Intoximeters
Experience · Service · Integrity

Alco-Sensor FST®

(Serial Numbers 200000 or above)

Operator's Manual – 26-0145-00

CONFIDENTIAL

Disclaimer
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Safety
For correct and effective use of the described instrument, it is essential to read and strictly follow the instructions contained in this document. The described instrument is to be used only for the purpose specified herein.

Maintenance
Repairs of the described instrument may only be performed by Intoximeters, Inc. or an Intoximeters authorized service technician.

Only original Intoximeters spare parts may be used.

Unpacking and Setup
Carefully open the packing carton and remove contents.
Refer to the packing list in the box to ensure all items are accounted for.
Inspect for any sign of shipping damage.

DO NOT DISCARD CARTON OR PACKING MATERIALS UNTIL YOU ARE SURE THAT ALL PARTS OF SHIPMENT ARE DAMAGE-FREE AND IN WORKING ORDER. IN THE EVENT OF DAMAGE CONTACT THE CARRIER AND INTOXIMETERS IMMEDIATELY

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Parts and Labor Warranty - FOR INSTRUMENTS PURCHASED AND SERVICED IN THE UNITED STATES
Unless otherwise determined by the Purchase Agreement, Intoximeters, Inc. ("Intoximeters") warrants to the original Purchaser that all new *Intoximeters Breath Alcohol Analyzers* ("Product") are free from defects in material and workmanship, under normal use and service, for a period of twelve (12) months from original invoice date. The following are not covered under this warranty: consumables or supplies (i.e. mouthpieces, calibration gas, ink ribbons, printer paper) nor any damage which has, in Intoximeters opinion, been the result of misuse, alteration, accident or abnormal conditions of operation or handling. Also excluded from coverage under this warranty are printers and other hardware that are not manufactured by or for Intoximeters, Inc. and do not carry the Intoximeters trademark, trade name, or logo affixed to them.

Breath alcohol instrument firmware is warranted to perform substantially in accordance with the processes defined in the instrument's Operator's Manual. Breath alcohol instrument firmware is warranted to be free from defects in material and workmanship under normal use and service for a period of twelve months from original invoice date.

If the product, under warranty, is returned to an Intoximeters Service Center for warranty repair and, upon examination, it is determined to be defective, Intoximeters' obligation is limited to repair, replacement or refund of purchase price. Intoximeters reserves the option to choose repair, replacement or refund as the means to satisfy this obligation. All products and parts that are replaced under warranty become the property of Intoximeters.

In the event that Intoximeters chooses to replace a product the replacement product is warranted for the replaced instrument's original warranty period.

If Intoximeters chooses to repair the product, the repaired components are warranted for a period of the longer of 90 days from the billing date of the repair or instrument's original warranty period.

Intoximeters shall not be responsible for any custom software, custom configuration or test data, customer information, contained in, stored on, or integrated with any products returned to Intoximeters, pursuant to any warranty, repair or recertification.

CAUTION: The *Intoximeters Breath Alcohol ANALYZER CONTAINS* static-sensitive memory devices. The unit's casing should only be opened by a factory authorized technician.

This warranty does not apply if:

- the product has been repaired or modified by someone other than a factory authorized technician without written permission from Intoximeters;
- if parts other than Intoximeters approved parts are used in replacement or repair; or
- if any Intoximeters serial number has been removed or defaced.

For warranty service, contact your nearest Intoximeters Authorized Service Center to create a repair incident and determine the address of the appropriate Service Center. The product should be sent to the Service Center with a description of the difficulty (shipping and insurance prepaid). Intoximeters assumes no risk for damage in transit. Intoximeters will pay return shipping (ground transportation) for a product repaired under warranty.

For repairs not under warranty, repaired or replaced components are warranted for a period of 90 days from the billing date of the repair. Components not repaired or replaced during the service do not receive an additional warranty period over and above the warranty provided in the instrument's original purchase.

If Intoximeters determines that the failure was caused by misuse, alteration, accident or abnormal condition of operation or handling, an Intoximeters Authorized Service representative will contact the Purchaser to let them know that any instrument repairs are not be covered by warranty. The Service Representative will ask the Purchaser to determine what they would like to have done with the instrument. Unless the Purchaser decides to transfer ownership to Intoximeters, whether the product is repaired or not, it will be returned to the Purchaser via ground transportation prepaid (overnight or express delivery charges are additional) and the Purchaser will be billed for the shipping cost plus any associated estimate or repair costs incurred.

If Purchaser purchases the product from Intoximeters or a distributor within the United States and transports the product(s) outside of the United States, the product must be returned to the United States to receive warranty service. Purchaser shall pay for transportation to and from the service center and shall bear the risk of loss or damage in transit for all products so returned to the United States. Intoximeters reserves the right to invoice the Purchaser for importation costs of repair/replacement parts when the product purchased in one country is exported and submitted for repair or service in another country.

If the Purchaser purchases the product from Intoximeters UK Ltd., Intoximeters UK will offer a warranty that is defined under Terms that they provide to the end user at the time of sale.

If the Purchaser purchases the product from a distributor outside of the United States, while the distributor may offer a warranty, Intoximeters does not offer a warranty directly to the end user.

THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. INTOXIMETERS SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, WHETHER ARISING FROM BREACH OF WARRANTY OR BASED ON CONTRACT, TORT, RELIANCE OR ANY OTHER THEORY.

Note. Some countries or states do not allow the foregoing limitations. Other rights may also vary.

Note. In this manual, the Alco-Sensor FST is referred to as the ASFST.

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SECTION I GENERAL INFORMATION

Application

The Intoximeters Alco-Sensor FST (ASFST) is an evidential grade handheld breath alcohol analyzer. The ASFST is commonly used to measure the alcohol concentration from a breath sample to determine whether an individual is under the influence of alcohol. The ASFST is capable of producing accurate, defensible, breath alcohol concentration results. These results can be displayed on the instruments' LCD display, printed with a compatible printer and/or stored to memory and later downloaded electronically to a computer for centralized data storage or printout.

Note: Not all versions of the Alco-Sensor FST have all of the Displays or Functions described in this Manual. Display and Function is dependent on the software version installed on the instrument.

General Information

The Alco-Sensor FST is a hand-held breath alcohol-testing device designed to analyze and display breath alcohol concentrations. A disposable mouthpiece, two AA Alkaline or two Nickel-Metal Hydride (NiMH) batteries, and a calibration standard are the only items necessary to keep the Alco-Sensor FST operational. Two fully charged batteries can run in excess of 3000 tests. Under normal operating conditions little more than routine maintenance checks are all that is required to keep your Alco-Sensor FST operational.

Safety Tips and Warnings

Familiarize yourself with the operating instructions for the Alco-Sensor FST by reviewing this manual. Be sure you understand how to perform all procedures properly before operating the ASFST.

Servicing

Intoximeters offers factory support from its Headquarters in St. Louis, Missouri USA and its Totnes, UK offices or from one of its many Factory Authorized Service Centers located around the world. Up to date regional support information can be found on our website at www.intox.com.

Cleaning

The ASFST can be cleaned using a damp cloth, but it is important that the instrument is dried thoroughly after wiping down.

- Do not use solvents to clean the instrument
- Do not allow liquids to enter the fuel cell sample inlet or the pressure sensor sample inlet
- If alcohol is used to clean the instrument, wait fifteen minutes after the instrument has been dried before performing subject tests

Additional information is available at www.intox.com (search: cleaning)

Demonstration of a Non-Zero Reading

When simulating a non-zero reading on the Alco-Sensor FST **DO NOT USE** mouthwash or breath sprays. Use any commercial spirit, beer or wine to simulate a non-zero result. To avoid introducing exceedingly heavy concentrations of alcohol into the instrument wait at least two minutes after rinsing your mouth with an alcoholic solution before submitting a sample; or use a wet bath simulator or dry gas ethanol standard.

Smoke

Under no circumstances should raw cigarette smoke be blown directly into the Alco-Sensor FST; it may shorten the life of the fuel cell sensor.

Hand Sanitizers

The use of an alcohol based hand sanitizer should be avoided by the test site operator within 15 minutes of operating a breath alcohol testing device. The fumes from the evaporating alcohol will dissipate rapidly. Waiting 15 minutes from

the time of last use will provide enough time for this dissipation and eliminate the possibility that ambient alcohol could influence a breath test result.

