11-501a5

**Alcohol and any  
amount of  
drugs**

**Under the combined  
influence of alcohol and  
any other drug or drugs, or  
intoxicating compound or  
compounds to a degree  
which renders the person  
incapable of safely driving;  
or**



## 6) 11-501a6

- (6) there is any amount of a drug, substance, or compound in the person's breath, blood, or urine resulting from the unlawful use or consumption of cannabis listed in the Cannabis Control Act, a controlled substance listed in the Illinois Controlled Substances Act, an intoxicating compound listed in the Use of Intoxicating Compounds Act, or methamphetamine as listed in the Methamphetamine Control and Community Protection Act. Subject to all other requirements and provisions under this Section, this paragraph (6) does not apply to the lawful consumption of cannabis by a qualifying patient licensed under the Compassionate Use of Medical Cannabis Pilot Program Act who is in possession of a valid registry card issued under that Act, unless that person is impaired by the use of cannabis.



# 11-501 (b)

- The fact that any person charged with violating this Section is or has been legally entitled to use alcohol, cannabis under the Compassionate Use of Medical Cannabis Pilot Program Act, other drug or drugs, or intoxicating compound or compounds, or any combination thereof, shall not constitute a defense against any charge of violating this Section.

# Encountering a D.U.I.

- **Traffic Stops (probable cause)**
- **Motorists Assists**
- **Crash Scenes**
- **Roadside Safety Check**
- **Well Being Checks**

# **Circumstantial Evidence of Operation for Actual Physical Control**

- **Ownership / Control / Injuries**
- **Location of bodies**
- **Observations of earlier driving**
- **Evidence of recent vehicle movement**
- **Footprints to or from vehicle**
- **Absence of other people / drivers**

# **Warning to Motorist**

- 1. Warned by requesting officer; or**
- 2. Refusal results in a statutory summary suspension.**
- 3. Statutory summary suspension for violation of: 11-501a1 through 11-501a6.**

**MOTORIST**

Case Number \_\_\_\_\_

DUI TRAFFIC CITATION NO. (11-501A1)

DUI TRAFFIC CITATION NO. (11-501A2)

DUI TRAFFIC CITATION NO. (OTHER)

**Subsequent to an arrest for driving while under the influence of alcohol, other drug(s) or intoxicating compound(s), or any combination thereof (DUI), you are hereby notified that:**

As provided in Section 11-500 of the Illinois Vehicle Code, you are a first offender unless within the last 5 years of this arrest for DUI you have had:

- A previous conviction or court-assigned supervision for DUI or a similar provision of a local ordinance; or
- A conviction in any other state for DUI or a similar offense where the cause of action is the same or substantially similar to the Illinois Vehicle Code; or
- Pursuant to a DUI arrest, an Illinois driver's license suspension/revocation for refusing to submit to or failing to complete all requested chemical tests, or for submitting to a chemical test(s) disclosing an alcohol concentration of .08 or more or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act, except in cases where you submitted to a chemical test(s) disclosing an alcohol concentration of .08 or more or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act, and were subsequently found not guilty of the associated DUI charge.

Considering the above, you are warned:

1. If you refuse or fail to complete all chemical tests requested and:
  - If you are a first offender, **your driving privileges will be suspended for a minimum of 12 months; or**
  - If you are not a first offender, **your driving privileges will be suspended for a minimum of 3 years; or**
  - If you were involved in a motor vehicle accident that caused personal injury or death to another, **your driving privileges will be revoked for a minimum of 12 months.** Personal injury means a Type A injury that requires immediate professional attention in a doctor's office or medical facility, including severely bleeding wounds, distorted extremities, and injuries that require the injured party to be carried from the scene.
2. If you submit to a chemical test(s) disclosing an alcohol concentration of .08 or more or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act, and:
  - If you are a first offender, **your driving privileges will be suspended for a minimum of 6 months; or**
  - If you are not a first offender, **your driving privileges will be suspended for a minimum of 1 year.**

You are further warned that if you are a Commercial Driver's License (CDL) holder, your CDL privileges will be disqualified for the following time period if you refuse to submit to or fail to complete all chemical tests requested, or submit to a chemical test(s) disclosing an alcohol concentration of .08 or more or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act:

- If you have not had a prior 12-month disqualification of your CDL privileges, **your CDL privileges will be disqualified for 12 months.**
- If you have had a prior 12-month disqualification of your CDL privileges, **your CDL privileges will be disqualified for life.**

**MOTORIST UNDER AGE 21**

You are further warned that as a motorist under age 21, if you submit to a chemical test(s) disclosing an alcohol concentration of more than .00 and less than .08, your driving privileges will be suspended as provided in Sections 6-208.2 and 11-501.8 of the Illinois Vehicle Code.

As provided in Section 6-208.2, you are a first offender unless you have had a previous suspension under Section 11-501.8 for refusing or failing to complete a chemical test(s) or for submitting to a chemical test(s) disclosing an alcohol concentration of more than .00.

- If you are a first offender, **your driving privileges will be suspended for a minimum of 3 months; or**
- If you are not a first offender, **your driving privileges will be suspended for a minimum of 1 year.**

**SCHOOL BUS DRIVER**

You are further warned that as a school bus driver operating a school bus in accordance with Section 6-106.1a of the Illinois Vehicle Code, if you submit to a chemical test(s) disclosing an alcohol concentration of more than .00, your privilege to possess a school bus driver permit will be cancelled for 3 years as provided under Sections 6-106.1a and 6-106.1b of the Illinois Vehicle Code.

Warning Issued To \_\_\_\_\_

Name of Motorist

Driver's License Number

Under penalties as provided by law pursuant to Section 1-109 of the Illinois Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct.

Signature of Arresting Officer

ID Number

Law Enforcement Agency

a.m.  
p.m.

Date of Warning

Time of Warning

POLICE OFFICER - SEND TO COURT OF VENUE

August 2011 - DSD DC 35.24

# 11-501.1 (a)

## Implied Consent

- Any person who drives or is in actual physical control of a motor vehicle upon the public highways of this State shall be deemed to have given consent, / to a chemical test or tests of blood, breath, or urine for the purpose of determining the content of alcohol, other drug or drugs, or intoxicating compound or compounds or any combination thereof / If a law enforcement officer has probable cause to believe the person was under the influence of alcohol, other drug or drugs, intoxicating compound or compounds, or any combination thereof, the law enforcement officer shall request a chemical test or tests which shall be administered at the direction of the arresting officer. The law enforcement agency employing the officer shall designate which of the aforesaid tests shall be administered. A urine test may be administered even after a blood or breath test or both has been administered.

# **Chemical Testing**

- **BREATH**
- **BLOOD**
- **URINE**

# **Illegal “Per Se” Statute**

**.08**

**Which means ( IN ITSELF )**

**Is it unlawful for any person to...**

- operate or be in actual physical control of...**
- any vehicle...**
- within this state...**
- while having a BAC at or above state’s level.**

# Legal Presumptions

**.08** or more...

**Presumed under the influence**

**Between .06 or .07**

**No Presumption, considered with other  
competent evidence**

**Between .00 and .05**

**presumed not under the influence**

# **Refusals**

**Persons incapable of refusal:**

**1. Dead;**

**2. Unconscious; or**

**3. Conditional**

## **Consequences of refusing to take a Breath, Blood, or Urine test 11-501.1(c)**

- A person requested to submit to a test
- Shall be warned by the officer requesting the test that a refusal will result in a the SSS of the person's privilege to operate a motor vehicle
- Also warned that if the person submits and the results show .080 or more
  - Any amount of drug, substance , or compound

Will result in SSS as provided in Sections 6-208.1

# 11-501.1 (b)(c)

## Dead, Unconscious, etc. and Warning to Motorist

(b) Any person who is dead, unconscious, or who is otherwise in a condition rendering the person incapable of refusal, shall be deemed not to have withdrawn the consent provided by paragraph (a) of this Section and the test or tests may be administered, subject to the provisions of Section 11-501.2

(c) A person requested to submit to a test as provided above shall be warned by the law enforcement officer requesting the test that a refusal to submit to the test will result in the statutory summary suspension of the person's privilege to operate a motor vehicle

# Blood Conversion

- Serum blood or blood plasma alcohol concentration result will be divided by 1.18 to obtain a whole blood equivalent. **We want the whole blood result.**
- Example conversion:
  - Serum blood result = .095 BAC
  - Whole blood equivalent =  $.095 / 1.18 = .080$  BAC

# Question



**Is it possible for a person whose BAC was below the state's per se or presumptive level to be convicted of DUI?**

# **“Personal Injury” defined**

- **includes any Type A injury as indicated on the traffic accident report completed by a law enforcement officer that requires immediate professional attention in either a doctor's office or a medical facility.**
- **A Type A injury includes severely bleeding wounds, distorted extremities, and injuries that require the injured party to be carried from the scene.**

# **Non-consensual Blood Draw**

- **Probable cause**
- **Cause the death or personal injury (Type A)**
- **To another**
- **Has been arrested for DUI**
- **This process is not dependant on any other warnings, refusal or chemical testing (it is a Stand Alone Retrieval of Evidence of the Crime)**
- **No Search Warrant Required**

Illinois State Police  
NON-CONSENSUAL BLOOD DRAW REQUEST



Pursuant to 625 ILCS 5/11-501.2(c)(2)

I \_\_\_\_\_, being a duly sworn police officer of the state of Illinois,  
Name of Officer I.D. Number

hereby request the assistance of \_\_\_\_\_  
Name of Person Drawing Blood

in the collection of a blood sample from \_\_\_\_\_  
Name of Driver D.O.B.

at \_\_\_\_\_  
Medical Facility

I further certify that probable cause exists to believe the driver named above has driven a motor vehicle or was in actual physical control of a vehicle while under the influence of alcohol, any other drug, or combination of both and has caused the death or personal injury\* to another.

\_\_\_\_\_  
Date and Time

\_\_\_\_\_  
Officer's Signature

\_\_\_\_\_  
Witness

\*Personal injury means any type "A" injury as indicated on a traffic crash report that requires immediate professional attention in either a doctor's office or a medical facility. A type "A" injury includes severe bleeding wounds, distorted extremities, and injuries that require the person to be carried from the scene.

**Non  
Consensual**

# 11-501.2 (c) 2

## Non consensual blood draw

- if a law enforcement officer has probable cause to believe that a motor vehicle driven by or in actual physical control of a person under the influence of alcohol, other drug or drugs, or intoxicating compound or compounds, or any combination thereof has caused the death or personal injury to another, *the law enforcement officer shall request, and that person shall submit*, upon the request of a law enforcement officer, to a chemical test or tests of his or her blood, breath or urine

## **11-501.4 (a) (1)** **regular course**

- (1) the chemical tests performed upon an individual's blood or urine were ordered in the regular course of providing emergency medical treatment and not at the request of law enforcement authorities;

# 11-501.4-1 (a)(b) shall disclose / no liability

(a) Notwithstanding any other provision of law, the results of blood or urine tests performed for the purpose of determining the content of alcohol, other drug or drugs, or intoxicating compound or compounds, or any combination thereof, in an individual's blood or urine conducted upon persons receiving medical treatment in a hospital emergency room for injuries resulting from a motor vehicle accident shall be disclosed to the Department of State Police or local law enforcement agencies of jurisdiction, upon request. Such blood or urine tests are admissible in evidence as a business record exception to the hearsay rule only in prosecutions for any violation of Section 11-501 of this Code or a similar provision of a local ordinance, or in prosecutions for reckless homicide brought under the Criminal Code of 1961 or the Criminal Code of 2012.

(b) The confidentiality provisions of law pertaining to medical records and medical treatment shall not be applicable with regard to tests performed upon an individual's blood or urine under the provisions of subsection (a) of this Section. No person shall be liable for civil damages or professional discipline as a result of the disclosure or reporting of the tests or the evidentiary use of an individual's blood or urine test results under this Section or Section 11-501.4 or as a result of that person's testimony made available under this Section or Section 11-501.4, except for willful or wanton misconduct.

# 11-501.6 (a)

## injury or fatality no arrest for DUI Traffic Crash Warning

(a) Any person who drives or is in actual control of a motor vehicle upon the public highways of this State and who has been involved in a personal injury or fatal motor vehicle accident, shall be deemed to have given consent to a breath test using a portable device as approved by the Department of State Police or to a chemical test or tests of blood, breath, or urine for the purpose of determining the content of alcohol, other drug or drugs, or intoxicating compound or compounds of such person's blood if arrested as evidenced by the issuance of a Uniform Traffic Ticket for any violation of the Illinois Vehicle Code or a similar provision of a local ordinance, with the exception of equipment violations contained in Chapter 12 of this Code, or similar provisions of local ordinances. The test or tests shall be administered at the direction of the arresting officer. The law enforcement agency employing the officer shall designate which of the aforesaid tests shall be administered. A urine test may be administered even after a blood or breath test or both has been administered. Compliance with this Section does not relieve such person from the requirements of Section 11-501.1 of this Code.

# Traffic Crash Warning

## TRAFFIC CRASH WARNING TO MOTORIST

TRAFFIC CITATION NO.

ACCIDENT REPORT NO.

DATE OF ACCIDENT

Subsequent to your involvement in a crash involving either Type A personal injury (which includes severely bleeding wounds, distorted extremities, and injuries that require the injured party to be carried from the scene) that requires immediate professional attention in either a doctor's office or a medical facility, or a fatality, as evidenced by the issuance of a uniform traffic ticket for any violation of the Illinois Vehicle Code or similar provisions of a local ordinance with the exception of equipment violations contained in Chapter 12 of this code or similar provisions of local ordinances and pursuant to Section 11-501.6 of the Illinois Vehicle Code, you are hereby notified and warned that:

As provided in Section 11-500 of the Illinois Vehicle Code, you are a first offender unless within the last 5 years of this arrest you have had:

- A previous conviction or court-assigned supervision for DUI or a similar provision of a local ordinance; or
- A conviction in any other state for DUI or a similar offense where the cause of action is the same or substantially similar to the Illinois Vehicle Code; or
- A driver's license suspension/revocation for violating Section 11-501.1 of the Illinois Vehicle Code, except in cases where you submitted to a chemical test(s) disclosing an alcohol concentration of .08 or more, or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act, and were subsequently found not guilty of Section 11-501 of the Illinois Vehicle Code or a similar provision of a local ordinance.

Considering the above, you are warned:

1. If you refuse to submit to or fail to complete all chemical tests requested and:
  - If you are a first offender, **your driving privileges will be suspended for a minimum of 12 months; or**
  - If you are not a first offender, **your driving privileges will be suspended for a minimum of 3 years.**
2. If you submit to a chemical test(s) disclosing an alcohol concentration of .08 or more, or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act, and:
  - If you are a first offender, **your driving privileges will be suspended for a minimum of 6 months; or**
  - If you are not a first offender, **your driving privileges will be suspended for a minimum of 1 year.**

You are further warned that if you are a Commercial Driver's License (CDL) holder, your CDL privileges will be disqualified for the following time period if you refuse to submit to or fail to complete all chemical tests requested, or submit to a chemical test(s) disclosing an alcohol concentration of .08 or more, or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act:

- If you have not had a prior 12-month disqualification of CDL privileges, **your CDL privileges will be disqualified for 12 months, or**
- If you have had a prior 12-month disqualification of CDL privileges, **your CDL privileges will be disqualified for life.**

Warning Issued To \_\_\_\_\_  
Name of Motorist Driver's License Number

Under penalties as provided by law pursuant to Section 1-109 of the Illinois Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct.

\_\_\_\_\_  
Signature of Arresting Officer ID Number

\_\_\_\_\_  
Law Enforcement Agency Address

\_\_\_\_\_  
Date of Warning Time of Warning

a.m.  
p.m.

# **Actions after receipt of test results**

## **A. If the BAC is less than 0.08**

- 1. Do not complete sworn report;  
and**
- 2. Maintain all evidence for court.**

## **B. If the BAC is 0.08 or more, or the results confirm drugs:**

- 1. Issue additional citation for 11-501a1, and/ or 11-501a6.**
- 2. Complete the sworn report.**

# LAW ENFORCEMENT SWORN REPORT

Circuit Court, \_\_\_\_\_ County, \_\_\_\_\_ Municipal District

Case Number \_\_\_\_\_

DUI TRAFFIC CITATION NO. (11-501A1)

DUI TRAFFIC CITATION NO. (11-501A2)

DUI TRAFFIC CITATION NO. (OTHER)

Name \_\_\_\_\_  
Last
First
Middle

**CDL holder**

Driver's License Number												State	

Accident involving personal injury or death to another

Street Address \_\_\_\_\_

City and/or County of Arrest \_\_\_\_\_

City & State \_\_\_\_\_

Arrest Date \_\_\_\_\_ a.m.  
 \_\_\_\_\_ p.m.  
Month
Day
Year
Time

Sex \_\_\_\_\_ Date of Birth \_\_\_\_\_  
 Notice of Summary Suspension/Revocation Given On \_\_\_\_\_  
Month
Day
Year

Place of Refusal or Location of Test(s) \_\_\_\_\_

Refusal or Test Date \_\_\_\_\_ a.m.  
 \_\_\_\_\_ p.m.  
Month
Day
Year
Time

**The suspension/revocation shall take effect on the 46th day following issuance of this notice. Subsequent to an arrest for violating Section 11-501 of the Illinois Vehicle Code, or similar provision of a local ordinance, you are hereby notified that on the date shown above, you were asked to submit to a chemical test(s) to determine the alcohol, other drug(s), intoxicating compound(s), or any combination thereof, content of your breath, blood, or urine and warned of the consequences pursuant to Section 11-501.1 of the Illinois Vehicle Code. You have the right to a hearing to contest your suspension/revocation. You must file a petition to rescind your suspension/revocation within 90 days of this notice.**

- Because you refused to submit to or failed to complete testing, **your driving privileges will be suspended for a minimum of 12 months.\***
- Because you submitted to testing conducted pursuant to Section 11-501.2, which disclosed:
  - an alcohol concentration of \_\_\_\_\_, which is .08 or more; or
  - any amount of a drug, substance or intoxicating compound in your blood or urine resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act; **your driving privileges will be suspended for a minimum of 6 months.\***
- Because you refused to submit to or failed to complete testing and you were involved in a motor vehicle crash that caused personal injury or death to another, **your driving privileges will be revoked for a minimum of 12 months.**

Driver's license surrendered?  Yes  No; Reason: \_\_\_\_\_  
 Driver's license valid at time of arrest?  Yes (Sign receipt)  No (Void receipt)

I have complied with Section 11-501.1 of the Illinois Vehicle Code by having reasonable grounds to believe the arrestee was in violation of Section 11-501 or a similar provision of a local ordinance: (Explain) \_\_\_\_\_

Pursuant to Section 11-501.1 of the Illinois Vehicle Code I have:

- Served immediate Notice of Summary Suspension/Revocation of driving privileges on the above-named person.
- Given Notice of Summary Suspension/Revocation of driving privileges to the above-named person by depositing in the U.S. mail said notice in a prepaid postage envelope addressed to said person at the address as shown on the Uniform Traffic Ticket.

Under penalties as provided by law pursuant to Section 1-109 of the Illinois Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct.

Signature of Arresting Officer \_\_\_\_\_ ID Number \_\_\_\_\_  
 Date \_\_\_\_\_  
Month
Day
Year  
 Law Enforcement Agency \_\_\_\_\_

\*NOTE: If it is determined that you are not a "first offender," as defined in Section 11-500 of the Illinois Vehicle Code, and:

- You refused to submit to or failed to complete all requested chemical tests, the period of suspension will be a minimum of 3 years; or
- You submitted to chemical testing that disclosed an alcohol concentration of .08 or more or any amount of a drug, substance or intoxicating compound resulting from the unlawful use or consumption of cannabis as listed in the Cannabis Control Act; a controlled substance as listed in the Illinois Controlled Substances Act; an intoxicating compound as listed in the Use of Intoxicating Compounds Act; or methamphetamine as listed in the Methamphetamine Control and Community Protection Act; the period of suspension will be a minimum of 1 year.

### NOTICE TO THE MOTORIST OF RIGHT TO A HEARING

You have a right to petition for judicial review within 90 days. Your petition must be filed in writing and submitted to the Circuit Court identified on the front of this notice.

Your request must state the grounds upon which you seek to have this suspension/revocation rescinded.

#### RECEIPT TO DRIVE

This is your receipt to drive until such time as this summary suspension/revocation takes effect as indicated on the front of this notice, and shall be evidence of your privileges to operate a motor vehicle subject to the restrictions, classification and endorsement below.