Proper Environmental Conditions

When operating or storing the Alco-Sensor FST avoid environments with heavy alcohol vapor, cigarette smoke, and high levels of radio interference or magnetic fields. The Alco-Sensor FST is designed so these environmental conditions should not affect the results of a test; however, these are not ideal testing environments and prolonged exposure of the Alco-Sensor FST to some of these types of environmental factors may shorten the life of various components.

The Alco-Sensor FST is designed for all-weather operation; but the instrument itself must be within the proper temperature range to initiate a test sequence. (The Alco-Sensor FST is generally set up to operate at instrument temperatures of 0°C to 50°C (32°F to 122°F)).

Storage

Storage in cold or moderately hot environments will not harm the Alco-Sensor FST. For prolonged storage avoid extremely humid or arid environments.

Recommended Storage Conditions

Temperature: -15°C to 50°C (3° F to 122° F)
Humidity: 10% to 95% relative humidity
Pressure: 600 to 1300 hPa

SECTION II OPERATING PRINCIPLES

Alcohol and the Human Body

Alcohol's Properties

Alcohol is a general term denoting a family of organic compounds with common properties. Members of this family include ethanol, methanol, and isopropanol. This introduction discusses the physical, chemical and physiological aspects of these alcohols.

Alcohol is a clear volatile liquid that burns (oxidizes) easily. It has very little characteristic odor and is soluble in water. Alcohol is an organic chemical composed of carbon, oxygen, and hydrogen. When ingested, alcohol passes from the stomach into the small intestine where it is absorbed into the blood. Alcohol is a depressant and deadens nerve endings. In small concentrations alcohol can impair the brain's delicate systems. As blood alcohol concentrations increase a person's response to stimuli becomes less precise, speech becomes slurred, and motor skills are adversely affected. Very high concentrations (greater than 0.400 grams/210 liters of breath or 0.400 grams/100 milliliters of blood) can result in a coma or death.

Rate of Consumption

Blood alcohol concentration depends on the amount of alcohol consumed, the rate at which it was consumed, body size, and the rate at which the user's body metabolizes alcohol. Individual metabolic rates vary. However, a good rule of thumb is that an average, healthy person each hour metabolizes about the same amount of alcohol found in an average drink. (Average Drink = 1.5 ounces of 80 proof spirits or, 6-7 ounces of table wine (9% alcohol by volume) or a 12 ounce glass of beer (5% alcohol by volume)).

Body size is also variable and will influence alcohol concentrations. An individual who weighs 300 pounds likely has twice the body fluid as compared to a person who weighs 100 pounds. If the same amount of alcohol is consumed by two people of very different size, the person with more body fluid will have a lower alcohol concentration. It is worth noting that the smaller person's blood alcohol concentration will drop more quickly than a larger person as both the smaller and larger person will metabolize approximately one average drink per hour.

Absorption

Once the alcohol reaches the upper intestine it passes into the bloodstream rapidly. Alcohol is then absorbed into all body tissues. Because of its affinity to water, alcohol can be found in blood, urine, saliva and any other body tissue that contains water.

Accumulation

The liver oxidizes alcohol: this oxidation creates body energy. The body metabolizes (converts to energy) alcohol at a rate of approximately an average drink per hour. Because the body metabolizes alcohol at a fixed rate, ingesting alcohol at a rate higher than an average drink per hour (see explanation for average drink in preceding paragraph) results in a cumulative effect - increasing blood alcohol concentration.

Tolerance

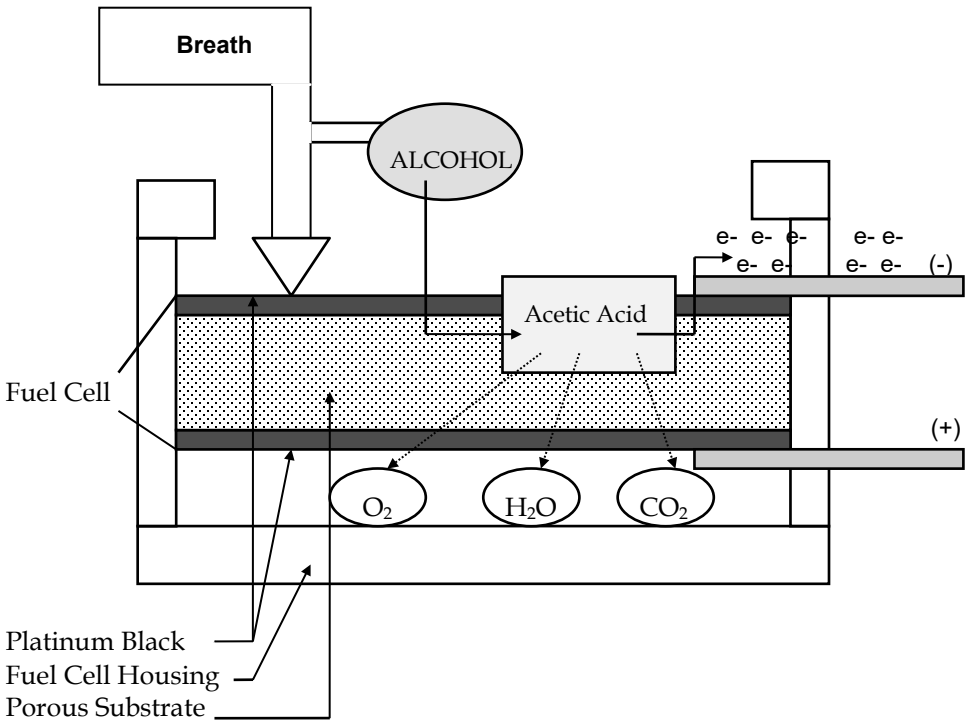
Acquired Tolerance is a person's ability to mask the impairing effects of alcohol; it can be learned experientially. Body Tolerance is related to physical factors (i.e. body size, food in the stomach). Both types of tolerance affect how an individual will respond to a given amount of alcohol.

Theory and Design of the Alco-Sensor FST

The Alco-Sensor FST contains a fuel cell sensor and an electrically operated piston-sampling pump. The fuel cell is a porous disk coated with a thin layer of platinum black on both faces and saturated with an electrolyte. The cell is supported at its outer edge in the fuel cell case. While a subject is blowing and when deep lung breath is reached the sampling pump is activated. A small, fixed volume of deep lung breath is drawn onto the surface of the cell, any alcohol is subsequently converted to acetic acid, electrons are released and a current is generated in proportion to the amount of alcohol oxidized. The resulting electric current is translated into a Breath or Blood alcohol concentration and the result is displayed on the Alco-Sensor FST.

If there is no alcohol present in the breath sample, no oxidation will occur. Because no electrons will be released, no current will be generated and the result displayed will be a zero reading.

Fuel Cell Diagram



The Alco-Sensor FST fuel cell responds to alcohol in the human breath. It will not respond to acetone which may be found in the breath of a diabetic, dieter or highly exercised individual. In fact, it has no significant cross sensitivity to any known substance that might be found in a living human subject after a 15 Minute deprivation period.

SECTION III COMPONENTS AND FUNCTIONS

Instrument Operating Components

Mouthpiece (23-0120-00)

The mouthpiece is a critical portion of the sample assembly and specifically designed to be used with the Alco-Sensor FST.

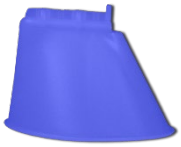
The cross section is a "D" shape which helps orient the mouthpiece when placing it on the instrument. By inserting the closed end of the mouthpiece into the mouthpiece channel and then rotating the shaft of the mouthpiece downward, the flat side of the mouthpiece and the two holes on the underside of the mouthpiece will naturally align and attach to the appropriate ports on the Alco-Sensor FST.

Use only mouthpieces manufactured or approved by Intoximeters. The design of the mouthpiece can affect both the analytical process and/or damage the instrument. Using unapproved mouthpieces can void the instrument warranty and make it impossible for Intoximeters to support test results generated while using these unapproved parts.

Drink Sniffer/Mouthpiece (23-0190-00)

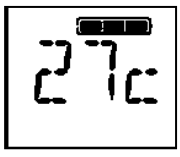
The Drink Sniffer/Mouthpiece attachment is designed to improve the ASFST's ability to test the 'headspace' above a beverage for the presence of alcohol.