**License Restrictions:**

--	--	--	--	--	--	--	--	--	--

**License Classification:**

--	--

**License Endorsement:**

--	--	--	--

Arresting Officer\*

ID Number

**NOT VALID UNLESS SIGNED BY ARRESTING OFFICER.**

NOTE: This receipt permits driving only while your driving privileges are valid. Should your driver's license become invalid or withdrawn for any reason, this receipt shall become concurrently invalid at that time.

**Police Officer: Please check the driver's license record for validity.**

\*ARRESTING OFFICER — If the driver's license is not valid at the time of arrest, write VOID on the signature line of the "RECEIPT TO DRIVE."

# SSS Hearing

## Scope of Hearing limited to:

- Under arrest for 11-501 as evidence by Citation
- Reasonable grounds for DUI
- Whether subject refused after warnings
- Whether subject was .080 or above and/or
- Positive for drugs after warnings and agreement to submit

# SSS / Statutory Summary

## Suspension 6-208.1

- First time offender (clear for 5 years)
- Refusal = 12 months
- Submits and is .080 or more, or any drug, substance, or compound = 6 months
- Other than first time offender
- Refusal = 3 years
- Submits and is .080 or more, or any drug, substance, or compound = 12 months

# Zero Tolerance

**If the BAC is believed to be less than 0.08 and driver is under 21 years of age;**

- 1. Issue citation for any violation of the Illinois Vehicle Code.**
- 2. Complete the zero tolerance sworn report.**
- 3. Remember you can go down to a Zero Tolerance, but not up to a DUI.**

**ZERO TOLERANCE  
WARNING TO MOTORIST UNDER 21**

TRAFFIC CITATION NO.

SUBSEQUENT TO YOUR ARREST AS EVIDENCED BY THE ISSUANCE OF A UNIFORM TRAFFIC TICKET FOR ANY VIOLATION OF THE ILLINOIS VEHICLE CODE OR SIMILAR PROVISIONS OF A LOCAL ORDINANCE AND PURSUANT TO SECTION 11-501.8 OF THE ILLINOIS VEHICLE CODE, YOU ARE HEREBY NOTIFIED AND WARNED THAT:

AS PROVIDED IN SECTION 6-208.2 OF THE ILLINOIS VEHICLE CODE, YOU ARE A FIRST OFFENDER UNLESS PRIOR TO THIS ARREST YOU HAVE HAD A PREVIOUS DRIVER'S LICENSE SUSPENSION UNDER SECTION 11-501.8 OF THE ILLINOIS VEHICLE CODE FOR REFUSING OR FAILING TO COMPLETE CHEMICAL TEST(S) OR FOR SUBMITTING TO CHEMICAL TESTING DISCLOSING AN ALCOHOL CONCENTRATION GREATER THAN 0.00.

CONSIDERING THE ABOVE, YOU ARE WARNED:

1. If you refuse or fail to complete all chemical tests requested and:  
If you are a first offender, **your driving privileges will be suspended for a minimum of 6 months; or**  
If you are not a first offender, **your driving privileges will be suspended for a minimum of 2 years.**
  
2. If you submit to a chemical test(s) disclosing an alcohol concentration greater than 0.00 and:  
If you are a first offender, **your driving privileges will be suspended for a minimum of 3 months; or**  
If you are not a first offender, **your driving privileges will be suspended for a minimum of one year.**

Warning Issued To \_\_\_\_\_  
Name of Motorist Drivers License Number

Under penalties as provided by law pursuant to Section 1-109 of the Illinois Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct.

Signature of Arresting Officer \_\_\_\_\_ Identifying Number \_\_\_\_\_

Law Enforcement Agency \_\_\_\_\_ Address \_\_\_\_\_

Date of Warning \_\_\_\_\_ POLICE OFFICER—GIVE TO MOTORIST \_\_\_\_\_ Time of Warning \_\_\_\_\_  
am  
pm

Law Enforcement Agency \_\_\_\_\_ Address \_\_\_\_\_  
14705 POLICE OFFICER—SEND TO SECRETARY OF STATE

# Juvenile DUI

1. Under 18 can submit to Breath test
2. Under 18 can NOT submit to Blood or Urine / must have parent or guardian consent - exception is under conditions of medical emergency / juvenile married / or is pregnant
  1. 410 ILCS 210/1- consent by minor
  2. 410 ILCS 210/2- medical or surgery procedure / consent by parent

# **Towing/Removal of Vehicle**

## **625 ILCS 5/4-203(e)**

- 1. 24 hours (2<sup>nd</sup> violation)**
- 2. 48 hours (3<sup>rd</sup> violation)**
  - a) may be released to lawful owner; or**
  - b) arrested owner gives permission to another**
- 1. 12 hours (1<sup>st</sup> violation)**  
**valid driver.**



- **11-501 (d)**
  - **11-501.1 (a)**
  - **11-501.1 (b)**
  - **11-501.1 (c)**
  - **11-501.1 (d)**
  - **11-501.1 (g)**
- **Aggravated Driving**
  - **Implied Consent**
  - **Dead, unconscious, etc., shall administer tests**
  - **Warning to Motorists and Zero Tolerance**
  - **Sworn Report**
  - **Suspended 46<sup>th</sup> day following date of notice**

- **11-501.4 (a) (1)** • **Regular course – emergency room reporting**
- **11-501.4-1 (a)** • **Reporting test results (shall be disclosed to law enforcement)**
- **11-501.4-1 (b)** • **No liability when disclose test results**

- **11-501.2 (a) 1**
- **Licensed Physician, Registered Nurse, Trained Phlebotomist, Certified Paramedic**
- **11-501.2 (b)**
- **Presumptive Levels**
- **11-501.2 (c) 2**
- **Non Consensual**
  - **Death**
  - **Personal Injury (type A) to another SHALL SUBMIT**

- **11-501.5**

- **11-501.6 (a)**

- **PBT'S**

- **Traffic Crash  
Warning to  
Motorist**

- **Personal injury to  
anyone**

- **Fatality**

- **No arrest 11-501**

- **Traffic Ticket  
(IVC) anything  
other than  
Chapter 12**

# Administrative Sanctions

- **11-501.01 (e)**

- **Ignition interlock required**



- **11-501.01 (f)**

- **\$350 to agency that made arrest**

- **2<sup>nd</sup> offense \$200 to agency**

# Intoxilyzer 8000



# Keyboard Down



# Rear Panel Features

- **Power On/Off Switch**
- **120 Volt A/C Power Cord Connection**
- **12 Volt D/C Power Cord Connection**
- **Exhaust Fan**

# Rear Panel



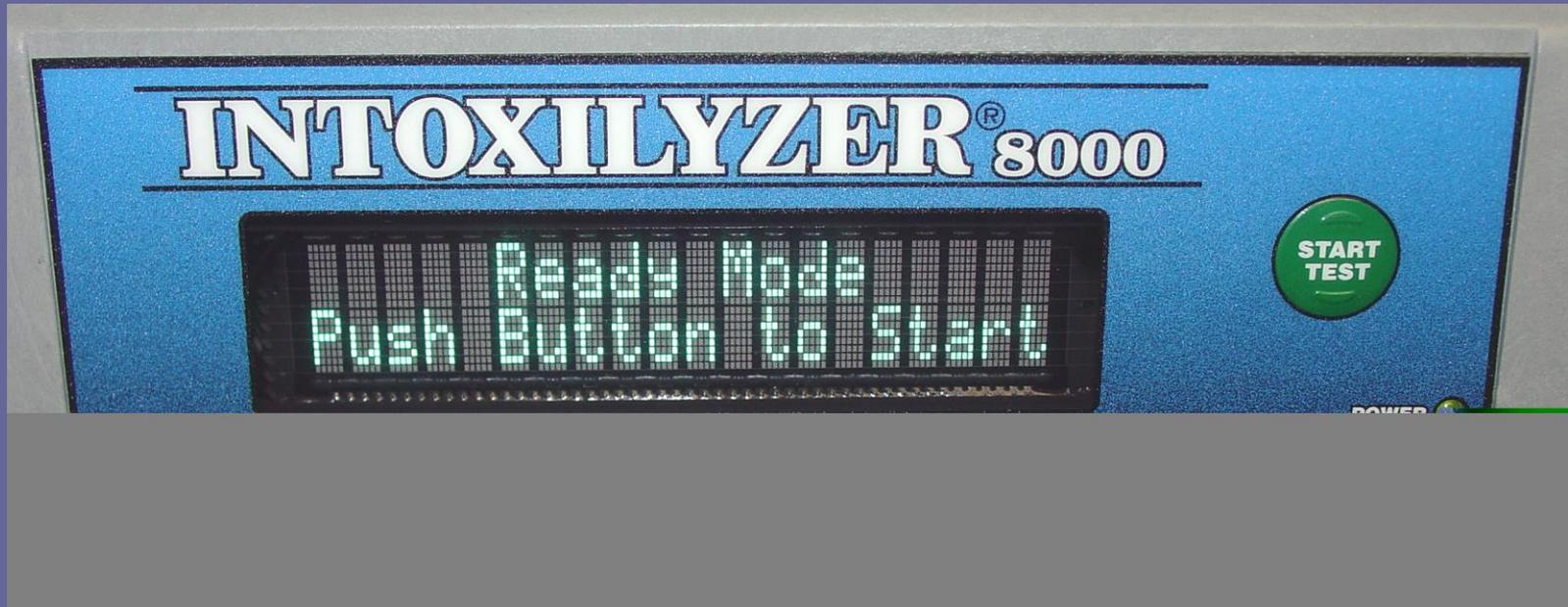
# Features

- **Uses Infrared Analysis for Measurement of Subject's BrAC and Mouth Alcohol Detection**
- **Designed for Both Stationary and Mobile Use**
- **Flexible Breath tube**
- **Thermal Printer**
- **Measurement Range: .000 to .600 g/210L**
- **RFI Detection**

# To Start a Subject Test

- **Make Sure the Instrument is Scrolling**
- **Install a New Mouthpiece**
- **Press the “START TEST” Button**
- **Follow the Display Screen Instructions**
- **Subject is Allowed Three Tries within Three Minutes**
- **If Subject Refuses the Test, Press “R” on the Keyboard**

# Ready Mode



# Points to Remember

- **Leave Instrument On at All Times**
- **Do Not Allow Subject to Hold Breath tube**
- **If Printout is Blank, Make Sure Paper is Installed Correctly, i.e. Over the Back of the Roll**
- **Tear Off the Printout by Pulling Down on the Paper**

# Questions ?



# ILLINOIS STATE POLICE ALCOHOL & SUBSTANCE TESTING SECTION

Alco-Sensor V XL  
P.O.A.  
(Point of Arrest)



# Alco-Sensor V XL

- Easy right-handed or left-handed use
- Manufactured by Intoximeters, Inc.
- Serial number on CE mark label
- Approved as an Evidential Breath Tester (EBT) on the U.S. Department of Transportation's Conforming Products List (CPL)



# Alco-Sensor V XL Design

- ▣ Name of device is Alco-Sensor V XL
- ▣ Sometimes referred to as AS5, unit, instrument, or device
- ▣ NOT A “machine”
- ▣ Design is such that either side could be considered the “front”

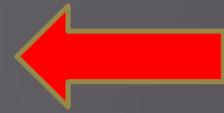


# Alco-Sensor V XL Design

Subject view



Officer view



# Physical Features

- ▣ Large Liquid Crystal Display (LCD) with monochrome graphics
- ▣ Over-molded grips for comfort and safety



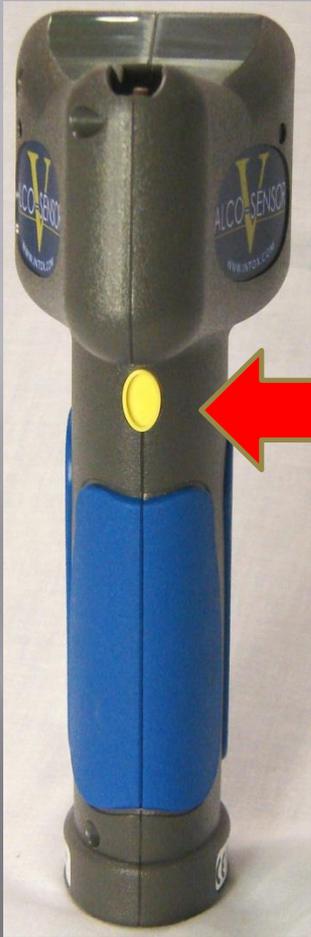
# Physical Features

## Lighted mouthpiece guide

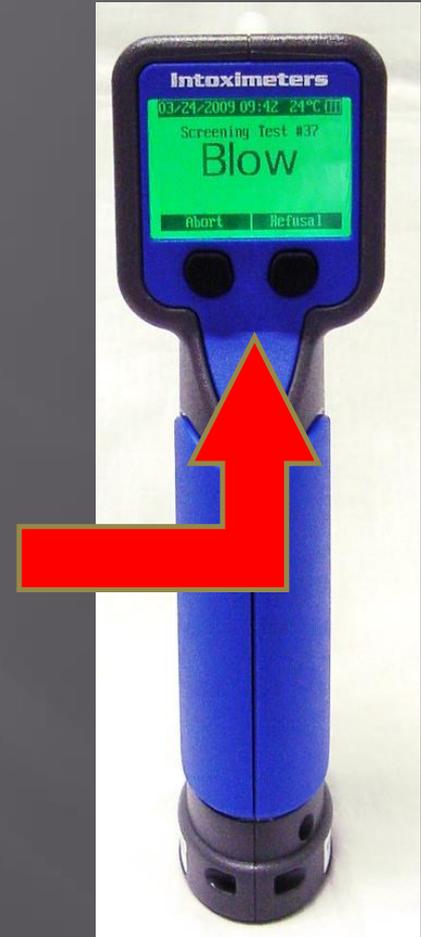


# Physical Features

Yellow button functions are ON, SELECT, and MANUAL sample, also called the trigger button.



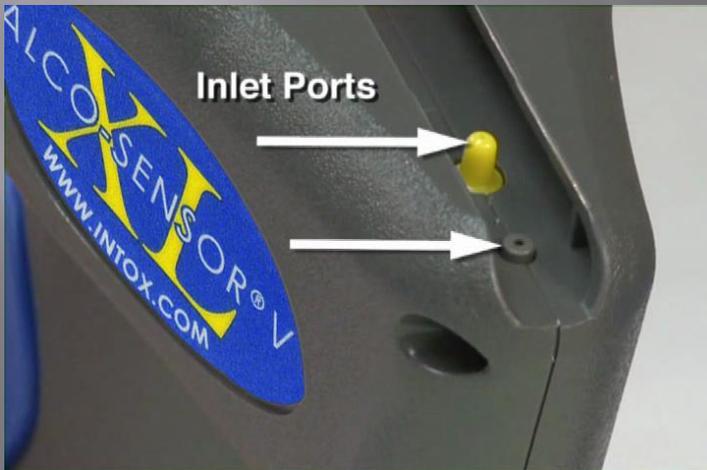
Buttons under the display are MENU CONTROL and SCROLLING.



# Physical Features



Notice there are 2 inlet ports in the channel. The smaller inlet is for the flow sensor which monitors the breath flow.



The taller yellow inlet is the port for the fuel cell which pulls in the sample of breath for analysis.

# Physical Features



Turn the unit on with the yellow trigger button

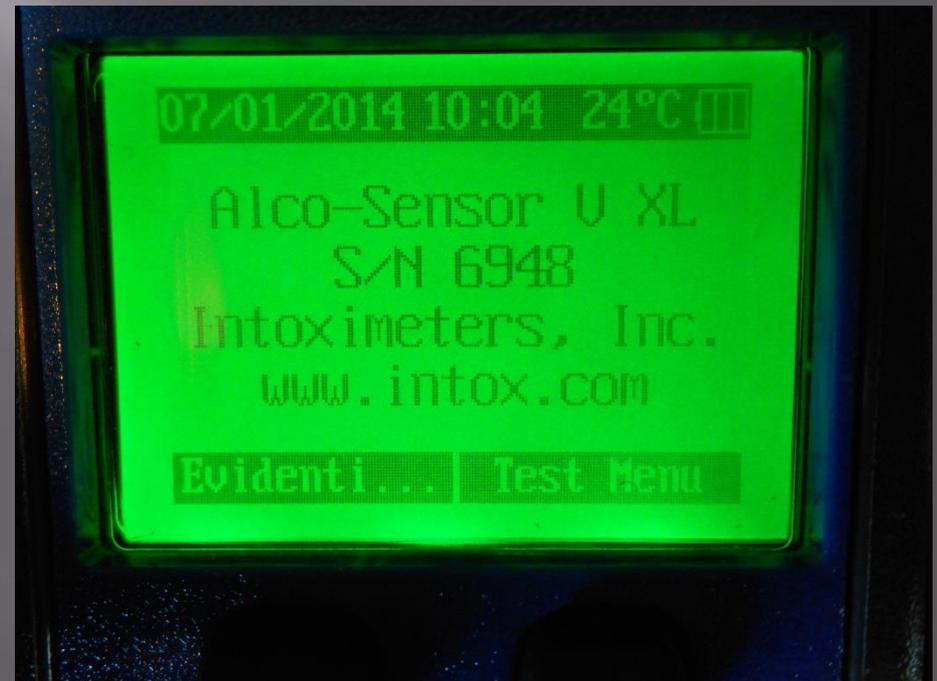
ASVXL will automatically power down after 15 seconds if not in use

# Basic Test Mode Display

- Status bar at top shows date/time, temperature, and battery power.
- Bottom bar directs the use of the 2 black buttons under the display.-

The last type of subject test performed will be defaulted to the left scroll button.

Press the right button to enter the Test Menu.

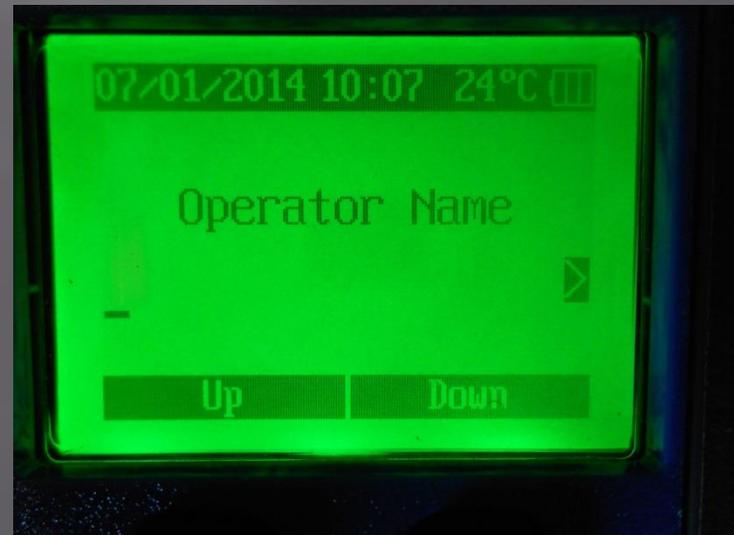


# Basic Test Mode Display

After selecting the left black button under Evidential Test it will go into data entry mode.

The first screen will be Operator Name and you will transition to the keyboard for data entry.

If the AS V is not in the cradle you can use the two black buttons for data entry.



# Basic Test Mode Display

If you select the right black button under Test Menu it will take you to the Test Menu screen.

If you scroll down under Main Menu you will be able to select Power Down.



# Basic Test Mode Display Review

- Press the yellow trigger button (AS V will turn ON).
- It can also be used at the select button.
- Observe top bar and main screen to make sure information displayed is correct.
- Press the right black button to view the Test Menu.
- Press the left black button to do an Evidential Test.
- Use the Up/Down arrows to scroll through options.
- Select Power Off by pressing the trigger button.
- The AS V will power down after 15 seconds of inactivity.

# Magnetic Effect

There are two magnets buried inside the head of the case just below the label. When the instrument is placed on a metallic surface, the magnets help reduce the likelihood that the device will slide off. Examples shown are on the metal hood of a car.



# Mouthpiece Design

Each mouthpiece is individually sealed.  
Open end is where subject will place their mouth.  
Always keep open end covered in plastic.



# Mouthpiece Design



The closed end has a hole on top to divert excess breath flow

The opposite side is flat with 2 smaller holes for breath inlet ports

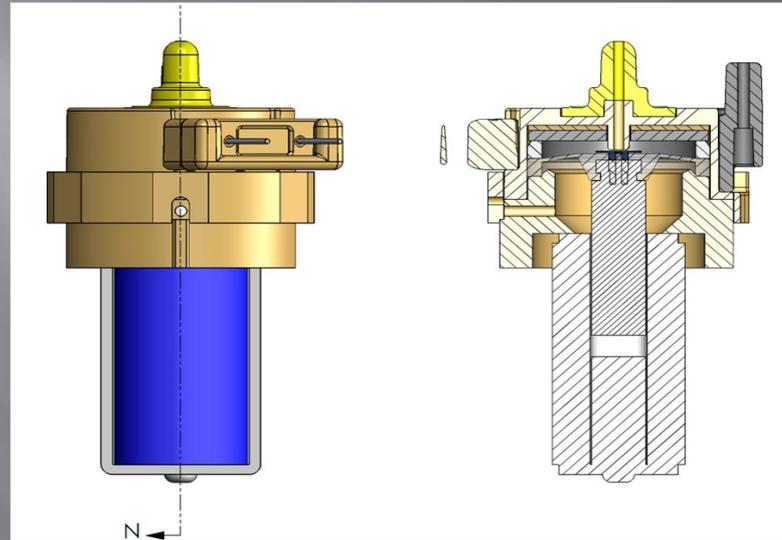


# Mouthpiece Design



- Insert the closed end of the mouthpiece in the rear part of the channel.
- Lever the mouthpiece downward so the 2 holes on the flat side line up with the 2 inlet ports.
- Mouthpiece will snap into place.

# Fuel Cell Sampling Mechanism



- Sampling Pump draws a uniform sample of deep lung breath into the Fuel Cell for analysis.
- The “click” that is heard when a sample is taken is the sampling valve opening to draw in a .18cc sample of breath for analysis.

# Fuel Cell Clean-Up

- After the result is displayed, the device will reset itself.
- The instrument will close the sampling valve to prepare the Alco-Sensor V XL for the next sample and keep contaminants out of the sampling system.
- Clean-Up is less than 2 min between tests.
- Higher concentrations may take longer.

# Fuel Cell Accuracy

- Fuel cell responds to alcohol only.
- It will not respond to Acetone or other substances
- Reading from a good deep lung sample should not differ by more than -5% from a blood sample drawn at the same time.
- Fuel cell responds only to alcohol in the breath

# Prolonging Fuel Cell Life

- Stated Fuel Cell life expectancy is 7 – 9 years.
- Operating conditions may affect life span
- Never blow raw cigarette smoke in to the instrument.
- Avoid introducing Mouthwash or Breath Sprays into the instrument.
- The AS V should not be stored in extreme temperatures.
- Storage in hot or cold environments may result in prolonged warm up times.

# AS V Power Source

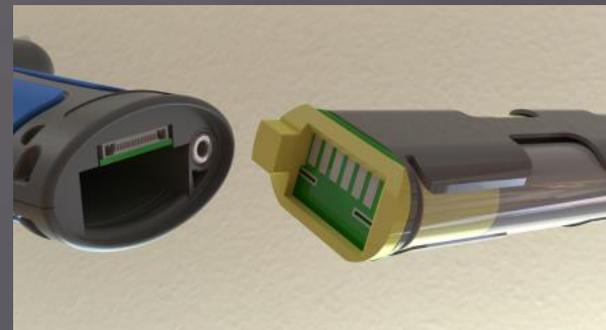
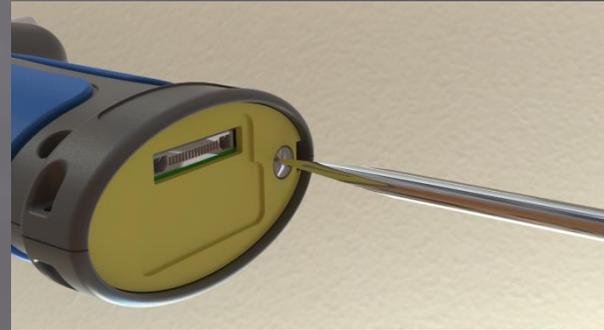
- AS V is powered by 4 AA alkaline batteries.
- Set of new batteries good for at least 2,000 tests.



# Battery Compartment

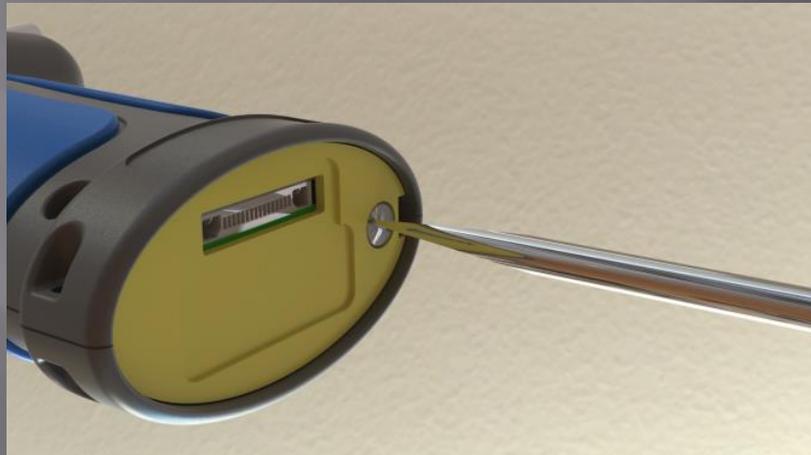
The battery compartment on the base of the instrument is securely connected to the instrument with a single screw.

When removed, a replacement pack or a pack with four new AA alkaline batteries should re-installed.



# Battery Replacement

- Align screw with the hole and gently press down on yellow cover.
- If the screw does not fit, verify battery pack is inserted properly.
- Turn screw clockwise to tighten.



# Printer

Datamax - O'neil  
Apex 2  
Thermal printer  
Rechargeable Battery



# Printer Paper Replacement

- Push door release button to open.
- Thermal paper simply lays flat in the opening as shown.



# AS V XL Systems

- U.S. DOT Approved
- Meets EMI Immunity and RFI Detection
- RFI at field strengths of 10 volts/meter at frequencies between 500 kHz and 2.5 GHz
- Internal Barometric Pressure Sensor
- Up to 4,000 Test Memory
- Supports 32 bit CRC
- Large LCD Display
- 4 AA Battery or Optional Re-chargeable
- Side Breath Sample Indicators
- Wet or Dry Gas Standards

# Automatic Sampling

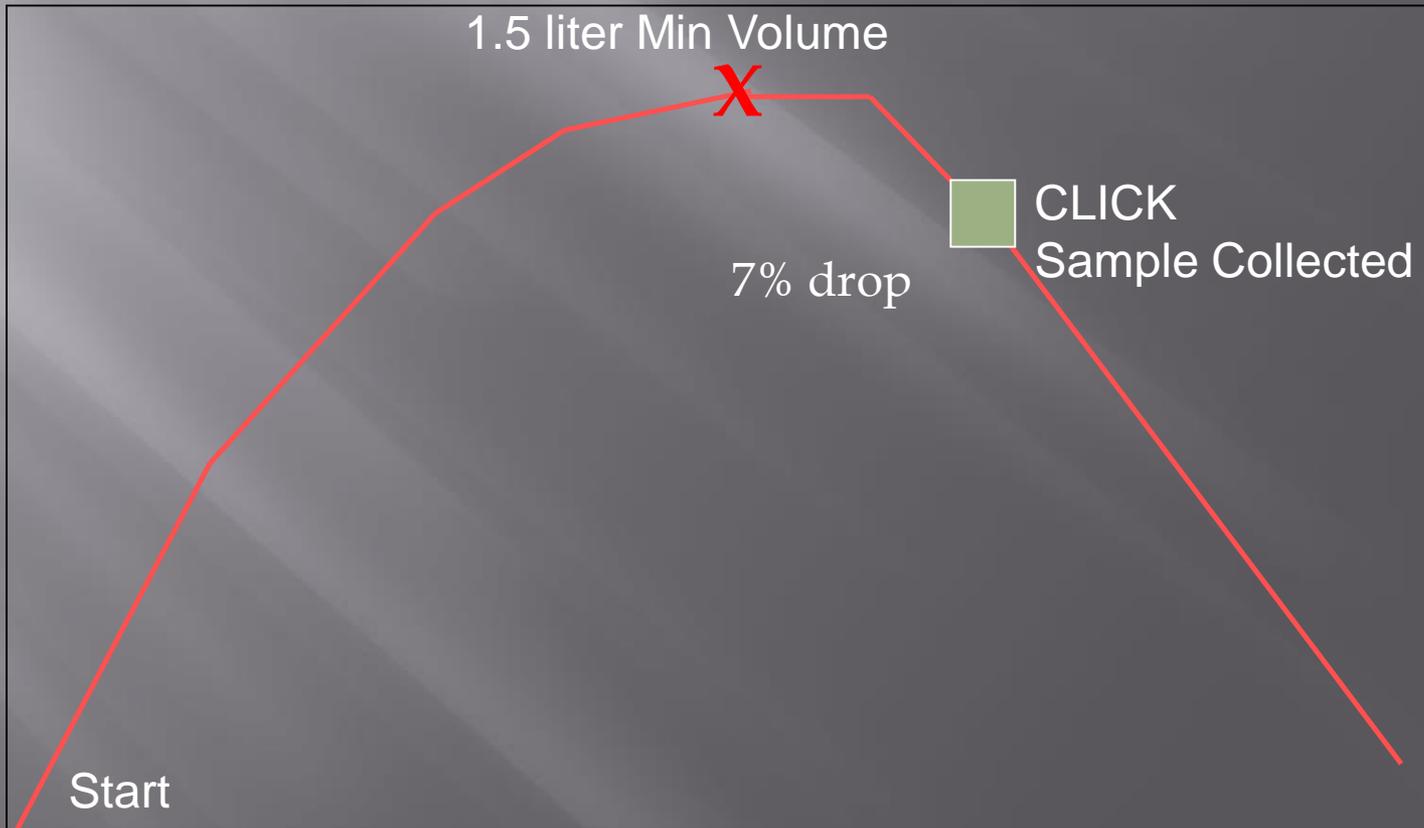
- Red lights on either side of the ASVXL flash as subject blows.
- Will see stars crossing the display.
- When the flashing red light goes solid and the stars go all the way across the display – minimum volume has been reached.
- ASVXL device will wait for a drop off in breath flow and take the sample.



# Automatic Sampling

## 2 Conditions:

- 1) 1.5 liter minimum volume
- 2) 7% breath flow drop off



# Testing Protocols

- Hold ASVXL so you can see the display at all times.
- Keep EBT on same horizontal level as subject.
- Hold steady to make blowing as easy as possible.
- Hold the device by the blue grips.
- Do not pull AS V XL away from subject until after you have told them to stop blowing.
- Operator should always maintain control of device.
- Provide good instructions before subject blows.

# Sample Errors

- AS V XL will provide subject with 3 opportunities to provide a satisfactory sample.
- The flow sensor measures breath flow for abnormalities.
- Any 3 abnormalities will void a test.
- The printout will say "Insufficient Sample."
- Provide clear instructions prior to each attempt.

# Unsatisfactory Samples

- What is an Insufficient sample?
- The subject stops blowing before reaching 1.5 liters.
- In this case, the stars do NOT cross the entire display and the red LED is still flashing.
- ASV will provide 3 chances for subject to give a sufficient sample of 1.5 liters.



# Insufficient Sample

## 1<sup>st</sup> Attempt

Insufficient Flow will display if less than 1.5 liters.  
Display will show “please wait.”

## 2<sup>nd</sup> Attempt

Insufficient Flow will display if less than 1.5 liters.  
Display will show “please wait.”

## 3<sup>rd</sup> Attempt

**Insufficient Sample** will be displayed if less than 1.5 liters and test will be ended. You will receive an Insufficient Sample printout.

# Unsatisfactory Sample: Suck Back

- Occurs when subject attempts to pull back their specimen.
- AS V XL will detect a pull back attempt and display "Suck Back."
- Stars will cross the display and the red LED will go solid.
- Display will read: "Please wait..." and then return to "Blow."

# Unsatisfactory Sample: High Flow

- If minimum volume is reached too quickly or the flow rate exceeds a set level, the display will read "Flow High."
- Stars will cross the display and the red LED will go solid.
- Display will read: "Please wait..." and then return to "Blow."

# AS V XL Questions

# Intoximeters EC/IR II



# Features

- **Dual Sensor Technology**
  - **Infrared & Fuel Cell**
- **Fuel Cell is primary sensor**
  - **One point calibration**
  - **Specific for alcohol**
- **Subject's BrAC is Measured by the Fuel Cell**
- **IR Monitoring of breath samples**
  - **Mouth Alcohol detection capabilities**

# Features

- **Accuracy and precision: meets or exceeds all U.S. Department of Transportation specs.**
- **Specific to Alcohol; does not respond to other hydrocarbons found naturally in the breath.**
- **Accurate to within + or - .005 at .100 g/210L, or + or - 5%, whichever is greater.**

# Features

- **Can be connected via modem (ie: T1 Leads line) to central computer for automated maintenance, quality assurance, and data transmittal.**
- **Built-in Diagnostics**
- **Flexible, Software driven protocols**
  - **Tailored to specific rules and regulations**

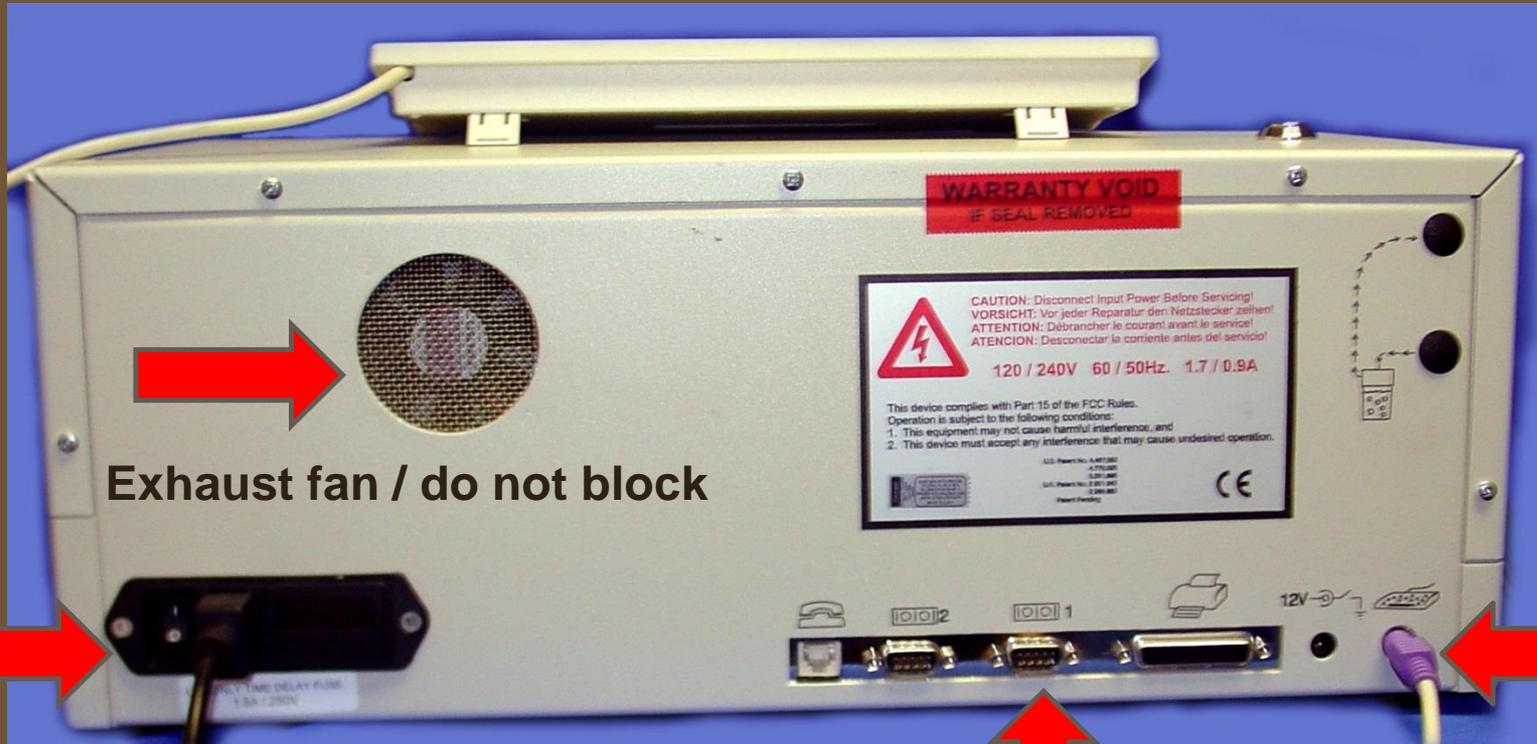
# Features

- **High performance thermal printer**  
- no ink or ribbons
- **Thermal paper 7 year life and resistant to degradation from light**
- **Automatic certification capability**
- **Use of Wet or Dry standards**
- **Measurement range of .000 to .400 g/210 liters of breath**
- **Operate in ambient temperatures between 10° and 35° C.**

# Features

- **Escape key** --- exits current mode
- **Enter key** --- starts test and enters info
- **(P) key** --- prints last test
- **(R) key** --- prints refusal
- **F1 to F12 keys** --- administrative commands
- **(F2) key** --- quick test

# Rear Panel



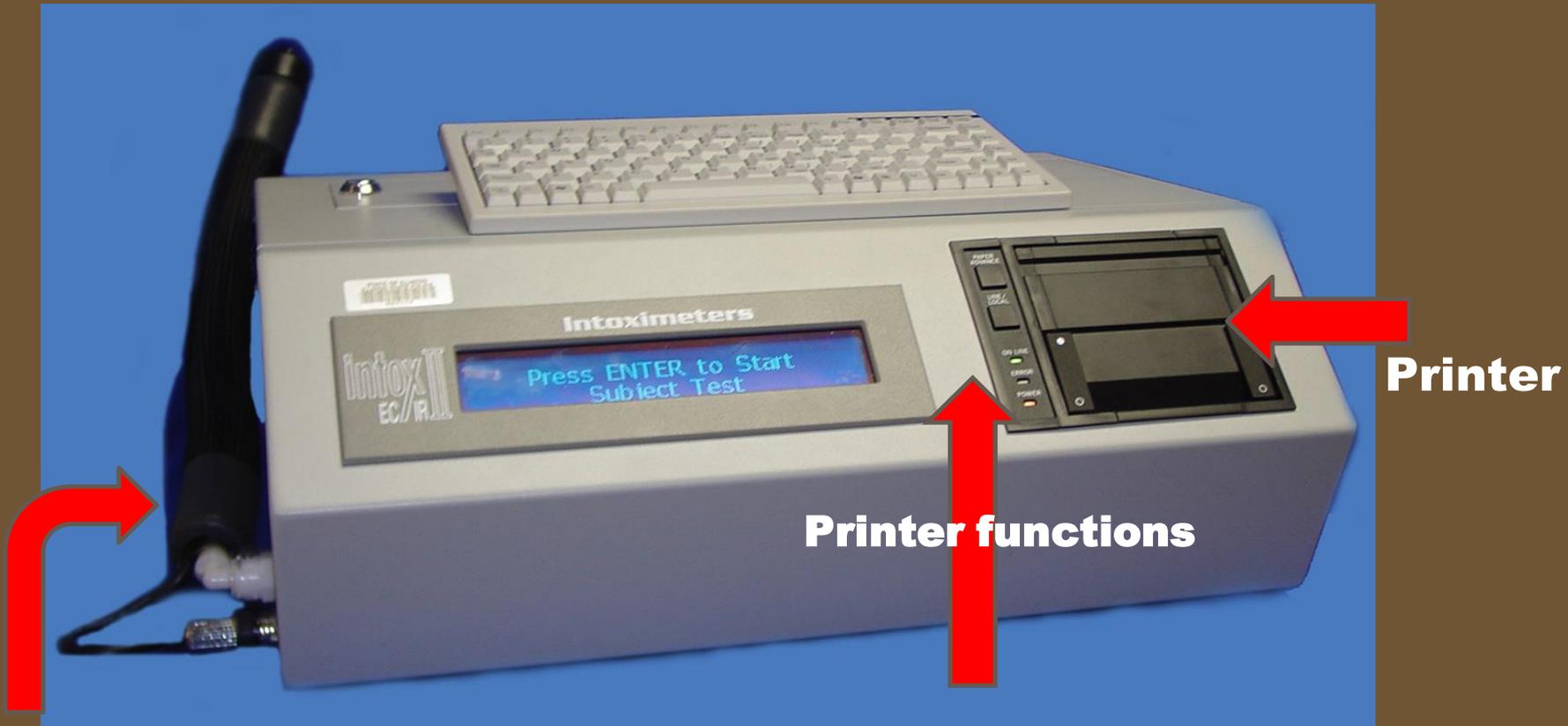
Exhaust fan / do not block

Power on/off switch and power cord

Connections for remote  
Testing and downloading

Keyboard connection

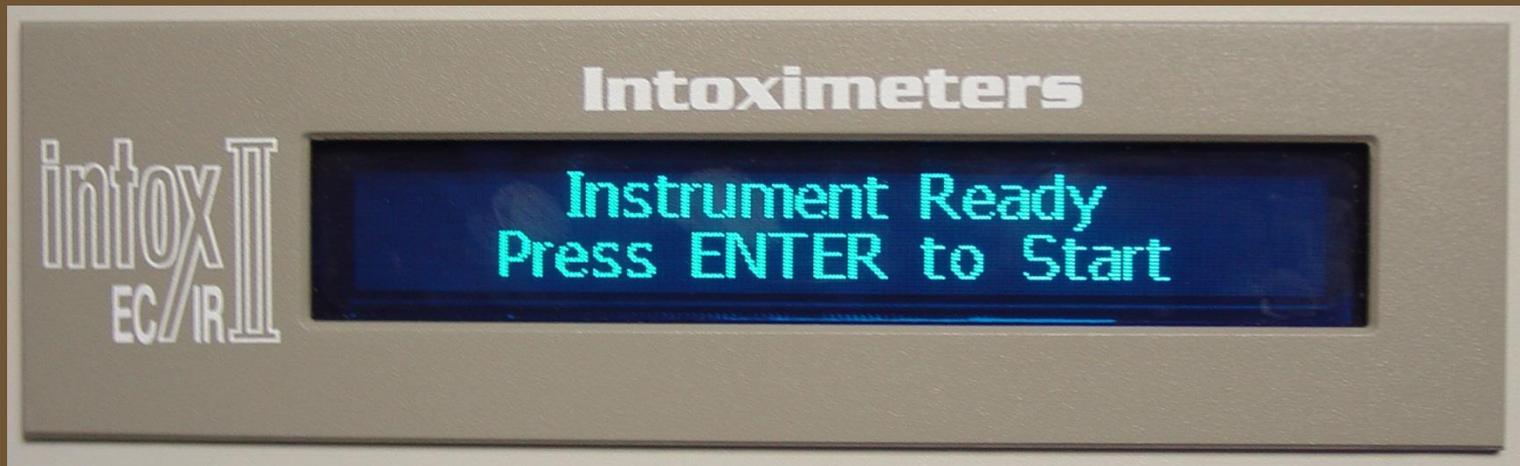
# Printer and Breath Tube



**Heated Breath Tube**

**Top button – paper advance  
Bottom button – Line / Local  
Green light = on line  
Red light = error  
Yellow light = power on**

# To start a Subject Test



Press **Enter** key and follow on screen instructions for data entry.