(Note: Headspace sampling should always be done in Passive Test Mode, and used to determine the presence of alcohol, as this sampling method does not determine the alcohol concentration of the substance in the container. A numeric breath alcohol concentration is not mathematically the same as alcohol percent by volume).



Passive Sample Cup (23-0130-10)

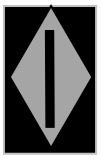
The Passive Sampling Cup is designed to help automatically collect an air sample while a subject is blowing in the direction of the instrument. For best passive results have the subject's mouth about two inches from the top of the cup, while the subject is blowing into the cup.



Display

The display turns on when the instrument is powered ON. If it is necessary to backlight the display, press and hold the ON button down for an additional second.

Various commands and symbols appear on the display to direct the operator through the testing protocol and to alert the operator of improper testing conditions detected by the system. *(see also Status Code*).



ON Button

The ON button (labeled with an "I" symbol) is the larger of the two buttons on the Alco-Sensor FST. This button is located opposite the display and will naturally rest under the operator's forefinger when holding the instrument. The primary function of the button is to turn the instrument ON, and this is accomplished by pressing the button down for one second, a beep and/or the display powering ON will indicate that power up has been successful. (Note: If you want to illuminate the display, hold the ON button down for an extra second on power up or press the ON button at any point when the temperature is being displayed and the display will illuminate). The ON button also allows an operator to capture a manual sample.

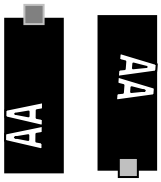
Additionally the ON button is used to toggle through menu items to access certain features of the instrument. The steps are described later in this manual. *(see also*: Manual Sampling*).*

OFF Button

The OFF button (labeled with an "0" symbol) is located on the Alco-Sensor FST beneath the display; depressing it and holding it down for two seconds, during normal operation, will manually turn the instrument off. Manually turning the instrument off will always reset the instrument to the standard subject test sequence.

Note: The instrument does have an auto power down feature which powers the instrument down when it has not been used for a period of time.

The OFF button is also used to select several other features of the instrument. The steps are described throughout this manual *(see also*: Options/Features and Maintenance Men*u).*

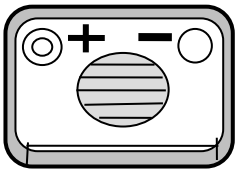


Batteries

The battery cover is located on the base of the Alco-Sensor FST. Two fully charged AA Alkaline batteries or two rechargeable NiMH batteries should run in excess of 3000 tests at room temperature. *When changing batteries always replace both batteries.*

Caution

- When changing batteries always replace both batteries and never mix battery types.
- When installing **batteries**, the **proper** polarity, or direction, must be observed. (On both the inside of the case and on the circuit board in the battery compartment there is a guide for proper polarity or direction). In addition, ASFSTs have a battery cover with the proper polarity displayed on the outside of the battery cover.
- After replacing the batteries, always power the instrument **ON** to verify proper installation – if the ASFST display does not power **ON** immediately, wait five seconds and try again, if the display still does not come on, remove the batteries, press the ON button and then reinstall the batteries or replace with a new set.



- The Alco-Sensor FST has both electronic and hardware polarity protection to ensure that incorrect insertion of the batteries will not damage the ASFST. The battery cover also provides hardware polarity.

Accessing Pass Code Features

CERTAIN VERSIONS OF THE ALCO-SENSOR FST HAVE A **PASS CODE** OR **SECURITY** FEATURE ON SOME MENU FUNCTIONS. To access these functions the user may be required to enter a pass code to gain access to the function.

Note: When a menu function is accessed and it or one of its menu items is pass code enabled/protected, the display will show:

One digit flashing and 2 stars (i.e.): **3 * ***

With the proper passcode you will need to adjust the first displayed digit to the corresponding digit in the passcode by cycling the number with the ON/trigger button on the instrument. Once the proper number is displayed, pressing the OFF/execute button will accept the entry and the digit to the right will be displayed. Keep adjusting and accepting the digits until all three have been adjusted and entered. If you have been successful, the instrument will accept your passcode entry and grant you access to the menu option.

If you do not know the password contact your supervisor and if the supervisor does not know it, they can contact Intoximeters Customer Support for assistance.

SECTION IV CONDUCTING A SUBJECT TEST

Initial Preparation

Operator Training

The results from a properly calibrated Alco-Sensor FST are no better than the quality of the sample collected. A deep lung sample is essential to produce a breath alcohol reading that will correlate with the alcohol concentration of the blood. The Alco-Sensor FST sampling system is designed to ensure that a deep lung sample is collected for analysis.

Even though the Alco-Sensor FST has a very simple sample collection process, training on the use of the instrument is recommended. Training is available through a variety of mediums. For further information on training sessions and the availability of training tools contact Intoximeters Training Department.

Preconditions for Conducting a Test

Temperature Requirements

The Alco-Sensor FST is generally set up to operate at instrument temperatures of 0°C to 50°C (32°F to 122°F). Customized software is available from Intoximeters that will allow the Alco-Sensor FST to operate in a broader or narrower temperature range. When the unit is in its operating temperature range it will function properly in climates where ambient temperatures are in the range of -15°C to 50°C (3°F to 122°F).

Periodic Calibration/Accuracy Check Requirements

The accuracy of a subject test result is dependent upon a properly calibrated instrument. To determine the accuracy of an instrument an Accuracy Check should be performed periodically. (This procedure might also be referred to as a Quality Assurance Check, Verification, Calibration Check. The terms are used interchangeably; however, we will use the term Accuracy Check in this manual).

An Accuracy Check is performed by introducing to the Alco-Sensor FST a sample containing a known concentration of alcohol (what is referred to in this manual as a Standard Sample). The reading provided by the instrument must be within the established tolerances of the target value of the standard sample for the instrument to be considered properly calibrated or accurate. Because different testing programs have different requirements for the instrument, the definition of accuracy is dictated by the tolerances established in the protocols of a specific testing program. Know the established tolerances of your program before conducting an accuracy check. If you don't have an established program, checking the instrument on monthly intervals is a frequency that would be acceptable for most routinely used tolerance levels. By performing monthly accuracy checks, you will find that the ASFST holds its calibrations for long periods of time without the need for calibration adjustment.

Your unit had a calibration adjustment procedure performed at the factory before shipment. However, before using the instrument for subject testing, it is prudent to perform an accuracy check to ensure that the unit has maintained its calibration. To build a history of instrument performance, record accuracy check and calibration adjustment results in a logbook along with the date of the test and the expected or target value of the standard sample. *(see also:* Inspection and Routine Maintenance*).*

Preparing the Instrument for a Subject Test

Mouthpiece and Powering up the Alco-Sensor FST

(Note: Use only mouthpieces designed and manufactured by Intoximeters. Mouthpiece design can impact the instrument performance).

For a subject test, an accuracy check or a calibration, always use a clean, dry mouthpiece.

To avoid damaging the Alco-Sensor FST, the operator should be familiar with the correct procedure for attaching the mouthpiece to the instrument.

The mouthpiece has both an open and a closed end. The open end should be made available for the subject to blow into. The sealed, rounded end should be inserted into the mouthpiece channel on the top of the Alco-Sensor FST.

In addition to the breath inlet hole there are three additional holes in the mouthpiece. One larger hole, on the top of the mouthpiece toward the sealed end of the mouthpiece, is the exit port for the subject's breath flow. There are also two smaller holes on the bottom, or flat portion of the mouthpiece. When the mouthpiece is mounted properly these holes will be seated on both the fuel cell inlet port and the flow sensor port.

To initiate a test sequence, use a clean mouthpiece. Insert the long, closed end of the mouthpiece into the mouthpiece channel. The mouthpiece is "D" shaped and when properly inserted, the flat side should be making contact with the instrument.

The mouthpiece connection process is simplified if the end of the mouthpiece is first pressed into the mouthpiece channel. Once the mouthpiece abuts the end of the guide, rotating the mouthpiece downwards attaches the mouthpiece to the two ports and the instrument will be ready for testing.

Note: Not all versions of the Alco-Sensor FST have all of the Displays or Functions described in this Manual. Display and Function is dependent on the software version installed on the instrument.