**“esc”** key will abort any test and take back to scrolling screen.

# Subject Test cont:

- Subject is allowed **3** attempts within **3** minutes.
- After the 3<sup>rd</sup> attempt you will get an **insufficient sample** printout.
- If no attempts are made after 3 minutes you will get a **timeout** printout.
- If subject refuses the test, press the **“R”** on the keyboard for **Refusal**.

# Messages

- **High air blank** - clean area around instrument including intoxicated subject and try test again.
- **Out of range** – reading exceeds range of instrument, take for blood / urine.
- **Instrument disabled contact technician** – proceed to another instrument or get blood / urine. Call your technician to inspect instrument.

# **Points to Remember**

- **Leave Instrument On at All Times.**
- **Do not allow subject to hold breath tube or touch instrument.**
- **If printout is blank, make sure paper is installed correctly. There is no ink, it is heat sensitive paper.**
- **If it won't print make sure green light on printer is on which means it is on-line.**

# Log Book Entries

- Remember we only want to log **1. completed breath tests** or **2. refusals** in the log book
- We do **not** log insufficient samples, timeouts, error message etc. printouts in the log book.
- **Each subject will have only 1 entry in the log book**

# Questions ?



# INTOX-EC/IR



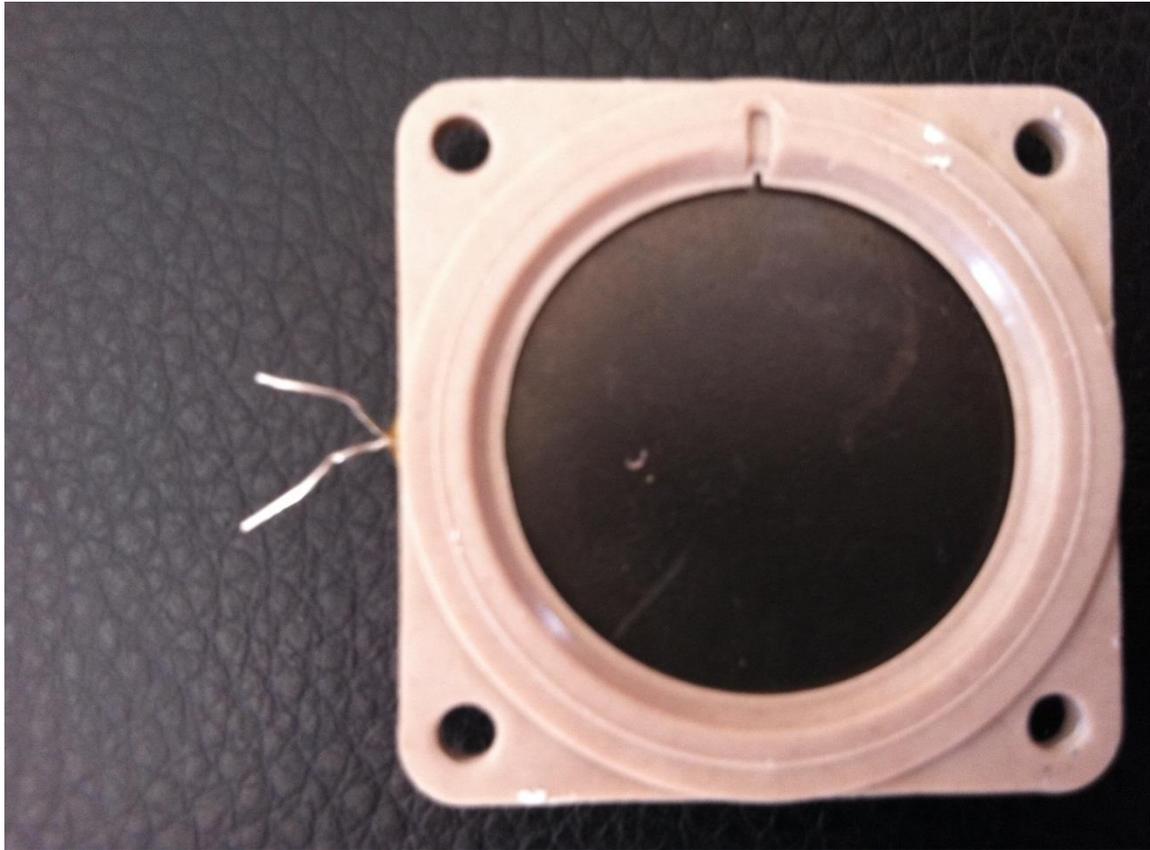
# EC/IR: Technologies

Fuel Cell (Electro-chemical) Specific  
to alcohol -- primary analyzer

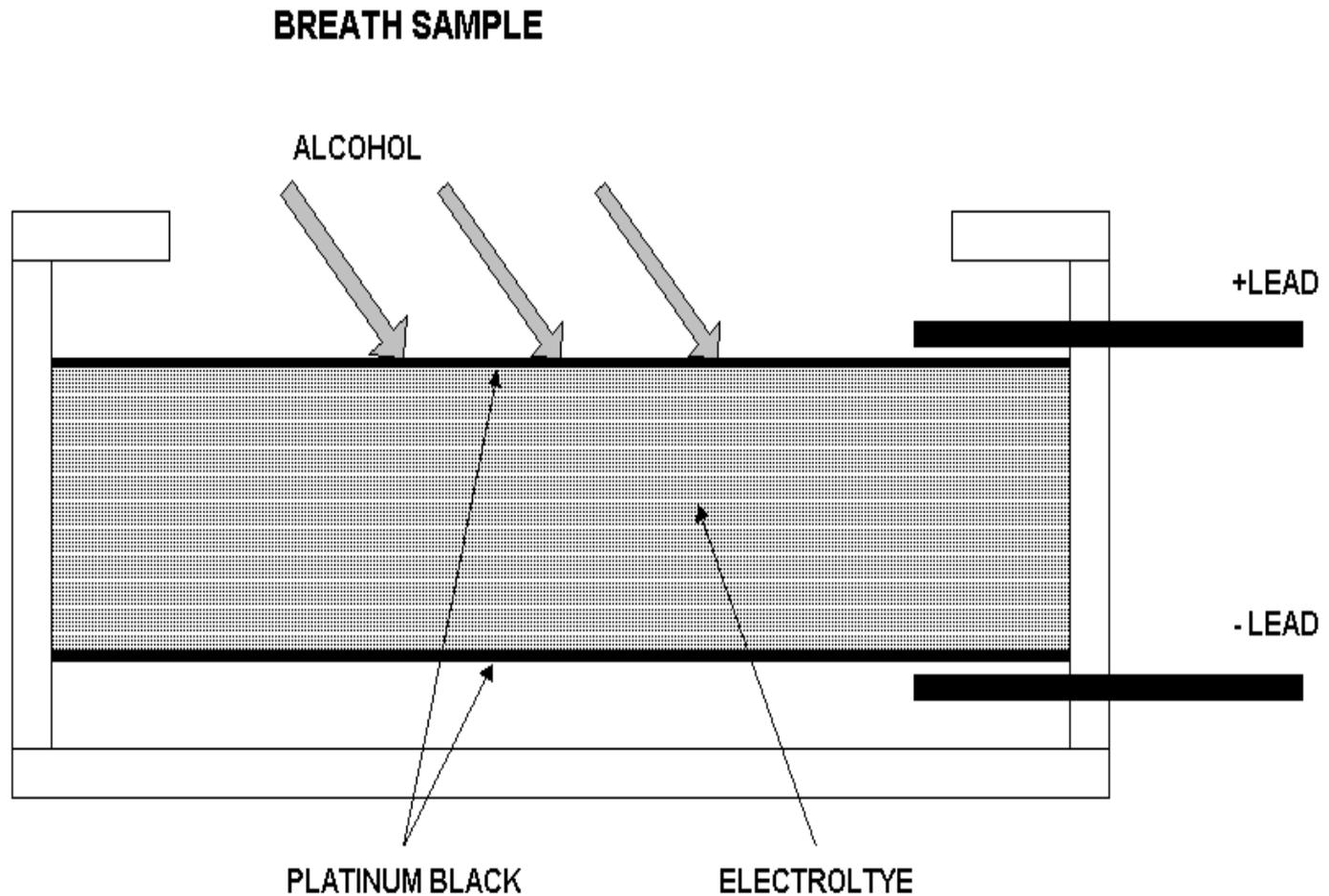
Infra-red absorption real time  
analysis 3.39 microns mouth  
alcohol detection

Slope Variance used to determine  
when to take sample

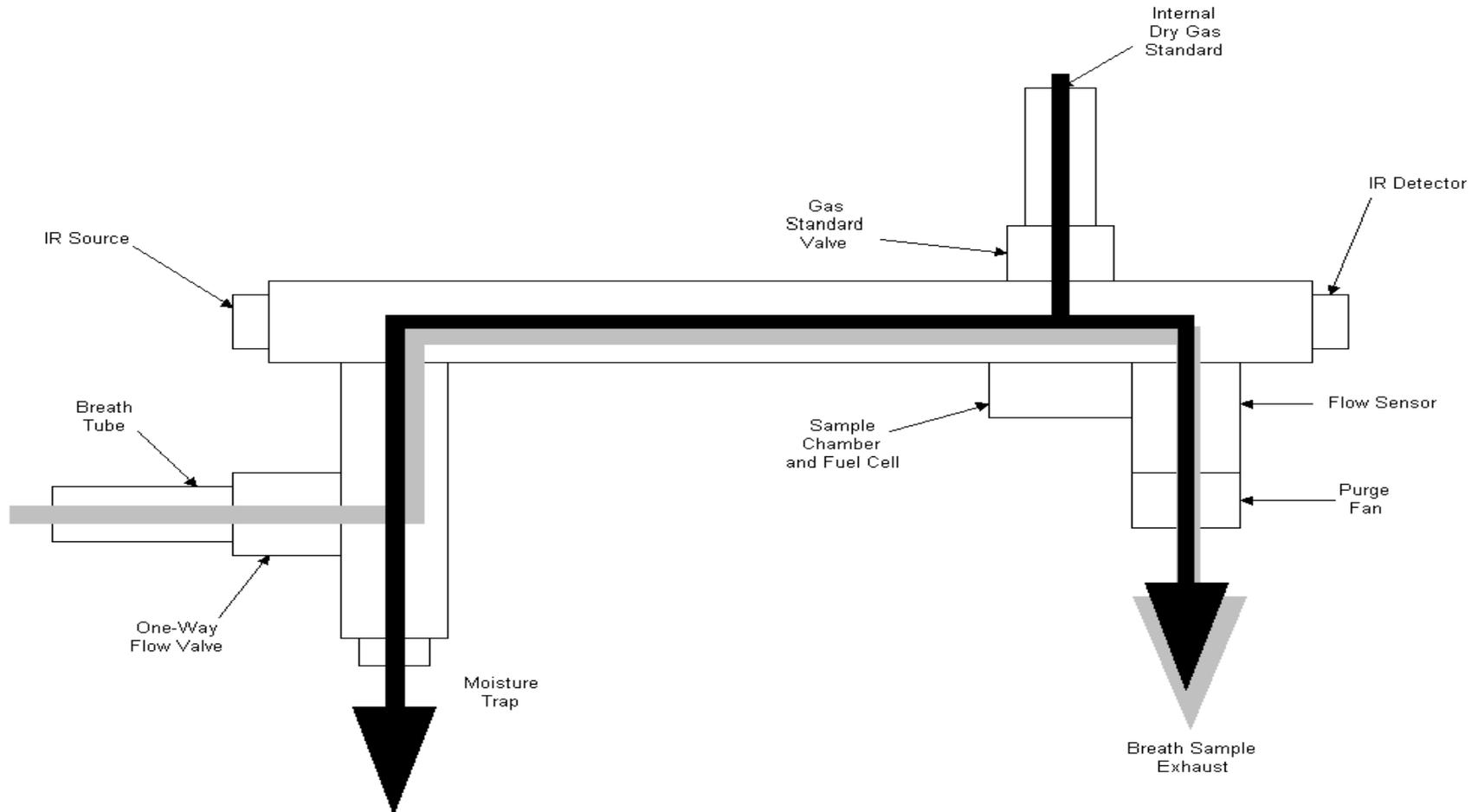
# Electrochemical Sensor (Fuel Cell)



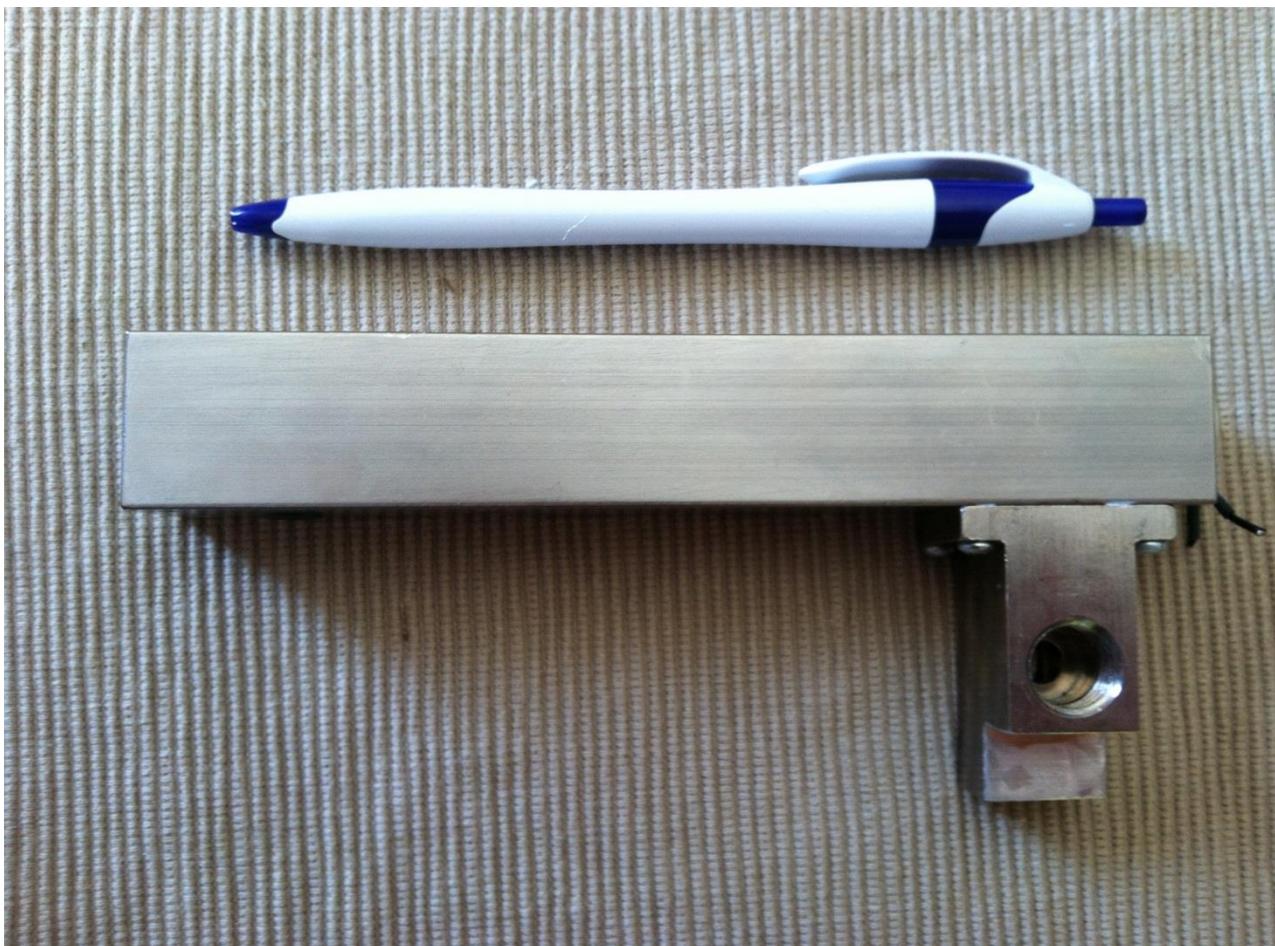
# EC/IR Fuel Cell



# Infrared Bench



# Infrared Bench







SEAL REMOVED

GAS STD  
PUMP OUT

SIM STD IN

LINE

COM2

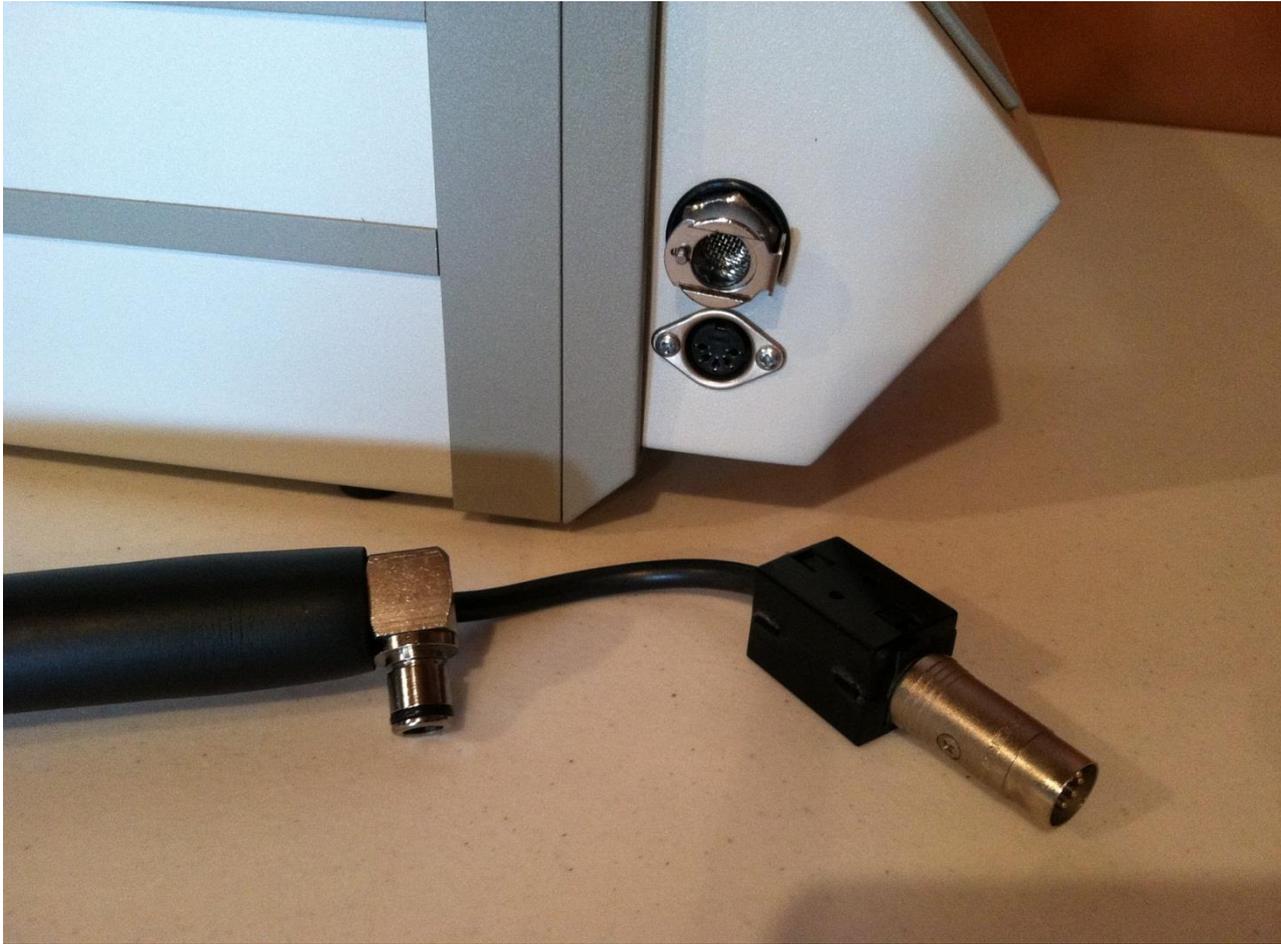
COM1

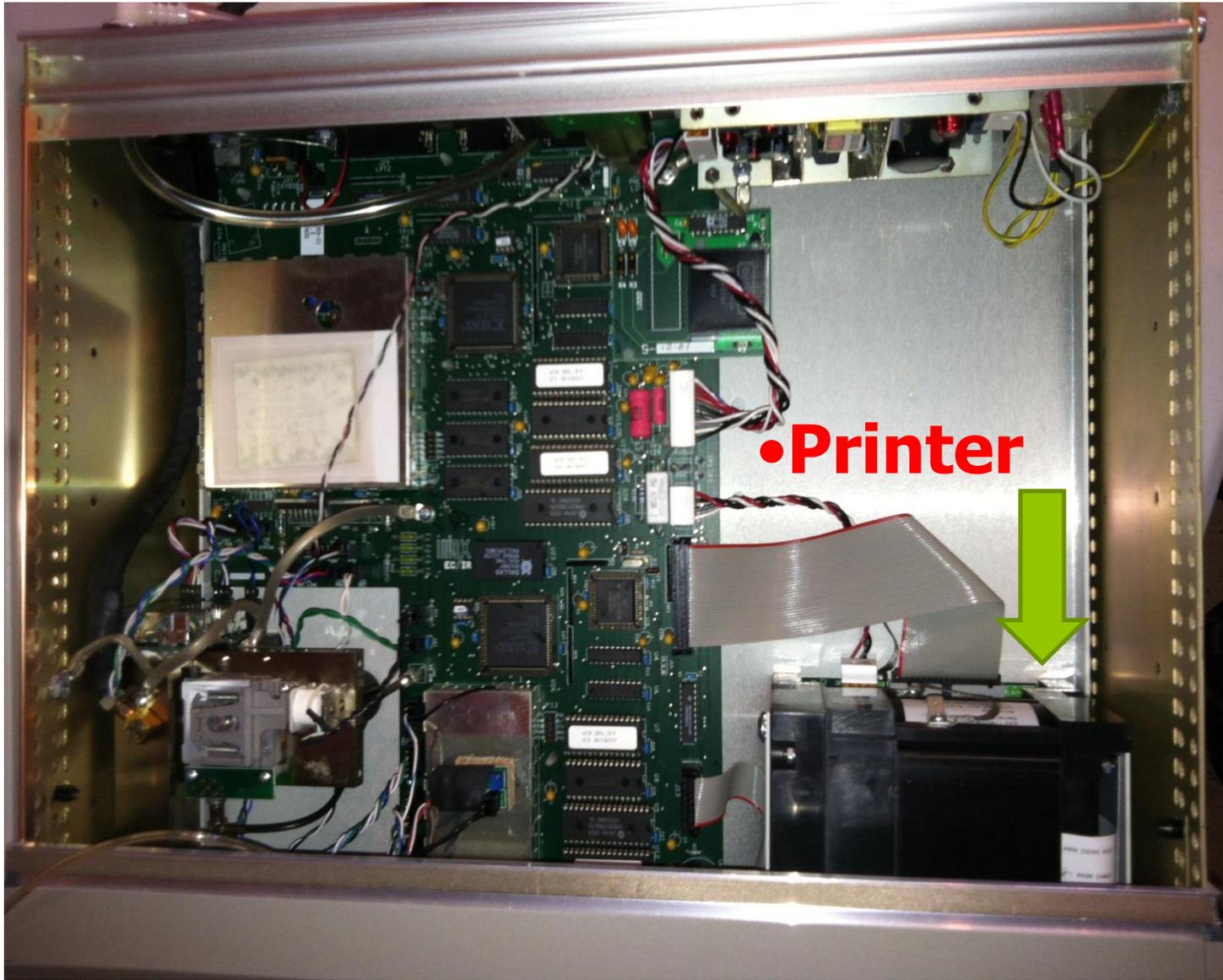
LPT2

KEYBOARD

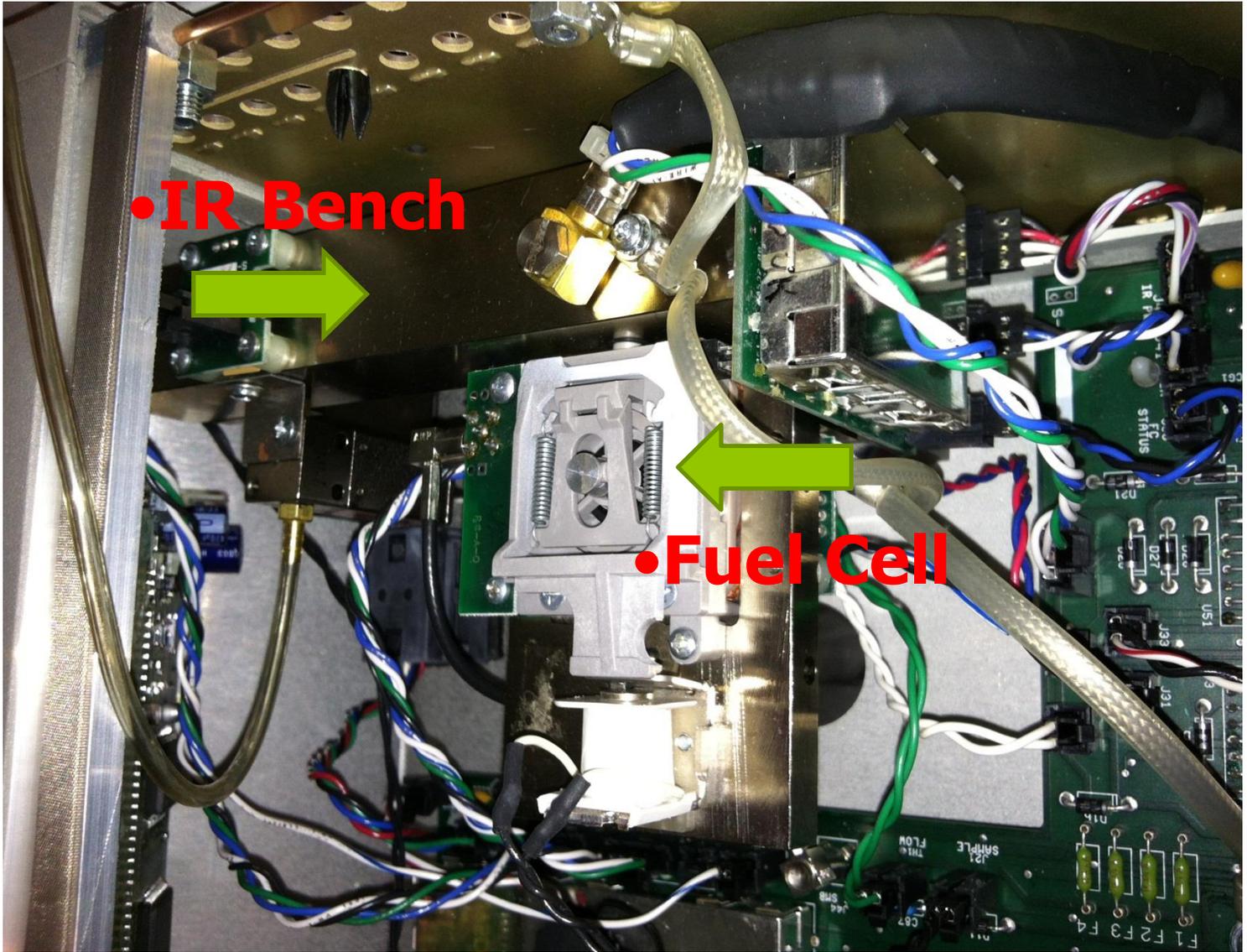








•Printer



•IR Bench



•Fuel Cell



# EC/IR Features

- Escape key --- exits current mode
- Enter key --- starts test and enters info
- (P) key --- prints last test
- (R) key --- prints refusal
- F1 to F12 keys --- administrative commands

# EC/IR

- Computer Compatible
- Internal record keeping
- Memory 400 tests
- Internal modem
- Allows remote diagnostic checks

# **Intox EC/IR**

- **Requires password**
- **20 character display**
- **measurement range .00 to .40**
- **Heated breath hose**

# **Intox EC/IR: Administrative Protocol**

- Press enter
- Subject Test y/n
- Enter information (20 characters per line)
  - operator's name
  - operator's ID
  - subject's name
  - subject's DOB (mm/dd/yy)
  - subject's sex: male

# **Intox EC/IR: Administrative Protocol**

- drivers license state
- arresting officer
- arresting officer's ID
- arresting department
- county of arrest
- edit? Y or N.

# **Intox EC/IR: Administrative Protocol**

- **Diagnostic process**
  - **checking system**
  - **blank check**
  - **(blow until beep)**
  - **subject test**
    - **3 minutes**
    - **3 opportunities**

# Intox EC/IR: Messages

- Test Refused--- subject was unable to complete test--- “R” key pressed during test
- **Operator abort---escape key pushed**

# EC/IR Messages

- Mouth Alcohol--- slope variance
- Three minute time out--- sample not provided in three minutes
- Insufficient Breath--- aborted test three times / 3 min t.o. starts over each time
- Out of range--- accuracy check off by more than .01
- High Blank --- contamination in blank check

+





# PRELIMINARY BREATH TEST INSTRUMENT

ACCURACY CHECK AND  
CALIBRATION  
PROGRAM  
FOR B.A.O.'s

# OBJECTIVES

- Explain differences in accuracy checks and calibration checks
- Demonstrate accuracy check procedures for assigned PBT(s)
- Demonstrate calibration check procedures for **AS III, AS IV, S-D2, S-D5, and FST.**
- Demonstrate operation of assigned PBT

# Instructional Goal



- Student will be able to verify the accuracy and calibrate PBT's

# Definitions

- **Accuracy Check** - is used to determine if an instrument is reading alcohol levels correctly. Accuracy checks do not require adjustments to the instrument.
- **Calibration** - adjustment used to reset the instrument to display the correct value of a known standard

# DRY GAS

- A CYLINDER CONTAINING A MIXTURE OF A KNOWN QUANTITY OF ALCOHOL MIXED WITH AN INERT GAS. (Nitrogen and Ethanol)



# DRY GAS

- Used properly the 105 tank gives at least 300 tests
- A small single stage regulator w/ gauge mounts on the tanks
- Tanks should be used only if they are between 10° - 40°C.

# Dry Gas continued....

- **The concentration of alcohol is calculated and carefully controlled to give the correct vapor concentration, when the cylinder is used at sea level, at normal atmospheric pressure (1Bar).**
- **At lower atmospheric pressures (such as at higher elevations) the concentration of alcohol in the vapor leaving the tank will be less.**

# Dry Gas continued ...

- Do not mix tanks from one manufacturer with regulators from another



- Use NIST traceable NHTSA approved standards



# Alco-Sensor III



- **The mouthpiece is aligned with the baffle**

# PROCEDURES FOR VERIFYING ACCURACY ON THE ASI III

- Make sure set button is depressed
- Check temperature strip on back. Any visible number shows it's OK
- Depress READ button, .000 should be seen for at least 7 to 10 sec.
- Depress SET button
- Attach mouthpiece
- Connect mouthpiece to solution source
- Remove AS III observe reading
- Results should be +/- .010 of solution value

# Calibration Check for AS III

- Ensure SET button is depressed
- Using screwdriver turn calibration screw 2 full turns clockwise
- Connect to solution source
- Deliver sample (5 sec.)
- Observe reading. Once reading surpasses the value marked on the standard, immediately turn the calibration screw counterclockwise, until reading matches the value of the sample

# Calibration continued...

- Once you are satisfied with the reading, depress SET button.
- Check calibration using accuracy check procedures. The reading should fall within .003 if a proper job of calibration has been done

# Calibration Information

- Sufficient time after each test must be allowed for all traces of alcohol on the cell surface to be eliminated. If the Alco-Sensor III is ready for use, no reading will develop when the READ button is held down for 10 sec.

# Alco-Sensor IV



# PROCEDURES FOR AS IV

- Insert new mouthpiece
- Observe temp reading. Must be in range of 10° - 40°C
- When display shows TEST connect to gas
- Deliver 7 sec sample. Depress manual button on 5th sec into sample
- Record the 3 digit reading. If it does not meet the specified tolerances, the unit requires a calibration adjustment.
- **CALIBRATION MAY ONLY BE PERFORMED ON THE ASIV BY A QUALIFIED TECHNICIAN**

# S-D2



- Hand-held
- Battery Operated
- Leather Carrying Case

# S-D2 (verifying accuracy)

- SET button must be depressed
- Check temp strip on the case of the SD-2. Any visible number indicates proper operating temperature
- Depress READ button, .000 should be seen for at least 7 to 10 sec.
- Depress SET button
- Connect mouthpiece to solution source
- Results should be  $\pm .010\%$  of solution value. If not, it needs calibrated

# Calibration for S-D2

- SET button must be depressed
- Using screwdriver insert onto calibration screw and turn counterclockwise 2 full turns.
- Connect by mouthpiece to solution source
- Take sample on the 4th of 5 seconds, by depressing READ
- Observe reading. Once reading surpasses the value marked on the solution, immediately turn the calibration screw until the value on the standard and the reading match. Once the value stabilizes and hold for 5 sec, the unit is calibrated.

# S-D2 INFORMATION

- Under no circumstances should the screw be turned counterclockwise to increase the number displayed by the SD-2 during this procedure.
- Once you are satisfied with the reading, depress SET button.
- Check calibration using accuracy check procedures. The reading should fall within .003 if a proper job of calibration has been done.

## S-D2 INFO cont....

- Sufficient time must be given after each test for alcohol on the cell surface to be eliminated. You may accelerate this by pushing the SET button. SD-2 is ready if no reading develops after holding READ down for 10 sec. If any residual alcohol were present, a reading would appear.

# CMI Intoxilyzer 500 (I-500)



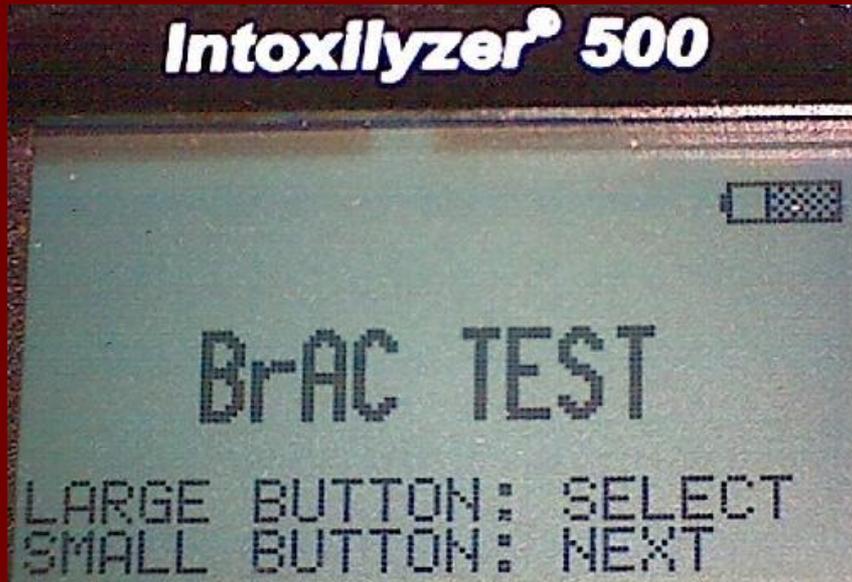
- Hand-held
- Battery operated
- LED graphic display
- Last test recall
- Automatic and Manual Sampling

# I-500



- **Small button (on/off)**
  - **Depress once to activate**
  - **Unit will display serial number, date and time**
  - **Hold button for 3 seconds to switch off**

# I-500



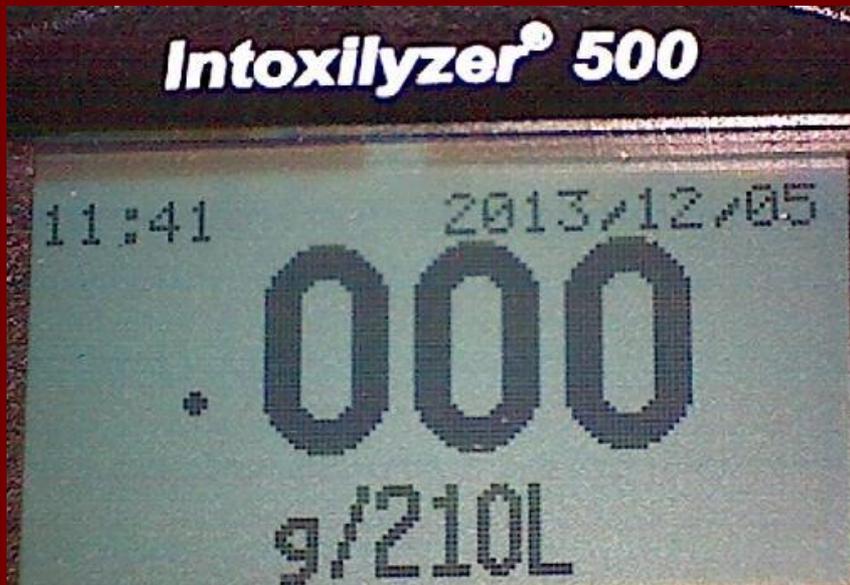
**The unit will always start up in the BrAC test mode. Follow the instructions on screen for large and small function buttons.**

# I-500



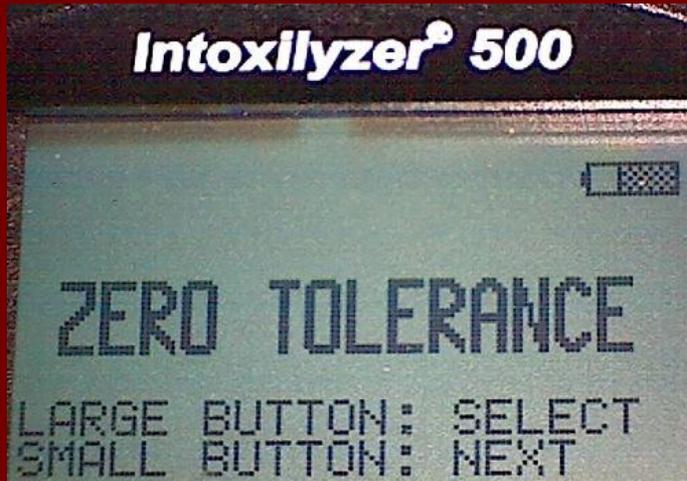
- Press large button if a manual sample is needed.
- This can be done once unit displays **READY** during the sample when the screen is displaying **FLOW**.