Preparing the Operator for a Test

If the Operator has used an alcohol based hand sanitizer it is prudent that they dry their hands and wait fifteen minutes before testing. The alcohol in the hand sanitizer will evaporate quite rapidly. Waiting 15 minutes from the time of the last use will provide enough time for this dissipation and eliminate the possibility that ambient alcohol could influence a breath test result.

Preparing the Subject for a Test

Before initiating a test, explain to the subject how you want the subject to provide a sample.

Example: "When I tell you to, I want you to take a deep breath, hold it for a moment and then blow steadily into this mouthpiece until I tell you to stop. Are you ready? Okay, take a deep breath, hold it, and now blow steadily for as long as possible". Clear and simple instruction will help the subject give you a good sample.

Screening Test Procedure

Observing a fifteen-minute deprivation period (no foreign substance is introduced into the mouth during this period) prior to sample collection will ensure the elimination of "mouth alcohol".

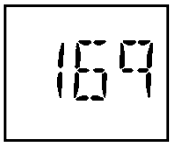
Performing a Subject Test - Step by Step

ATTACH A MOUTHPIECE.	Use a clean, unused mouthpiece from a sealed bag.
DEPRESS THE POWER ON BUTTON AND HOLD FOR 1 SECOND.	This will turn the unit on. If you wish to illuminate the display, hold the ON button down for an extra second or two.

NOTE PRE-TEST INFORMATION.

The Battery Strength Indicator and Temperature in °C (i.e. **27c**) will be displayed momentarily after the instrument is powered ON. As well, a battery indicator will be displayed indicating the current condition of the battery. If the instrument does not have sufficient battery power to perform a test either the instrument display will not power on or **BAT** will be displayed and testing will be disabled. The standard Alco-Sensor FST is designed to operate when the unit temperature (not the ambient temperature) is between 0°C and 50°C. If the temperature is outside of the proper operating range, the standard instrument will indicate a temperature out of range condition before powering off. If you must perform a test with the instrument, place the instrument in an environment that will bring it to a proper operating temperature.

TEST COUNTER AND AUTOMATIC SENSOR BLANK TEST



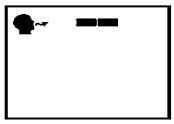
For instruments with test memory a three digit test counter may be displayed for a few seconds. This is a number that will be printed on the Subject Test printout and stored in the instrument memory along with the test results.

***Note:** The **Test Counter** Range is from 000 to 999. The instrument also maintains a Test Number in memory which is a 6-digit number that increments from 000001 to 999999 whenever a test is run on the instrument. The Test Counter displayed on the instrument, and printed, is the last 3-digits of the Test Number (i.e. Test Number 000**169** – Test Counter **169**).*

A blank test is run automatically by the instrument to ensure there is no alcohol present from a previous test. If the blank check is not successful, a Status Code **C 11** (Blank Out of Range Message) is displayed and the test sequence is aborted.

Depending upon the version of the Alco-Sensor FST, the blank test may or may not be displayed. However, a failed blank test will always be indicated with a Status Code (C 11).

COLLECT A BREATH SAMPLE.

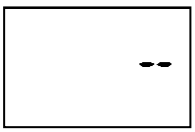


When the display shows the icon of a person's head flashing and/or **Blow** displayed instruct the subject to take a deep breath, hold it and then blow steadily through the mouthpiece for as long as he or she can. The icon of the head will stop flashing and a dash appears to the right of the head indicating that the instrument senses sufficient breath flow. An additional dash will appear on the display as the subject continues to provide a sample.

At the point that you would expect a third dash would appear on the display, the automatic sample will be taken. It is not necessary for the subject to blow hard but rather a steady or continuous sample is best for sample collection.

- If minimum flow is not reached after 180 seconds from the time **Blow** was first displayed, the unit will beep six times while the display flashes **C05** then **OFF** and will power down.
- The subject will have three attempts to provide a sample; if an acceptable sample does not occur the instrument will display **C06** then **OFF** and will power down.

OBSERVE AND RECORD THE RESULT



As soon as a successful breath sample has been captured, the analyzing signal "- _ _ ", "_ - _", _ _ -" is scrolled across the display. At the end of the analysis a result will be displayed.

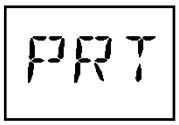
(Note: Depending on the software version installed on the Alco-Sensor FST the results can be displayed in a variety of units of measure. The screens displayed in this Manual will show %BrAC).

REMOVE THE MOUTHPIECE

The result will be displayed for fifteen seconds before the instrument will power itself off.

It is also possible to turn the instrument off manually by pressing the OFF button for two seconds. To view the last test result after the instrument is powered off see the section below on Test Recall. If you are interested in starting another test after the instrument has been powered down, pressing the ON button will initiate the next test sequence.

(Note: Not all versions of the Alco-Sensor FST have the PRT function enabled following a Subject Test).



Printout of Subject Test:
The Printer must be enabled using the **PRT** function (in the Maintenance Menu) to produce the printouts. Instrument waits for printer connection and, when connected, will print results. If no printer is detected for one minute, instrument will display **OFF** AND WILL THEN POWER DOWN.

To view the last test result after the device is powered off, see the **Test Recall (RCL)** function.

(All tests in the memory of the ASFST can be downloaded to a PC/Laptop using Software and a download cable. There are two Software packages available from Intoximeters: FST View or Total Recall. Both software packages are only applicable for certain versions of the Alco-Sensor FST. Contact Intoximeters for additional information).

Instrument Operating Features

Automatic Blank Test

A blank test is a test that is run automatically by the instrument to check the sample chamber and the attached mouthpiece to ensure that there is no alcohol present from a previous test. The automatic blank test must result in a zero reading before the instrument will advance to the next step in the testing protocol. Depending upon the version of instrument, the blank test may or may not be displayed. However a failed blank test will always be indicated with an error message (C 11) followed by the test sequence being discontinued.

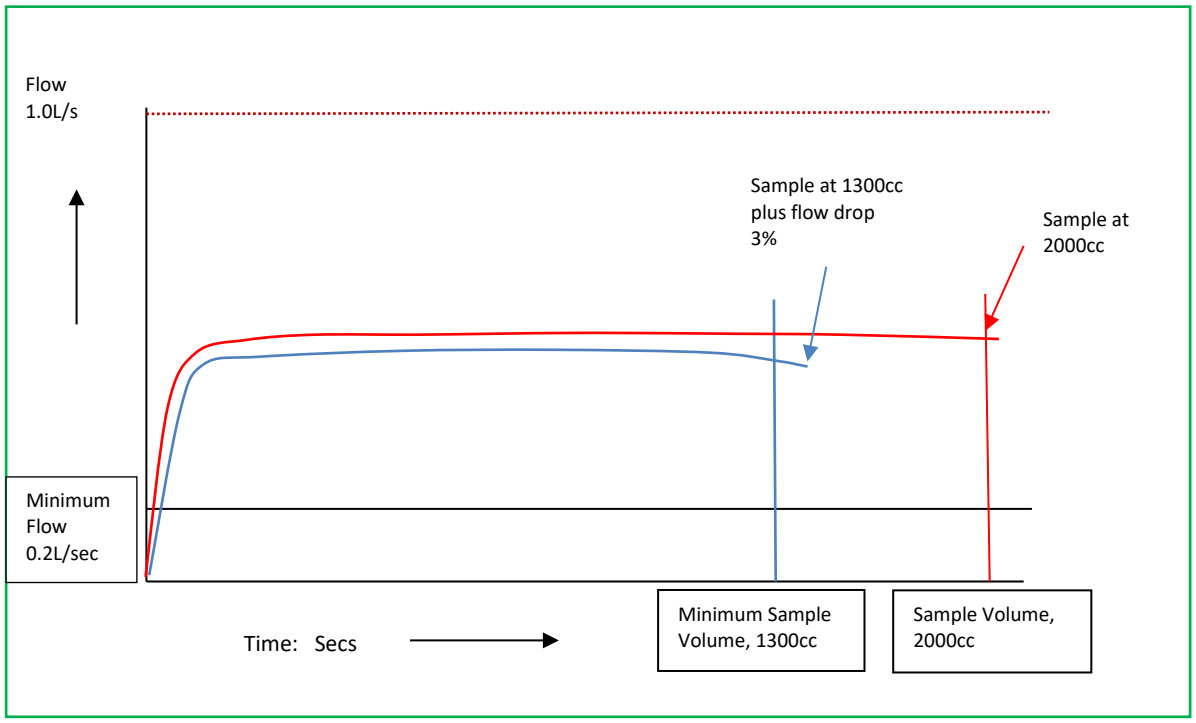
Note: *Although the instrument cleans up quickly, keeping the unit warm will shorten the time it takes for the cell to clear and give a zero reading on the blank test.*

Automatic Sampling

A pressure sensor monitors breath flow and volume to determine when to capture a breath sample for analysis.

When breath flow is sensed by the instrument the icon of the human head will stop flashing, **Blow** will disappear and a "**-”** is displayed next to the icon of the head. This "-" indicates that the instrument has determined that the minimum breath flow rate has been detected and that breath volume can start to be calculated. **" - - - “** is displayed when the minimum breath volume has been reached. After a minimum volume requirement has been met the sampling system will capture a sample for analysis when either the subject's breath flow begins to decrease or a second, greater volume threshold is met.

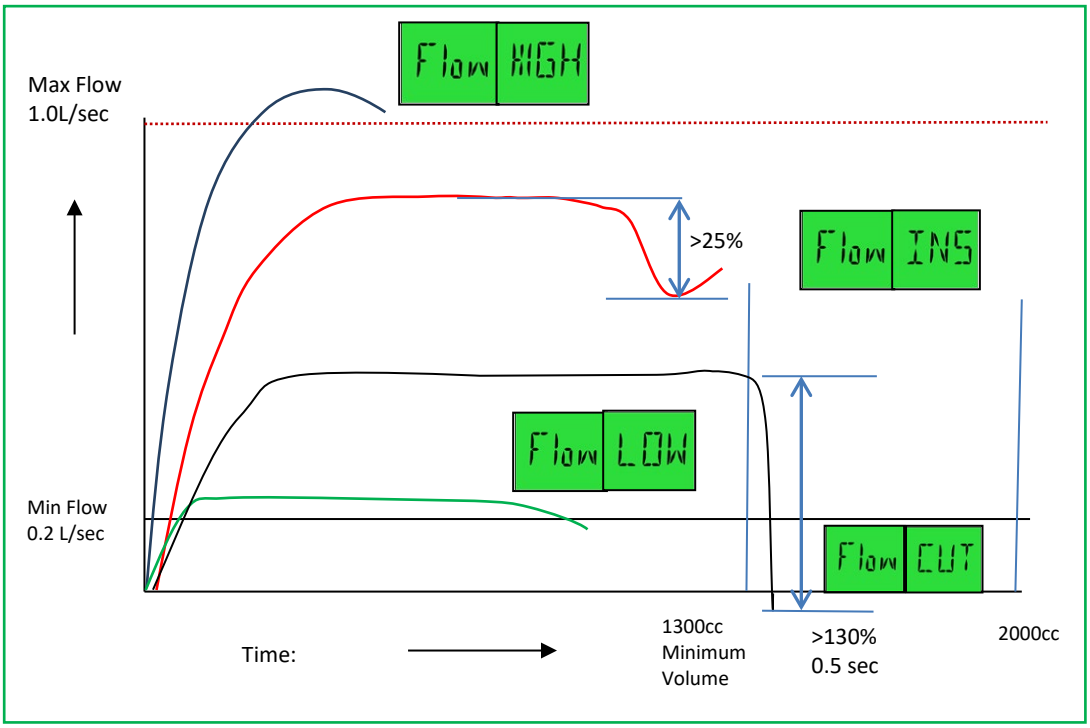
When the sampling system is activated a small sample of deep lung breath is drawn into the fuel cell chamber for analysis.



AUTOMATIC SAMPLING

If an improper breath sample condition is detected by the instrument, the sample will be rejected and the instrument will flash "**Flow**" along with one of the following descriptors: "**LOW**", "**HIGH**", "**INS**" or "**CUT**". (See also: Status Messages for an explanation of the meaning for each of these displayed descriptors).

After this message is displayed the instrument will return to the ready mode. If the subject is unable to provide a proper sample after the preset number of attempts the instrument will power itself off. For this reason it is important for the operator to provide the subject with clear instruction on how to properly provide a breath sample. *(Note: The standard Alco-Sensor FST will allow the subject three attempts to provide an acceptable sample before it will display the Status Code **CO6** and power off).*



IMPROPER SAMPLES

Manual Sampling

Manual Sampling is a feature that allows the operator to collect a sample either when the automatic sampling function has been disabled or the subject is unable to provide the minimum volume of breath. This can occur in both direct and passive testing modes.

When direct sampling (sampling when a subject blows into a mouthpiece), manual sampling can produce results that are as accurate as automatic samples, but for best sampling technique before using this method of testing the operator should be trained to collect a manual breath sample. Samples taken too early or after the breath flow has ceased may result in readings that are lower than the actual deep lung BrACs or BACs.

In the rare occasion when a subject is unable to provide an adequate breath flow (lower than the actual deep lung alcohol concentration) to trigger the automatic sample capture feature, a Manual Sample Capture is possible. This process requires that the operator follow the normal test procedure up to the point that "**Blow**" is displayed. At this point the operator should instruct the subject on how to provide a sample.

As close to the end of the exhalation as possible (but while the subject is still blowing) the operator can collect a Manual sample by pressing the ON button.

Errors in Manual Sampling/Testing that must be avoided include capturing a sample before the subject begins blowing, capturing a sample in the early part of the exhalation, or capturing a sample after the exhalation has ceased. In all of these cases a dilute sample will be drawn into the instrument for analysis and a corresponding low or zero result will occur.

Option / Features / Maintenance Menu

While the instrument is OFF (powered down) you can access the Maintenance Menu (optional features) by depressing and holding the OFF button down and then also depressing the ON button. After gaining access to this menu function (which is indicated by **RCL** being displayed), pressing the ON button will allow you to scroll through the list of options, pressing the OFF button will execute the option displayed at the time the OFF button is depressed. **(Note: Not all versions of the Alco-Sensor FST have all of the Displays or Functions described in this Manual. Display and Function is dependent on the software version installed on the instrument).**

Note: Certain versions of the Alco-Sensor FST have a pass code or security feature on some menu functions. If you access a menu function and the instrument does not operate according to the instructions in this manual, contact your Supervisor. If your Supervisor does not have a pass code key Intoximeters will need to be contacted.

When a menu function is accessed and it is pass code enabled/protected, the display will show:

One digit flashing and 2 stars (i.e.): **3 * ***

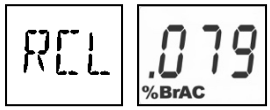
(If you have not been given the proper pass code key contact your Supervisor, or Intoximeters will need to be contacted by your Supervisor).

The Maintenance Menu list of optional features includes, but is not limited to the following:

RCL – Allows the operator to Recall the last test result
PAS – Allows the operator to access the Passive Testing Mode
RBL – Allows the operator to access the Road Block Testing/Quick Test Mode
ACC – Allows the operator to access the Accuracy Check Mode
CAL – Allows the operator to access the Calibration Mode
DSR – Allows the operator access to the Displayed Software Revision
TIME - Allows the operator to access the Year/Month/Day/Hour/Minute Mode
LocK – Allows a setting of Days and/or Number of tests to conduct an Accuracy Check
MEM – Allows the operator access to Clear Memory
SUM – Allows the operator access to Print Test Summaries
PRT – Allows the operator access to enable Printer

Test Recall (RCL)

After the test result has been calculated the instrument will display the result for several seconds and then the instrument will power **OFF**. If the operator wants to review the result, while the instrument is **OFF**, momentarily press the OFF button and then simultaneously press the ON button. The display will show the first menu item from a list of optional functions that the instrument can perform. The first item on the list is **RCL** (Recall Last Test). To execute this function, pressing the OFF button will prompt the instrument to alternately display the result from the last test performed along with an intermittent displayed **RCL**. (Note: Depending on the software version installed on the Alco-Sensor FST the results may be displayed in a variety of units of measure including, but not limited to, %BrAC or %BAC).



Passive Sampling (PAS)

Two common uses for this mode are to sample and determine if alcohol exists in the ambient air around a subject or in the headspace over an unknown liquid substance. If alcohol is detected, a positive indication is displayed.

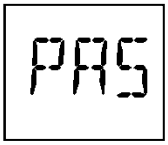
When performing a passive test of a subject, for best results, attach the Passive Sample Cup as shown in the diagram below. If you are sampling the headspace of unknown liquid, the Passive Sampling Cup can be used, but is not required.