# I-500

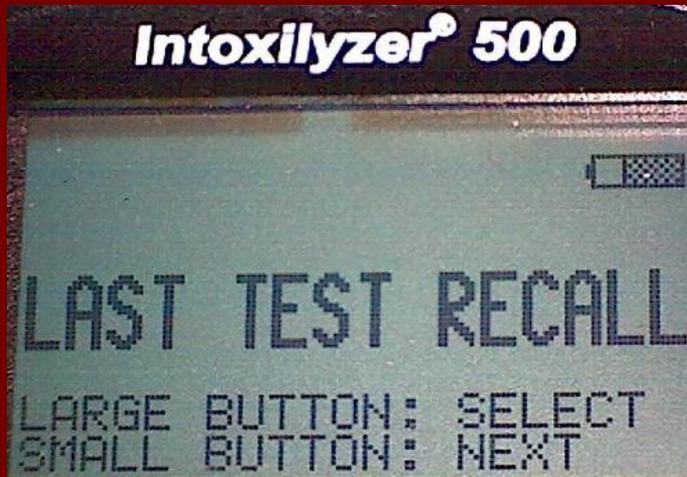


- Once analysis is complete, the test result will be displayed.

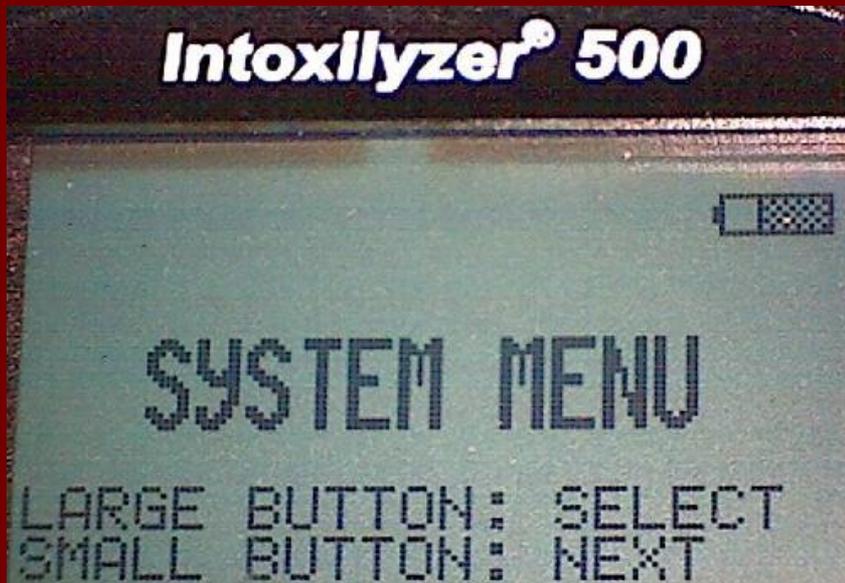
# I-500



- The second menu options are zero tolerance and last test recall.

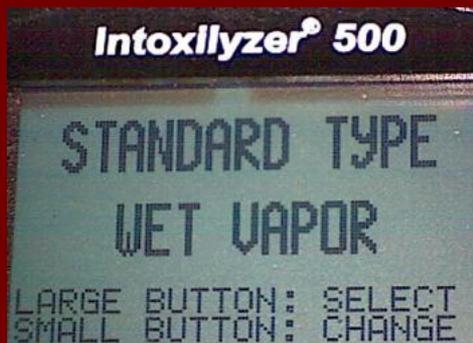
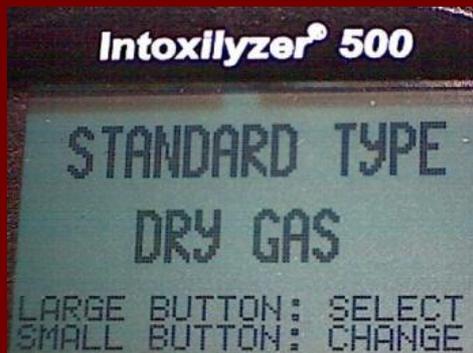
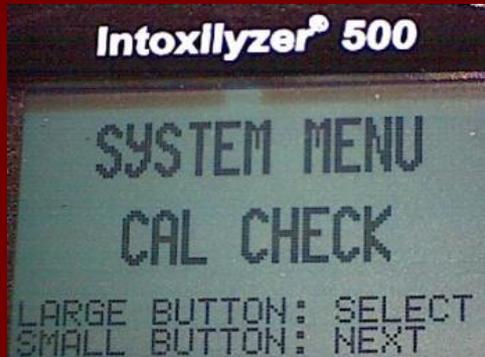


# I-500



- The fourth menu option is the System Menu. This will provide access to Cal Check / Calibration / Recall last 5 tests / Set date, time / and exit.

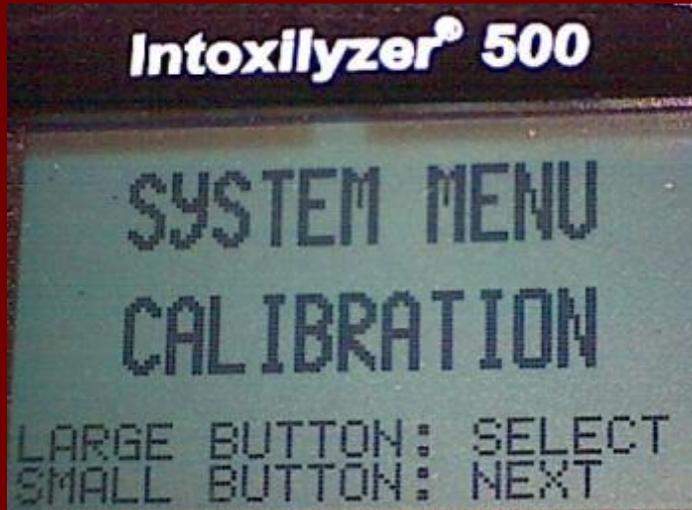
# I-500



- Enter the Calibration mode and select Dry Gas . The screen will then display large button for sample.



# I-500



If the result was not within our 10% standards enter the System Calibration mode.



Follow the instructions on screen for standard value.

# I-500



The fifth menu option is the Switch off screen.

# Alco-Sensor FST

- Multiple modes including accuracy, calibration, passive, roadblock, and recall.
- Officer safety design
- Automatic sampling
- Backlit display
- Temperature reading



# Accuracy and Calibration

- Depress the front button and back button simultaneously
- Choose the ACC or CAL mode and proceed with directions on screen
- On-line Operator's Manual
- On-line training



# SUMMARY

- Verify PBT's once every 93 days
- A PBT examiner may check other agencies PBT's upon request
- AS IV's needing calibration must be completed by a Technician (BAT)

# **PRELIMINARY BREATH TEST (PBT)** **ACCURACY AND CALIBRATION**

## **KEY WORDS**

ACCURACY TEST

CALIBRATION

ETHANOL DRY GAS STANDARD

PLUS OR MINUS **10% OF .080 = .072 TO .088**

ILLINOIS 500 FEET ABOVE SEA LEVEL

ADJUSTED VALUE OF .082 GAS IS .080

TAKING KNOWN STANDARD AND INTRODUCING IT TO SOMETHING AND  
TELLING IT WHAT IT SAW !

**EVIDENTIARY** INSTRUMENTS MUST BE ACCURACY TESTED EVERY **62** DAYS AND  
THEY CONSIST OF TWO TESTS.

**NON-EVIDENTIARY (PBT'S)** MUST BE ACCURACY TESTED EVERY **93** DAYS AND  
THEY CONSIST OF ONE TEST.

EACH TEST WILL BE LOGGED IN SOME TYPE OF LOG BOOK SPECIFIC TO EACH  
INDIVIDUAL PBT. EACH LOG ENTRY SHEET FOR THE PBT SHALL CONTAIN:

- \* DATE / TIME
- \* OFFICER'S NAME
- \* INSTRUMENT TYPE AND SERIAL NUMBER
- \* THE RESULT OF THE TEST IE: .080
- \* THE LOT NUMBER OF THE DRY GAS STANDARD
- \* THE EXPIRATION DATE OF THE DRY GAS STANDARD

- #1 CONDUCT ACCURACY TEST ON INSTRUMENT
- #2 LOG THE RESULT
- #3 IF PASSED THEN YOU ARE DONE

OR

- #1 CONDUCT ACCURACY TEST ON INSTRUMENT
- #2 IF NOT WITHIN + OR - 10% LOG THE RESULT
- #3 WAIT SEVERAL MINUTES AND CALIBRATE INSTRUMENT TO .080
- #4 WAIT SEVERAL MINUTES AND CONDUCT ACCURACY TEST
- #5 LOG THE RESULT
- #6 IF PASSED THEN YOU ARE DONE

# PHYSIOLOGY & PHARMACOLOGY of Alcohol



# **Properties of Alcohol**

**Alcohol is a hydrophilic compound**

**. It has an affinity for water**

**All Alcohol's are toxic to the same degree**

**. Sufficient quantities are lethal**

# TYPES OF ALCOHOL

**Ethanol**

**Isopropanol**

**Methanol**



# ETHANOL

- ✦ **Used primarily for alcoholic beverages**
- ✦ **Chemical formula  
 $\text{CH}_3 \text{CH}_2 \text{OH}$**
- ✦ **Not as toxic as other alcohols due to the lower toxicity of its by-products.**



# METHANOL

- ✦ **PRIMARILY USED FOR “STERNO” TYPE PRODUCTS**
- ✦ **extremely toxic to the human body due to its produced by-products**
- ✦ **methaledhyde or formaldehyde**
- ✦ **formaldehyde converts to formic acid**



# ISOPROPANOL

- ✦ **rubbing alcohol**
- ✦ **Reduced income alcoholics sometimes are known to consume these products**



# LETHAL DOSES

✦ **ETHANOL -**  
**.40** .45grams/100 ml  
blood

✦ **METHANOL -**  
**.07** .075 gram/100 ml  
blood

✦ **ISOPROPANOL -**  
**.25** .35grams/ 100 ml  
blood



**WHAT does .08 mean ?**

**.08 grams / 100 milliliters of blood  
equals**

**.08 grams / 210 liters of breath**

# BREATH ALCOHOL CONCENTRATION

✦ **Breath to blood ratio is based on:**

✦ **Partition ratio of 2100 / 1**

✦ **Alcohol in 2100 ml of breath = alcohol in 1 ml of blood**

✦ **Grams / 210 liters of breath equals**

✦ **Grams / 100 milliliters of blood**

# **Blood Alcohol Concentration and Gender**

**BAC = total amount of alcohol divided  
by total body water thus more water  
means less BAC**

**Females have more body fat than  
males thus less water than males**

**Females 52 % water**

**Males 61 % water**

# ALCOHOL CONTENT

✦ **Beer contains  
4-6% ethanol**

✦ **Malt liquor  
contains over  
6%**

✦ **Wine contains  
12- 15%  
ethanol**

✦ **Fortified wines  
contain more  
than 15%**

# THE “PROOF” SYSTEM

- ◆ **Fermented beverages are listed as “%” ( Beer / Wine )**
- ◆ **Distilled beverages are listed as “proof” (Whiskey, Vodka, etc.)**
- ◆ **The proof concentration of any beverage is twice its alcohol content**
- ◆ **100 proof whiskey is 50% alcohol**

One mixed drink with  
• 1.5 fl oz (44 mL)  
of 80-proof liquor  
(such as vodka,  
gin, scotch, bourbon,  
brandy, or rum)



5 fl oz (148 mL)  
of wine



12 fl oz (355 mL) of  
beer or wine cooler



© Healthwise, Incorporated

# Determining Ethanol Content

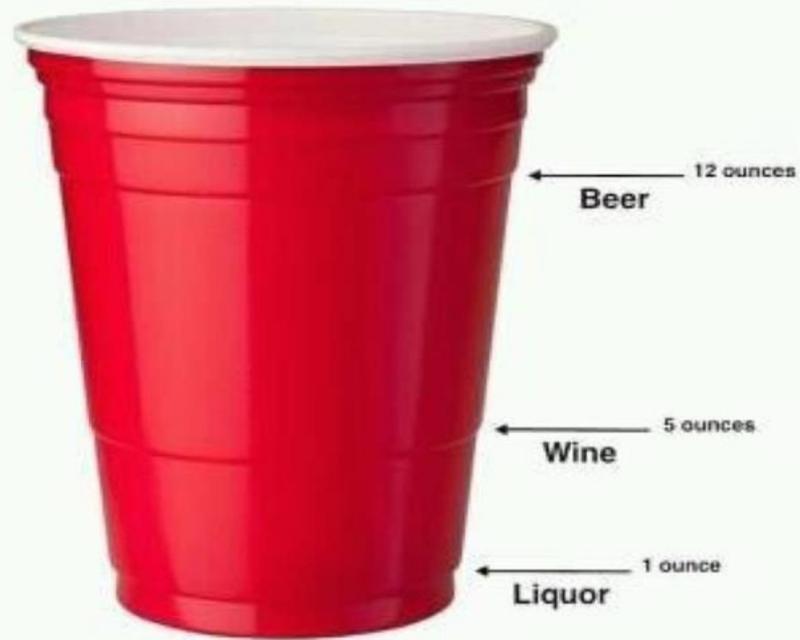
✦ **Beer = 12 oz X .05 % = .60 fl oz**

✦ **Whiskey = 1 ½ oz X .40 % = .60 fl oz**

✦ **Wine = 5 oz X .12 % = .60 fl oz**

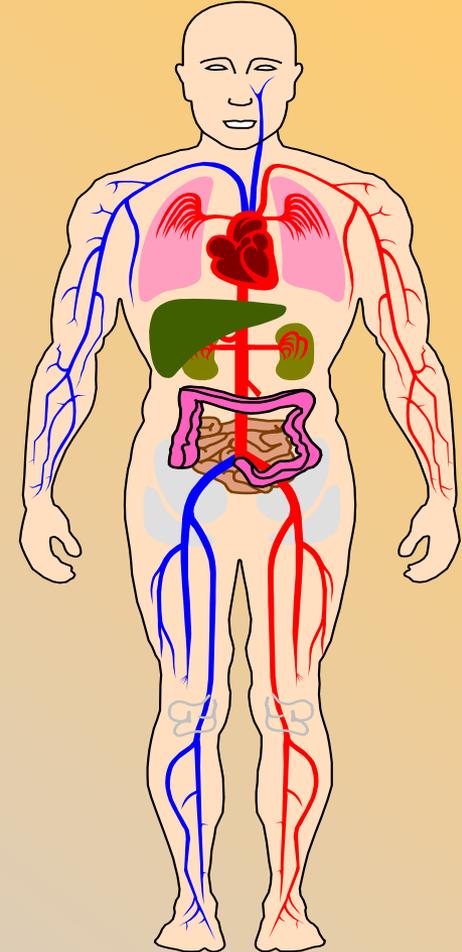
✦ **A drink is a drink is a drink!**

## Did You Know: The Lines on a Solo Cup are Measurement Marks



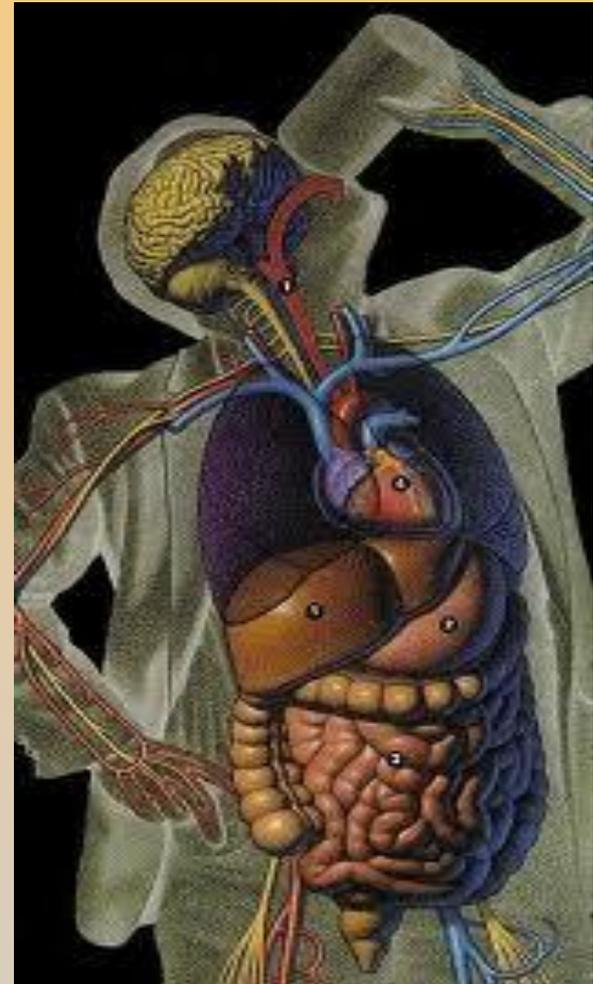
# DISTRIBUTION OF ALCOHOL

- ✦ **In the Human Body**
- ✦ **TIMING**
- ✦ **Amount of ethanol in tissue is proportional to the amount of water in that tissue.**
- ✦ **What organ contains the most water? **Brain****
- ✦ **Alcohol can be measured in the brain within 3 minutes of consumption**
- ✦ **Alcohol takes only 60 seconds to circulate**



# ABSORPTION OF ALCOHOL

- ◆ **Oral ingestion**
- ◆ **Inhalation**
- ◆ **Injection**
- ◆ **Absorption**
- ◆ **Rectally**
- ◆ **Vaginally**

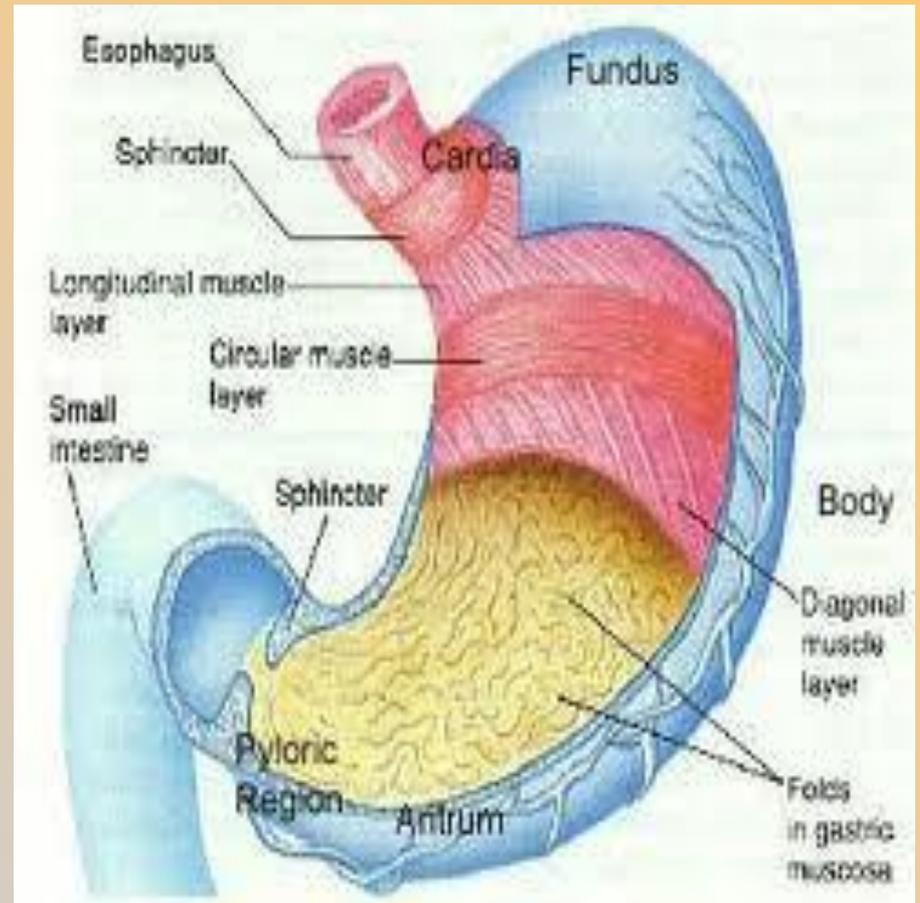


# **ORAL CONSUMPTION**

- ✦ **MOUTH 1% ABSORPTION**
- ✦ **Esophagus less than 1%**
- ✦ **Stomach 5 - 10%  
absorption**
- ✦ **Ethanol stimulates  
digestive fluids  
(hydrochloric acid)**