Performing a Passive Test

DURING POWER UP DEPRESS AND HOLD THE POWER OFF **BUTTON WHILE AT THE SAME TIME PRESSING THE** ON **BUTTON. RELEASE THE BUTTONS ONCE RCL IS DISPLAYED**

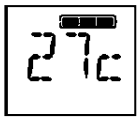
This will turn the unit on and display the first option from a menu listing. The first option will be **RCL.**

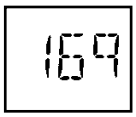
DEPRESS THE POWER ON **BUTTON TO SCROLL TO THE PAS OPTION**

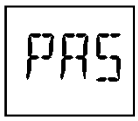


When the ON button is pushed it will cycle to the next menu item. If you continue to push the ON button, the instrument will cycle through the entire list of menu items and will eventually scroll back to the **RCL** option. For the purpose of performing a passive test, cycle the message to the **PAS** option.

DEPRESS THE OFF BUTTON TO SELECT THE PASSIVE MODE







Selecting the Passive Testing Mode by pressing the OFF button will initiate a Passive Test. This will be indicated by the display first indicating the instrument's current temperature in degrees C, followed by the test counter and then flashing the **PAS** display. Once you see this flashing **PAS** display the Alco-Sensor FST is prepared to capture a Passive Sample.

THIS MANUAL WILL DESCRIBE THREE WAYS TO CAPTURE A PASSIVE SAMPLE:

- First we will describe how to collect a passive sample over an open container.
- Second we will describe how the instrument is designed to automatically collect a sample of air from a suspect who is blowing in the direction of the instrument.
- And finally we will describe how to collect a passive ambient air sample from the vicinity of a suspected alcohol user.

Test an Open Container

To test a beverage for the presence of alcohol, attach the 'drink sniffer' attachment/adapter and put the instrument in the Passive Mode with "**PAS**" *flashing.*

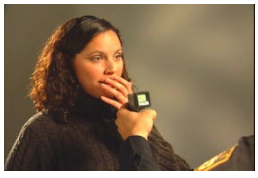
The drink sniffer adapter allows the inlet port of the Alco-Sensor FST to extend beyond the body of the instrument and provide better access for sampling the alcohol vapor that sits just above the liquid in a glass. Proper use of the 'drink sniffer' adapter will increase the sensitivity of the Alco-Sensor FST when testing the gas (or headspace) above the surface of a liquid.

The ASFST, with the drink sniffer attached, should be positioned within one or two inches above the surface of the liquid. (CAUTION: DO NOT IMMERSE THE DRINK SNIFFER ADAPTER OR THE UNIT IN THE LIQUID). After several seconds press the ON button and a sample will be captured for analysis. A "POS" or "C29" (Status Code) or "C31" (Status Code) result likely indicates the presence of alcohol in the beverage. A "nEG" result indicates that the alcohol content in the sample was negligible. *(Note: Headspace sampling should always be done in Passive Test Mode, and used to determine the presence of alcohol, as this sampling method does not determine the alcohol concentration of the substance in the container. A numeric breath alcohol concentration is not mathematically the same as alcohol percent by volume).*

Test a Subject Passively

The best method to passively test a subject with the Alco-Sensor FST is to automatically capture a sample from a subject who blows at the Passive Sampling cup. To accomplish this, the instrument must have a Passive Sampling Cup attached and be in the Passive Mode with "**PAS**" *flashing.* **(Note: the subject must have his/her lips approximately 2" from the Passive Sampling Cup and the subject must blow at the cup – see picture at left).** In this mode, when the instrument detects a consistent flow of breath reaching the sample inlet port, an automatic sample will be collected for analysis. A "**POS**" result indicates the presence of alcohol in the collected sample. A "**NEG**" result indicates that the alcohol content in the sample was negligible. Have the subject blow in the direction of the sample cup for as long as possible. Once you hear the instrument *click* the sample has been taken, it will be analyzed and a result reported.

Test the Environment Around a Subject



Finally, to merely test the air in the vicinity of a subject for alcohol, the instrument should be in the Passive Mode with "**PAS**" *flashing.* In order to capture a sample place the Alco-Sensor FST without the Passive Sampling Cup attached as near to the subject as possible (preferably near his nose or mouth) and press the ON button to capture a sample for analysis. A "**POS**" result indicates the presence of

alcohol in the air near the subject. A "**NEG**" result indicates that the alcohol content in the air was negligible.

It is important to understand that the further the unit is from the subject's mouth and nose, the more dilute the sample will become and the less likely you will be able to identify a meaningful concentration of alcohol. Also, Passive Sampling on a subject only indicates the likely presence of alcohol; further direct sampling will validate a positive or negative passive result.

Repeat Passive Testing

The FST is designed to perform repeat Passive Tests while in the Passive Mode.

Once in the low power mode (after the result is displayed) there are a few possible events that can occur:

- First, if no buttons are pressed during the low power mode the instrument will automatically return to the Passive Mode after 10 seconds. This will be indicated by the instrument's current temperature, followed by the test counter and then flashing the **PAS** display. (Note: Not all versions of Alco-Sensor FST offer this automatic return to **Passive Sampling (PAS).**
- Second, if the ON button is pressed while the instrument is in the low power mode the instrument will return to the Passive Mode indicated by the instrument's current temperature, followed by the test counter and then **PAS** *flashing* indicating the instrument is ready to perform another Passive Test.
- Third, if the operator presses the OFF button, powering the instrument **OFF** prior to the end of the two-minute low power timer, the instrument will be in the standard direct sample mode if powered **ON** after this occurs.

Note: If nothing is pressed for 50 seconds, the instrument will beep four times fast. If nothing is pressed in ten more seconds, unit displays OFF and powers down.

Road Block Test Mode / Quick Screen Test (RBL)

The Road Block Mode was designed to accommodate situations where screening of a large group of individuals occurs and time is of the essence.

Performing a Quick Screen Test in the Road Block Test Mode

ATTACH A MOUTHPIECE.

Use a clean, unused mouthpiece from a sealed bag.

DURING POWER UP DEPRESS AND HOLD THE POWER *OFF* BUTTON WHILE AT THE SAME TIME PRESSING THE *ON* BUTTON. RELEASE THE BUTTONS ONCE RCL IS DISPLAYED

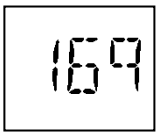
This will turn the unit on and display the first option from a menu listing. The first option will be **RCL.**

DEPRESS THE POWER ON **BUTTON TO SCROLL TO THE RBL OPTION**

When the ON button is pushed it will cycle to the next menu item. If you continue to push the ON button the instrument will cycle through the whole list of menu items and will eventually scroll back to the **RCL** option.

For the purpose of performing a quick screen test, cycle the message to the **RBL** option.

DEPRESS THE OFF **BUTTON TO SELECT THE QUICK SCREEN / ROAD BLOCK TEST MODE**



Selecting the Quick Screen / Road Block Testing Mode by pressing the OFF button will initiate a Quick Test. This will be indicated by the display first indicating the instrument's current temperature and battery strength indicator. If the instrument does not have sufficient battery power to perform a test either the instrument display will not power on or **BAT** will be displayed and testing will be disabled. The Test Counter will be displayed following the temperature.

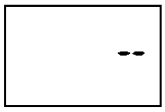
Note: If you wish to illuminate the display you must hold the ON **button down for an extra second while the temperature is displayed.**

COLLECT A BREATH SAMPLE

Before the instrument is ready for sampling it will momentarily display **RBL** indicating you are conducting a test in the **Road Block Testing** mode.

When the display shows the icon of a person's head flashing and/or **Blow** displayed, instruct the subject to take a deep breath, hold it and then blow steadily through the mouthpiece for as long as he or she can. The icon of the head will stop flashing and a dash appears to the right of the head indicating that the instrument senses sufficient breath flow. Additional dashes will appear as the subject continues to provide a sample. Once three dashes appear an automatic sample will be taken. It is not necessary for the subject to blow hard but rather a steady or continuous sample is best for sample collection.

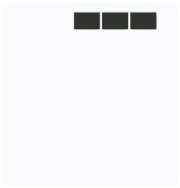
OBSERVE AND RECORD THE RESULT



As soon as a successful breath sample has been captured, the analyzing signal "- _ _ ", "_ - _", _ _ -" is scrolled across the display. At the end of the analysis a result will be displayed.

(Note: Depending on the software version installed on the Alco-Sensor FST the results may be displayed in a variety of units of measure. The screens displayed in this Manual will show %BrAC).

Repeat Quick Screen Test / Road Block Test Mode



The FST is designed to perform repeat Quick Screen Tests while in the Road Block Testing Mode. After the result is displayed the instrument will go into a low power mode. Backlight turns off after 5 seconds, and results are displayed for 15 seconds.

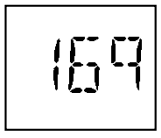
Once in the low power mode there are a few events that can occur:

- No buttons are pushed. The instrument will automatically return to the Road Block Testing Mode. (Note: Not all versions of Alco-Sensor FST offer this automatic return to **RBL** Mode).
- If nothing is pressed for 50 seconds, the instrument will beep four times fast. nothing is pressed in 10 more seconds, unit displays OFF and powers down.

Or the **ON** button is pressed while the instrument is in the low power mode and the instrument quickly returns to the Quick Screen Test Mode.

After the ON button is pressed the unit will momentarily display the instrument's current temperature, test counter number followed by **RBL** indicating you are conducting a test in the **Road Block Testing** mode.

With the icon of a person's head *flashing* and **Blow** displayed, the instrument is ready to perform another Quick Test. (Always use a clean, unused mouthpiece from a sealed bag). Using this feature allows an operator to perform repeat Quick Test Samples with minimal delay between tests.



(The Quick Screen Test Mode test sequence is approximately 15 – 20 seconds from the time the subject blows, the instrument displays the result, and it cycles through the sequence to allow another sample (subject blows, result displayed, temperature and test counter number displayed followed by RBL and then Blow)).

Or,

- The operator presses the **OFF** button, powering the instrument **OFF**. The instrument will be in the standard direct sample mode if powered **ON** after this occurs.

REMINDER: Certain versions of the Alco-Sensor FST have a pass code or security feature on some menu functions. If you access a menu function and the instrument does not operate according to the instructions in this manual, contact your Supervisor. If your Supervisor does not have a pass code key Intoximeters will need to be contacted. Not all Maintenance Menu Features listed/described in this Manual are included in all versions of the Alco-Sensor FST.

Depending on the version of the ASFST, ***Pass Coded functions may display three digits with the first digit flashing or one digit flashing and two stars (i.e.)*** **3 * *.**

Displayed Software Revision (DSR)

The **DSR** Mode allows the Operator to view the existing firmware and software versions installed on the unit.

A. Power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
B. The display should show the **RCL** message, which is the first option in the list of optional functions that the instrument can perform. Momentarily depress the ON button and the displayed message should change to **PAS**, repeat this step until **DSR** appears on the display.
C. Once **DSR** is displayed, press the **OFF**/ACCEPT button; and the instrument will display both the firmware version and software version (it will scroll twice) and then power **OFF.**

Year/Month/Day/Hour/Minute (TIME) **[[For ASFST's with software versions that support this function.]**

The **TIME** Mode allows the Operator to change the time displayed on the unit.

A. Power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
B. The display should show the **RCL** message, which is the first option in the list of optional functions that the instrument can perform. Momentarily depress the ON button and the displayed message should change to **PAS**, repeat this step until **TIME** appears on the display.
C. Once **TIME** is displayed, press the **OFF**/ACCEPT button; and the instrument will display:
    1) y - xx (Year) first digit flashing

    If the flashing digit is incorrect, press and release the ON button as many times as it is necessary to cycle the displayed digit to the correct number. When the digit is correct press the OFF/ACCEPT button to move the flashing highlight to the next digit. When complete all digits flash together 3 times. **(Follow the same process for all TIME changes).**
    2) M – xx (Month) first digit flashing
    3) D – xx (Day) first digit flashing
    4) H – xx (Hour) first digit flashing
    5) M – xx (Minute) first digit flashing

    If the flashing digit is incorrect, press and release the ON button as many times as it is necessary to cycle the displayed digit to the correct number. When the digit is correct press the OFF/ACCEPT button to move the flashing highlight to the next digit. When complete all digits flash together 3 times.

If nothing is pressed within 10 seconds of displaying xx for any of the above settings, instrument will display **OFF** and power down.

Setting of Days and/or Number of Tests (locK)

If the **locK** Mode or lockout mode is enabled in your software, it allows the Operator to set a number of days **(DAy)** and/or number of tests **(TST)** that will be allowed prior a requirement to conduct a successful Accuracy Check. If the required accuracy check is not completed successfully subject testing will be disabled.

In many versions of software that support this feature, the Alco-Sensor FST has pass code security enabled on the locK mode. This ensures that only those persons trained in the operation of the password function can access this mode.

A. Power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
B. The display should show the **RCL** message, which is the first option in the list of optional functions that the instrument can perform. Momentarily depress the ON button and the displayed message should change to **PAS**, repeat this step until **locK** appears on the display.
C. Once **locK** is displayed, press the **OFF**/ACCEPT button; and the instrument will display:
    1) DAy – Press the OFF/ACCEPT button (or use the ON button to toggle to TST).
    2) XXX - first digit flashing (this screen allows the Operator to set how many days before an ACC check is required (000 to 365, and 000 will never set a disable).

       If the flashing digit is incorrect, press and release the ON button as many times as it is necessary to cycle the displayed digit to the correct number. When the digit is correct press the OFF/ACCEPT button to move the flashing highlight to the next digit. When complete all digits flash together three times.
    3) TST - Press the OFF/ACCEPT button (or use the ON button to toggle to DAy).
    4) XXX - first digit flashing (this screen allows the Operator to set how many tests before an ACC check is required (000 to 999, and 000 will never set a disable).

       If the flashing digit is incorrect, press and release the ON button as many times as it is necessary to cycle the displayed digit to the correct number. When the digit is correct press the OFF/ACCEPT button to move the flashing highlight to the next digit. When complete all digits flash together 3 times.

Clear Memory Mode (MEM)

In many versions of software that support this feature, the Alco-Sensor FST has pass code security enabled on the Memory Clear (MEM) function. This ensures that only those persons trained in the operation of the password function can access this mode.

Print Test Summary (SUM) **[For ASFST's with software versions that support this function.]**

Note: The SUM Menu will only appear if the printer is set to ON.

A. Power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
B. The display should show the **RCL** message, which is the first option in the list of optional functions that the instrument can perform. Momentarily depress the ON button and the displayed message should change to **PAS**, repeat this step until **SUM** appears on the display.
C. Once **SUM** is displayed, press the **OFF**/ACCEPT button; and the instrument will display **PRT. Press the ON button and the function will produce a summarized printout of all tests in memory if a compatible printer is connected to the instrument**. (As with all other PRT functions PRT will flash until a printer is attached. If a printer is not detected within one minute the unit will POWER OFF).

Enable Printer (PRT) **[For ASFST's with software versions that support this function.]**

A. Power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
B. The display should show the **RCL** message, which is the first option in the list of optional functions that the instrument can perform. Momentarily depress the ON button and the displayed message should change to **PAS**, repeat this step until **PRT** appears on the display.
C. Once **PRT** is displayed press the **OFF**/ACCEPT button; and the instrument will display:
    1) **ON** – this display indicates to the Operator that a Printer is enabled. PRT will be displayed at the end of any test sequence.
    2) **OFF** – this display indicates to the Operator that a printer is not enabled. If the instrument is set to OFF, PRT **will not be displayed at the end of any test sequence or during the RCL function, and no printout will be generated even if a printer is connected.**

Note: *All tests in the memory of the Alco-Sensor FST instrument can be downloaded to a PC/Laptop using one of two Software packages available from Intoximeters, and the instrument must also be connected using a download cable. The available software packages are FST VIEW or TOTAL RECALL. Both software packages are only applicable for certain versions of the Alco-Sensor FST.*

For additional information on these software packages and the download cable contact Intoximeters at (314) 429-4000.

Sample Printouts (PRT)

Note: If the software installed on your unit has printer capabilities with the PRT function enabled detailed below is a sample printout of a subject test.