# GREATEST EFFECT ON RATE OF ABSORPTION

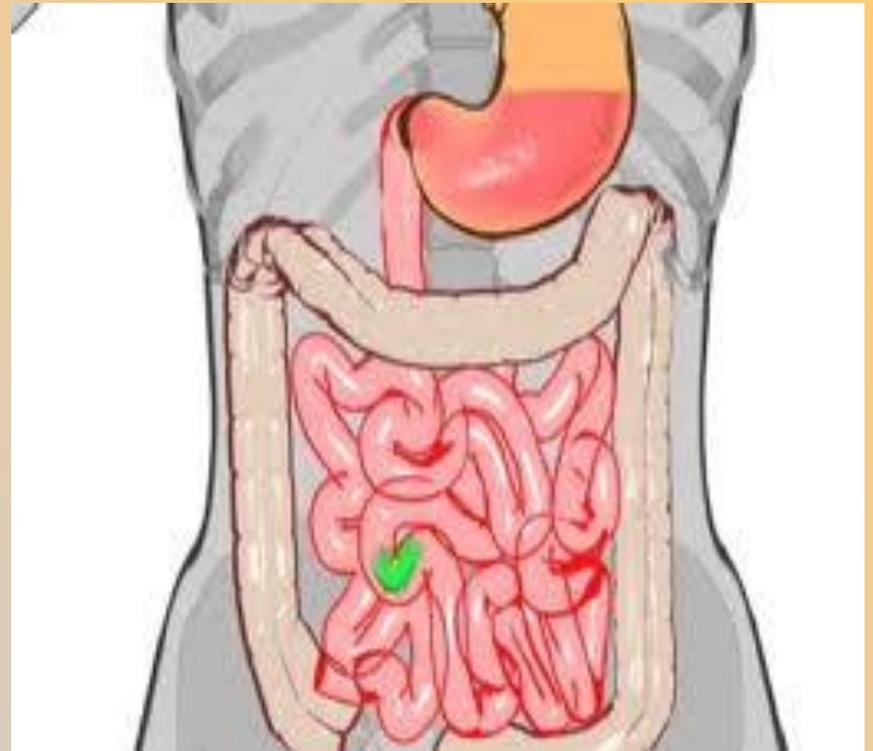
## The Pyloric Valve



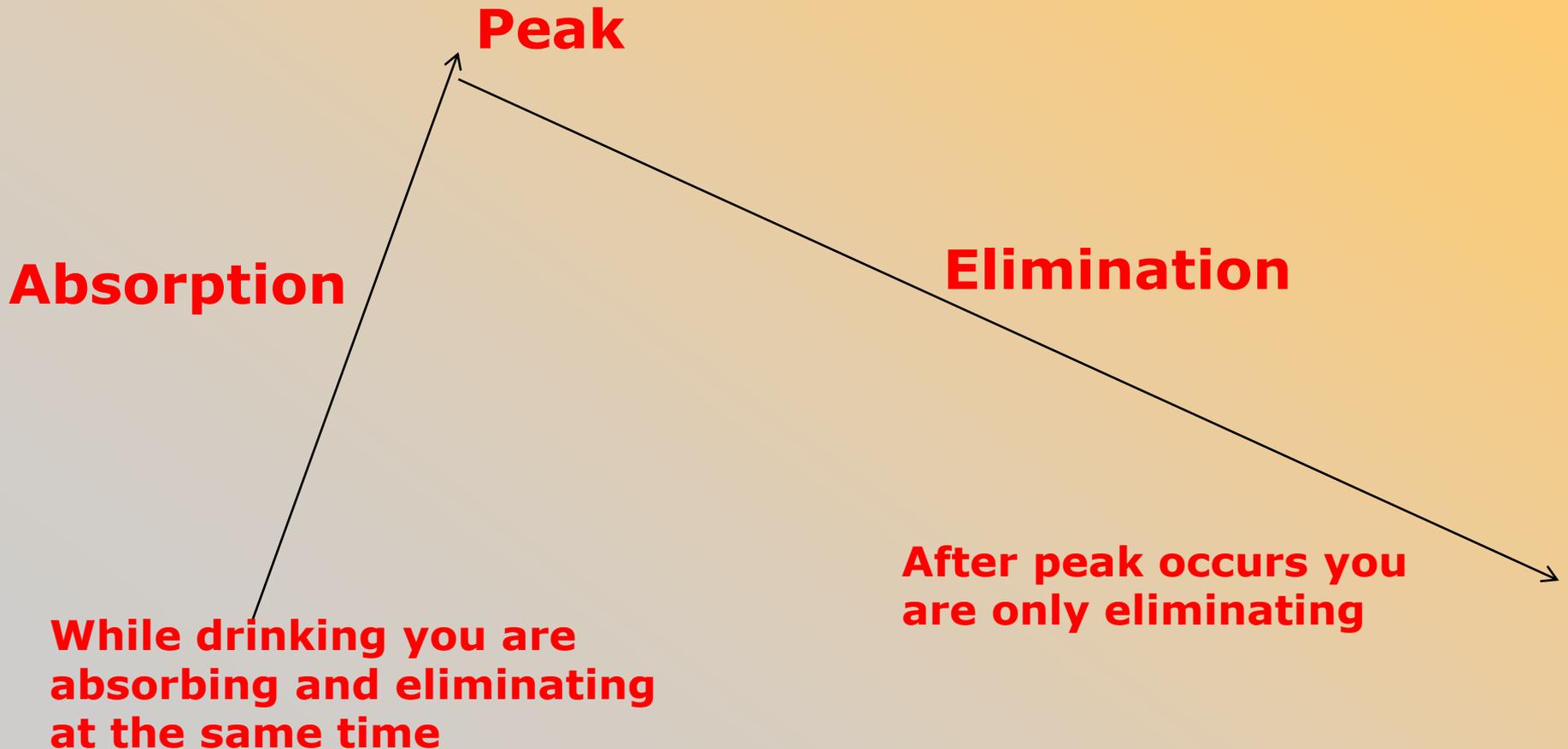
# SMALL INTESTINES

✦ **90-95% OF THE  
ABSORPTION OF  
ETHANOL**

✦ **. WITHIN THE  
FIRST 10-12  
INCHES OF  
INTESTINE**



# MELLANBY EFFECT PHASES OF ALCOHOL CONCENTRATION



# ABSORPTION PHASES

- ✦ **Continued drinking = + BAC**
- ✦ **Stop drinking > BAC increases until PEAK**
- ✦ **Elimination Phase begins almost as soon as you start drinking**
- ✦ **After last drink “PEAK” is within 45-75 min.**
- ✦ ***Alcohol is not digested, but absorbed unchanged!***

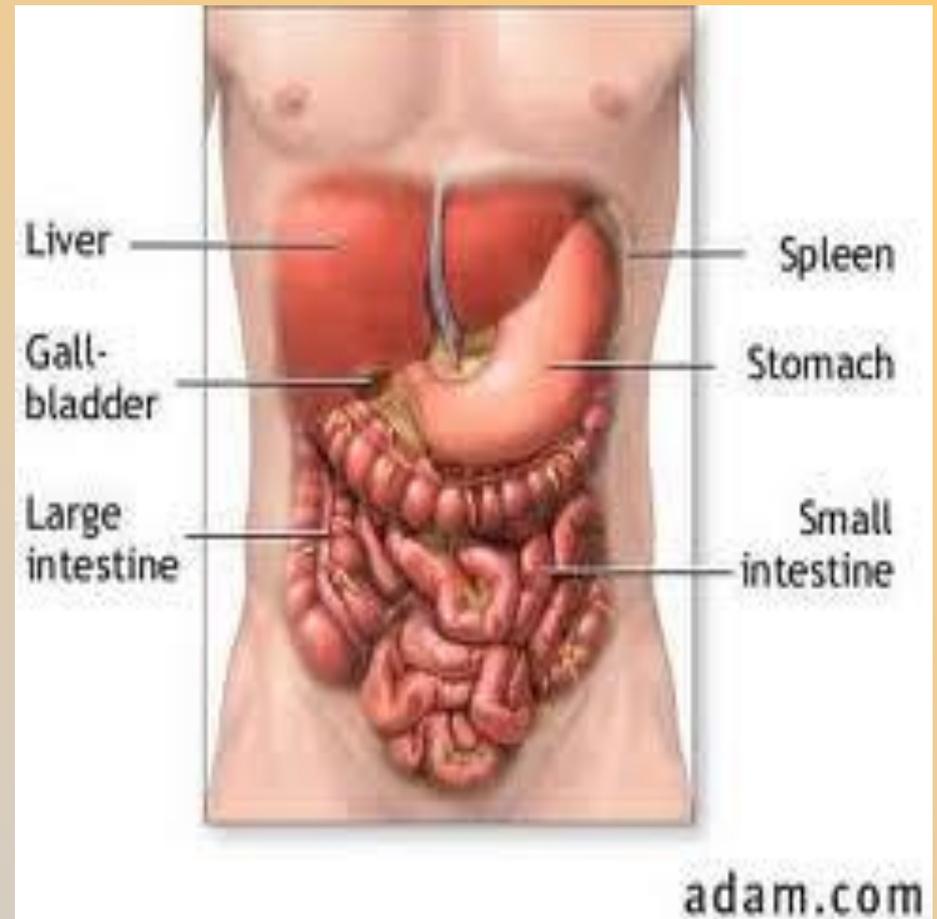
# Elimination from the Body

✦ **.015 per hour, or .5 oz, or 1 drink**

✦ **Small amount through excretion of alcohol from the breath, urine, sweat, feces, milk, saliva**

# METABOLIZATION

✦ **Up to 95% of Alcohol is metabolized in the liver.**



# HENRY'S LAW

**1803 BRITISH CHEMIST  
DEVELOPED THEORY OF VOLATILE  
SUBSTANCES PLACED  
IN WATER AND BROUGHT IN  
CONTACT WITH AIR  
(*BASIS FOR BREATH TESTING*)**

**“When the water solution of a somewhat volatile chemical compound is brought to equilibrium with air, there is a fixed ratio between the concentration of this compound in the air and the concentration in the water. This ratio is constant for a given temperature and pressure.”**

# HENRY'S LAW

**If you have a closed container**      **Alveolar sacs**

**A constant temperature-**      **37 degrees C/ 98.6F**

**A volatile substance**      **Alcohol**

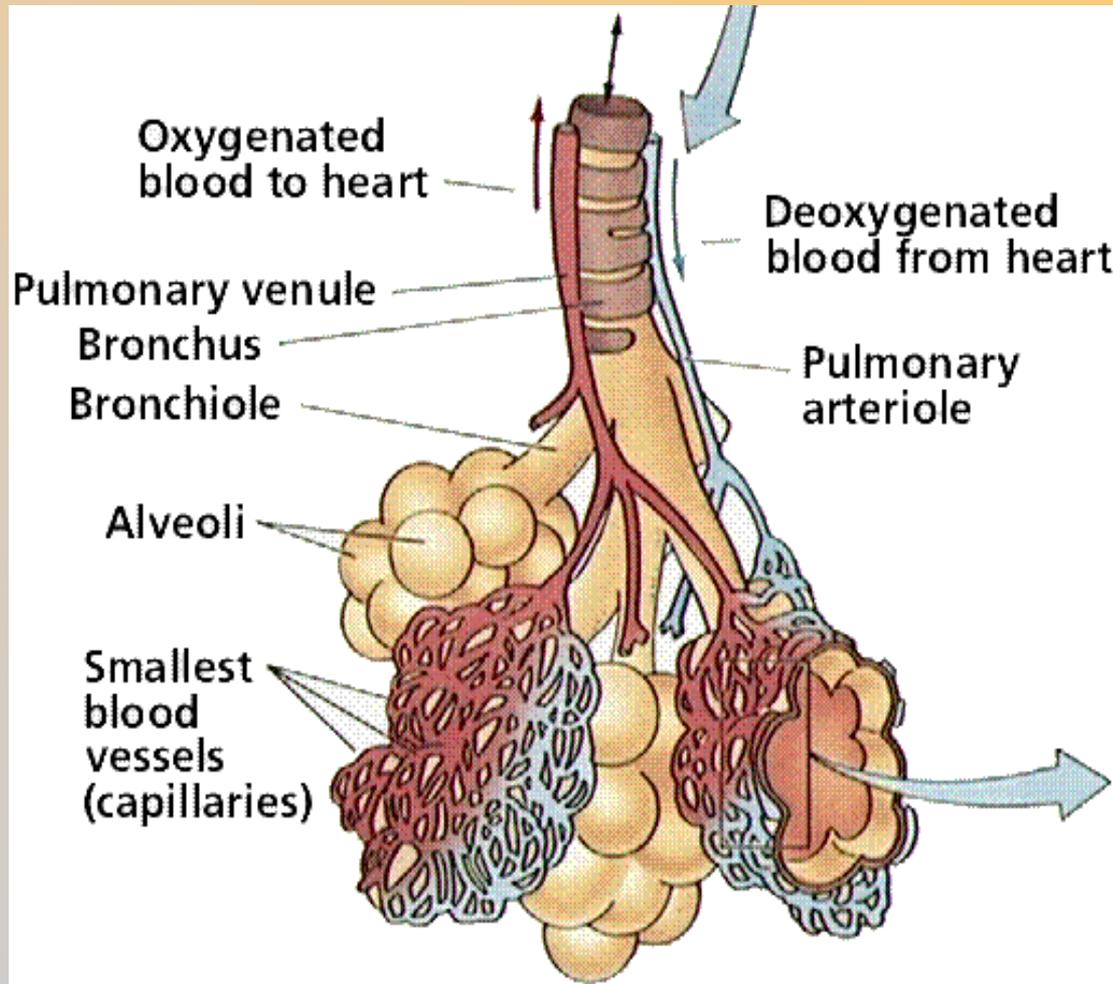
**A liquid and a gas-**      **Blood--deep lung air**

**Then you have a relationship between the amount of volatile substance in the liquid and that in the gas**      **2100/1**

**This is true regardless of the size of the container or the amount of a volatile substance.**



# Alveolar Sacs



# Temperature

**Increase in body temperature results in an increased (false positive) reading.**

**Body temp. 98.6°F or 37°C.**

**Every 1°C increase in body temp results in a 7% increase in breath results.....**

# WIDMARK'S FORMULA

- ✦ **Developed by:**
- ✦ **Dr. Widmark - Sweden 1930**
- ✦ **“Widmark Beta Factor”**
- ✦ **Generally accepted that the human body will eliminate alcohol at the rate of :  
.015 per hour**
- ✦ **A .03 will be eliminated within  
?  
2 Hours**

# Effects of Alcohol on the Brain

- ✦ **Frontal Lobe = Higher learning & judgment**
- ✦ **Midline Brain Functions**
- ✦ **Motor Skills - hand eye coordination**
- ✦ **Brain Stem - life support systems**



# Brain Effects

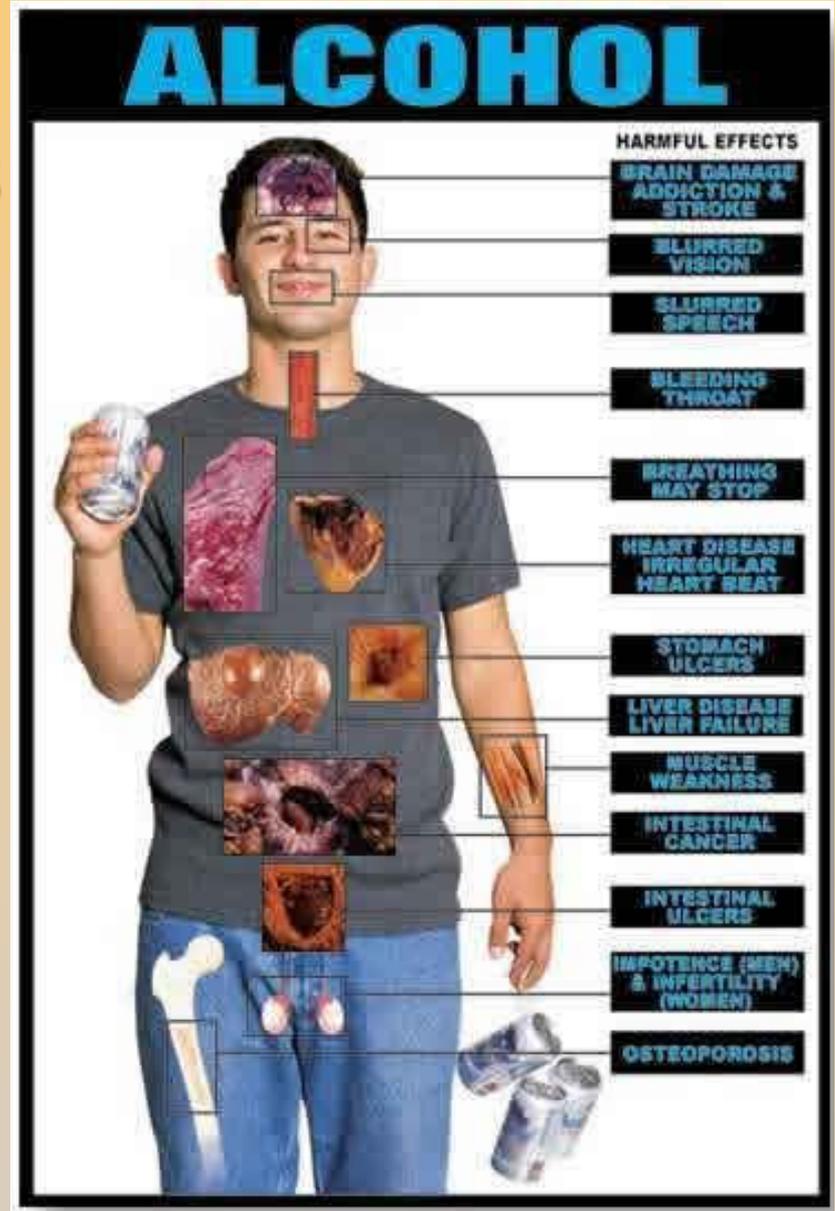
- ✦ **Alcohol is a drug and a depressant which depresses transmissions**
- ✦ **First to go is judgment and reasoning**
- ✦ **Second is sight, hearing, touch, feel, taste**
- ✦ **Third motor skills, fine then gross**
- ✦ **Lastly is life support systems**

# MOTOR SKILLS

- ✦ **Muscular Coordination**
- ✦ **.06 fine motor coordination is affected**
- ✦ **higher levels .08 gross motor skills**



Short and long term harmful effects of alcohol and the human body



# ALCOHOL with DRUGS

- ✦ alcohol taken w/ drugs produces a synergistic effect
- ✦ there is no known drug which reduces the effects of alcohol
- ✦ **THEREFORE:** when any drug is combined with alcohol the individual's impairment will increase



# Road Side Breath Tester RBT IV



# Alco Sensor IV Analytical System



# Printing System and Memory



# **RBT IV : Background**

- On NHTSA CPL list in 1992**
- Illinois Approved Evidential Instrument in 1995**
- 5th generation breath testing instrument**
- Increased specificity to alcohol**
- Increased automation**

# Characteristics



- Portable
- Produce hard copy test result on-scene
- Specific to alcohol
- Results on negative samples in ten seconds
- Positive samples 30-45 seconds

# Characteristics



- Reads alcohol levels between .000 - .400
- Can operate between 10 and 40 degrees Celsius
- Self diagnostics
- Multiple power sources

# Characteristics



- 75 tests on fully charged printer battery
- 300 tests on AS IV battery
- 900 test memory
- Water-proof case

# Cell Enhancement Module



- Used for warming AS IV handheld with heater
- Fan used for quick multiple tests
- Storage for AS IV

# Operating Procedures



- Press “ON” button to start instrument operation
- Date and time will be displayed
- Press “Start” “0” to conduct subject test

# Operating Procedures



- Enter officer ID. This is not a critical entry but it requires input
- Press “Enter”

# Operating Procedures



- The instrument will ask you if the input is correct
- Press “8” for “YES”
- Press “9” for “No”

# Operating Procedures



- Insert special mouthpiece into the AS IV unit
- The instrument will tell you to follow AS IV directions

# Operating Procedures



# Operating Procedures



- You can follow directions on the back of the instrument
- Do not place your hand over the exhaust port. This may cause a malfunction

# Operating Procedures



- The instrument will display its current operating temperature
- The unit will not operate if it is too cold or hot. Place in the CEM if this occurs

# Operating Procedures



- The instrument will perform an “Air Blank” and indicate .000
- Other readings will cause the instrument to void the test

# Operating Procedures



- Press the set button when prompted

# Operating Procedures



- Have the subject blow when “RBT” appears
- If the word “Test” appears this indicates the unit will only operate as an AS IV and will not print. This is not an evidential test.

# Operating Procedures



- One “ + ” sign indicates the subject has met the minimum pressure requirement
- Two “ ++ ” signs indicates the subject has met the minimum volume requirement

# Operating Procedures



- “NoGo” will appear if the subject failed to meet minimum breath test requirements

# Operating Procedures



- When you hear a “Click” that indicates a proper sample was given
- “ < > ” signs indicates the unit is analyzing the sample

# Operating Procedures



- The subject's BAC will be displayed

# Operating Procedures



- Press the set button when prompted

# Operating Procedures



- You have to remove the mouthpiece before it will print

# Operating Procedures

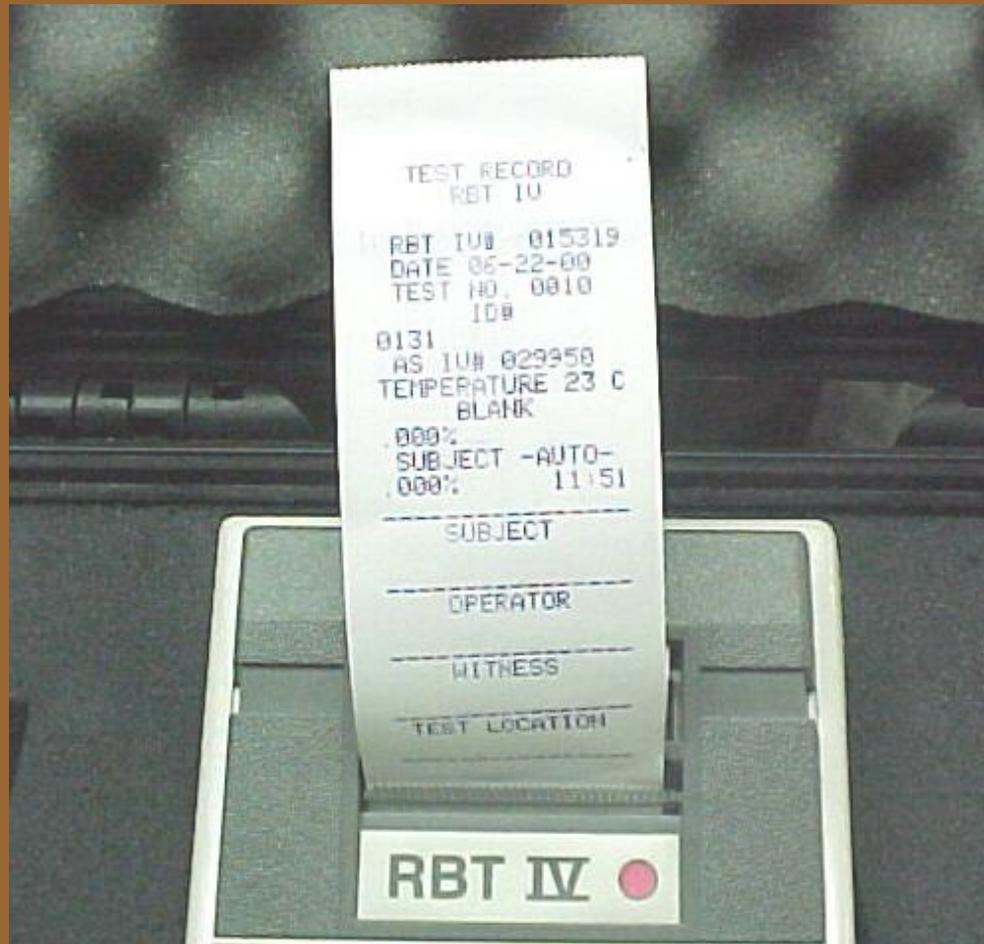


**Red Eject button**

# Operating Procedures



# Operating Procedures



# RBT IV Questions?



# INFRARED and FUEL CELL THEORY



# Illinois Evidential Instruments

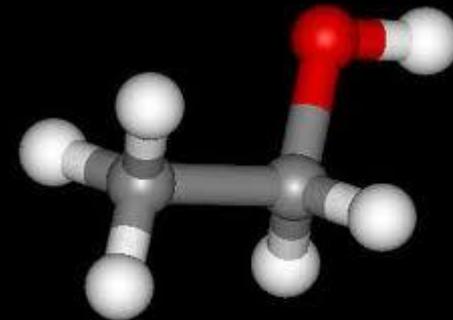
- EC/IR and EC/IR II
  - Fuel Cell and IR
- AS V xl
  - Fuel Cell
- Intoxilyzer 8000
  - IR
- RBT IV
  - Fuel Cell

# The Lambert - Beer Law

- Relates the absorption of light to the properties of the material through which the light is travelling.
- An example would be a closed container filled with molecules of gas. When light passes through one end of the container and out the other, the emergent light on the other side measures the concentration of molecules.

# Examples of different molecules that would have different light absorption

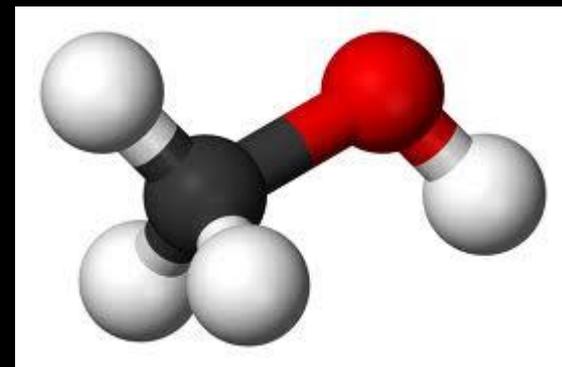
- ETHYL ALCOHOL  
 $\text{CH}_2\text{CH}_2\text{OH}$  molecules are absorbed within a narrow strip of infra-red color 3.380 to 3.398 microns



Ethyl Alcohol ( $\text{C}_2\text{H}_6\text{O}$ )

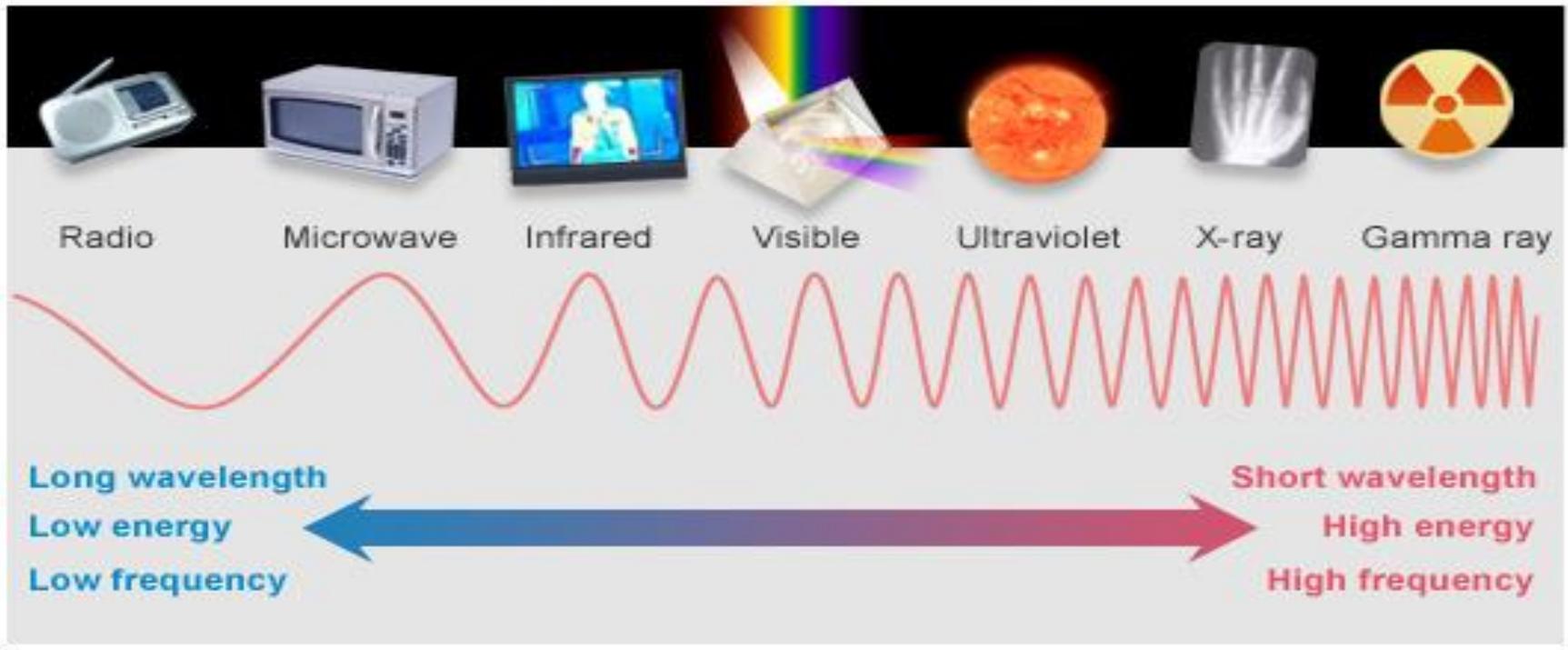


- METHYL ALCOHOL  
 $\text{CH}_3\text{OH}$  is chemically different which changes its absorption slightly



# Electromagnetic Spectrum

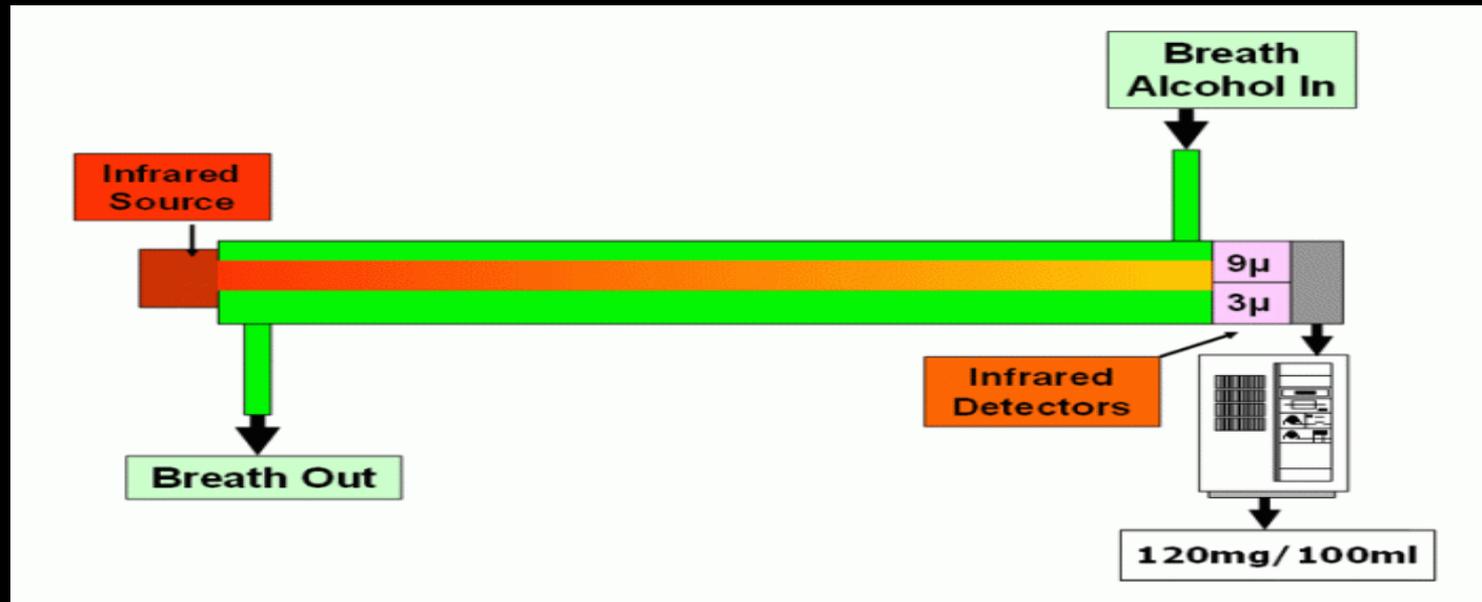
The electromagnetic spectrum



The radiation behind radios, visible light and nuclear blasts is all exactly the same thing, just with different amounts of energy.

# INFRA-RED ABSORPTION

- Device measures alcohol in the breath by detecting the decrease in intensity of a wavelength of light passing through a breath sample.
- The wavelength of (Ethyl Alcohol =  $\text{CH}_2\text{CH}_2\text{OH}$ ) is 3.38 to 3.39 MICRONS which is in the infra-red color range
- MICRON = 1 millionth of a meter



# Infrared Chamber

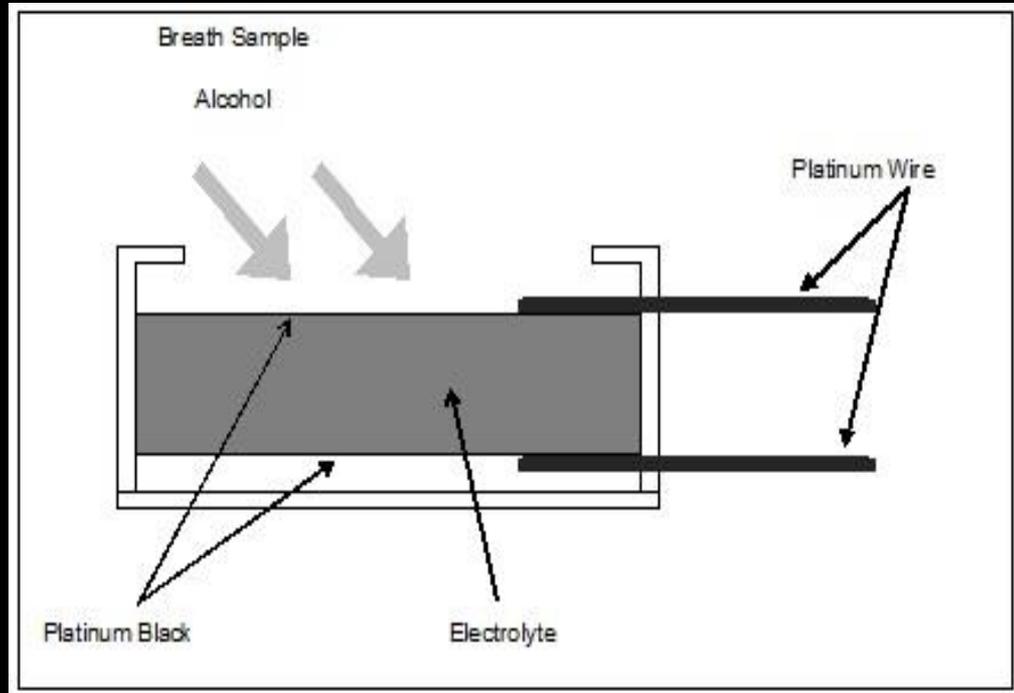


**Example of EC/IR Infrared chamber**

# Ethanol Molecules

- ETHANOL has a very large absorption coefficient for light at 3.39 microns
- You can determine breath alcohol levels by passing a narrow band of light, selected for its absorption by alcohol, through one side of a breath sample chamber.
- The emergent light on the other side of the chamber would measure the concentration of Ethanol in the breath.

# Fuel Cell

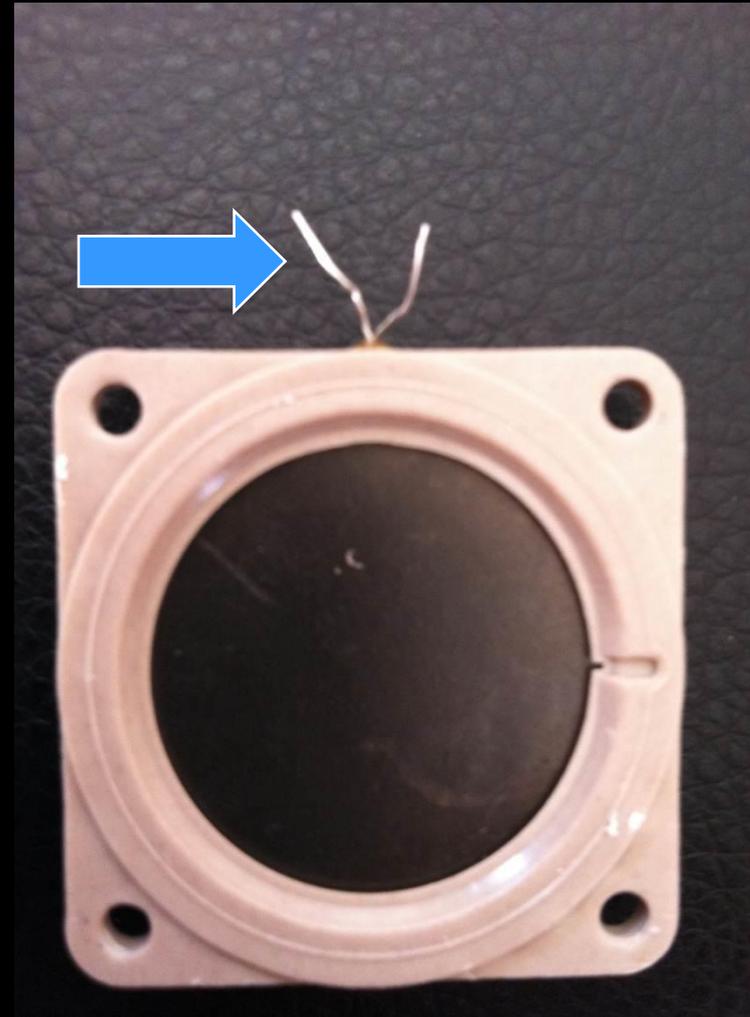


Intoximeters training video for fuel cell animation

[www.intox.com/t-FuelCellswf.aspx](http://www.intox.com/t-FuelCellswf.aspx)

# FUEL CELL COMPONENTS

- Porous surface coated with finely divided platinum oxide  
“Platinum Black.”
- Impregnated with an acidic electrolyte solution
- Electrical connections applied to the surfaces



# CELL SURFACE REACTION

- On the upper surface of the cell, alcohol is converted into acetic acid
- This produces 2 free electrons per molecule of alcohol so converted
- H<sup>+</sup> IONS are freed and migrate to the lower surface of the CELL where they combine with OXYGEN to form WATER consuming one electron per ION in the process.

# MEASUREMENTS

- **The upper surface has excess of electrons**
- **The lower surface has a deficiency of electrons**
- **The two surfaces are connected and a measurable electrical current is formed**
- **The current is an indicator of the amount of alcohol consumed by the fuel cell**

# Fuel Cell

- Specific to alcohol
- Less cost
- Output is linear
- Compact

# Infrared

- Real-time measurement
- Output is non-linear
- Quick multiple tests
- Mouth alcohol detection

## Acetone and other possible interferents using fuel cell instruments



Substance	Vapor Concentration (mg/l)	Alco-Sensor III Response (gm/dl)	Alco-Sensor IV Response (gm/dl)
Acetone	0.1	0.0	0.0
Gasoline	0.1	0.0	0.002
Mineral Spirits	0.1	0.0	0.0
Methane	0.1	0.0	0.0

Substance	Equivalent BAC	Alco-Sensor III Response	Alco-Sensor IV Response
Ethanol	0.1	0.100	0.100
Methanol	0.1	0.047	0.043
Isopropanol	0.1	0.042	0.042

# INFRA-RED & FUEL CELL TECHNOLOGY

- You need not be an expert in the field.
- You should however, have a reasonable understanding of how your instrument measures alcohol.



# ***INFORMATIONAL WEBSITES***

Illinois Secretary of State

[www.cyberdriveillinois.com](http://www.cyberdriveillinois.com)

National Highway & Traffic Safety Administration

[www.nhtsa.gov/](http://www.nhtsa.gov/)

Intoximeters, Inc.

[www.intox.com](http://www.intox.com)

CMI, Inc.

[www.alcoholtest.com](http://www.alcoholtest.com)

Ilmo Specialty Gases

[www.ilmoproducts.com](http://www.ilmoproducts.com)

Illinois Vehicle Code

[www.ilga.gov](http://www.ilga.gov)