SUBJECT TEST

Serial No: 234567
Version No. VSxxxxx-x

Last Calibration:
04/27/2017 09:29 .100

Last Acc. Check:
04/27/2017 09:31 .100

Test Result
Sequence Number: 000453
Test Type: Subject
Temperature: 24 C

No. Date Time %BAC

SUBJECT
053 04/27/17 11:10 .000

Subject Name:

_____

Driver License:

_____

Operator Name, I.D.

_____

Sample Summary Printout

Intoximeters, Inc.
AlcoSensor FST

Serial No : 234567
Version No VS00561-A

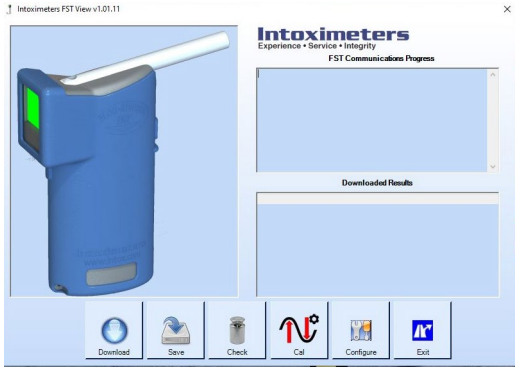
LAST CALIBRATION
01/01/2020 14:35 .100

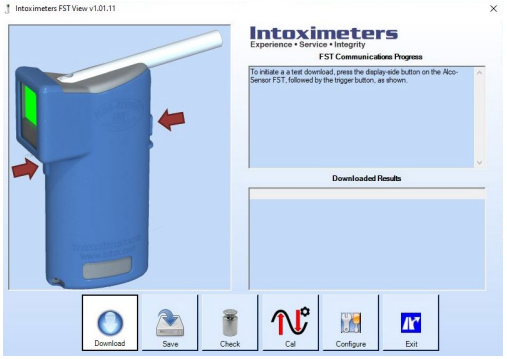
LAST ACCURACY CHECK
05/01/2021 09:15 .099

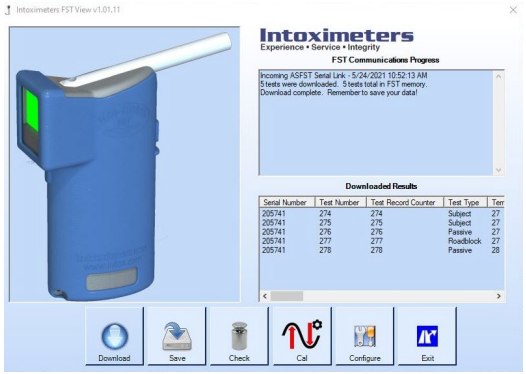
No.	Type	Date	%BAC
274	SUB	03/24/2021	.000
275	SUB	03/25/2021	.087
276	PAS	03/30/2021	NEG
277	RBL	05/02/2021	.020

UPLOADING DATA TO A COMPUTER WITH FST VIEW

FST VIEW is a program that is available for electronically capturing test data from versions of the Alco-Sensor FST that store test data. Instructions for use are available with the purchase of this optional software.







SECTION V ADMINISTRATIVE / MAINTENANCE FUNCTIONS

Overview

To obtain accurate subject test results the unit must be properly calibrated.

The accuracy of an instrument is verified by running a known alcohol concentration (standard) through the Alco-Sensor FST sampling system, and verifying that the result is within an acceptable tolerance of the expected or target value of the standard. This is called an Accuracy check. It is also sometimes called quality assurance or a calibration check. The terms are used interchangeably; however, we will use the term accuracy check in this manual.

When performing an accuracy check, if the result of the accuracy check is within an acceptable tolerance of the stated value of the standard, the Alco-Sensor FST is considered calibrated. If the reading is not within the acceptable tolerance the Alco-Sensor FST must have its calibration adjusted. Only Intoximeters approved standards (dry or wet) gas samples with a known expected ethanol concentration should be used to perform the accuracy check or calibration procedure.

Alco-Sensor FSTs hold calibration for months. However, some users choose to perform an accuracy check once a week during the first month the unit is in use. This process helps establish that the new instrument is stable and increases the operator's confidence in its accuracy.

Intoximeters recommends you follow your own policy when performing accuracy checks. If you do not have a quality assurance policy and if an accuracy check has not occurred within the past 31 days, it is recommended that an accuracy check be run in conjunction with a subject test to ensure the instrument has maintained proper calibration.

Accuracy Check Methods

Intoximeters recommends that external accuracy checks and calibrations be performed using a dry gas standard approved for use by both NHTSA and Intoximeters or a wet bath simulator with properly certified and maintained ethanol solutions. The wet bath simulator should be approved for use by NHTSA and Intoximeters.

In all cases the compressed gas tanks, simulators and simulator solutions should be used and maintained only in accordance with the quality assurance plans provided by their respective manufacturers.

Although some jurisdictions require using certified standards with specific values to perform accuracy checks and calibrations, these values are imposed only by the specific jurisdiction. The analytical design of the instrument allows it to be checked for accuracy and calibrated using positive standard values between .015 and .200 %BrAC.

Approved Dry Gas Standard

ELEMENTS:

A. Pressurized NHTSA and Intoximeters approved dry gas tank.
B. Small single staged approved regulator
   6 LPM regulator required for automatic sampling
   1.5 LPM regulator is acceptable, but manual sampling will be required
C. TRUE-CAL II device. *(Optional)*

MAKEUP: NIST traceable tank which contains a single-phased mixture of Nitrogen and Ethanol.

CHARACTERISTICS:

A. Flow rate of the regulator must be 6 liters per minute for automatic sampling on Accuracy Checks and Calibrations. 1.5 liter per minute regulators can be used, but manual sampling on Accuracy Checks and Calibrations will be required. (1.5 LPM regulators purchased from

Intoximeters can be modified in the field to become 6 LPM regulators – contact Intoximeters Customer Support for more information 314-429-4000).

B. Follow instructions included with the tanks to mount the regulator. When the regulator is initially mounted, depress the regulator control button and allow the gas to purge the valve for 10 seconds.
C. Expiration date is stamped/printed on the label of the dry gas standard.
D. The optional TRUE-CAL II device (programmed for your tanks alcohol concentration) used in the vicinity of the dry gas standard will display the expected value of the standard based on current barometric pressure at the time of the test.
E. If you are not using a TRUE-CAL II device, the altitude chart on the side of the tank will give you the stated value of your tank adjusted for the pressure changes due to the elevation at which you are using the dry gas standard.
F. **Tanks should only be used when they are between 10° - 40° C.**
G. If the tank has been maintained at temperatures below 0 °C (32 °F), see tank manufacturer's QAP for proper handling of the dry gas standard when bringing it back to operating temperature.

For True-Cal II Device information see Accessory below.

Approved Wet Bath Simulator (Standard)

ELEMENTS:

A. Glass jar which holds 500cc of solution.
B. Jar head contains heater thermostat, stirrer, thermometer, inlet and outlet ports for sampling headspace gas standing above the solution.

MAKEUP: Solution is a water/alcohol mixture of a certified BrAC/BAC concentration.

CHARACTERISTICS:

A. Seven-month shelf life for refrigerated, unopened bottles of solution. Or as determined by the manufacturer.
B. Liquid should be clear with no visible particles suspended in the solution.
C. A simulator containing a solution of known BrAC/BAC value must be at the operating temperature of 34°C. The simulator top must be on securely so the system is airtight. To check, cover the outlet port and blow into the intake port. Air bubbles will not rise rapidly through the solution if the top is secure.

Accessory

True-Cal II Device

Variations in barometric pressure can affect the expected value of a pressurized dry gas standard, according to standard gas laws. The TRUE-CAL II device is designed to sense changes in barometric pressure and report an adjusted value for the dry gas standard.

The TRUE-CAL II works with Intoximeters approved dry gas standards The TRUE-CAL II is an instrument designed to measure the current barometric pressure in the environment where the TRUE-CAL II device is placed. The TRUE-CAL II will use the detected pressure value and apply a correction factor to the preset gas concentration programmed into your TRUE-CAL II (presumably the "sea level" value of the dry gas calibration standard being utilized which appears on the label of all Intoximeters approved dry gas cylinders). The correction factor is based upon the local pressure as a percentage of the barometric pressure at sea level (at standard atmosphere). The TRUE-CAL II will adjust the stated sea level value of your dry gas standard to the corrected value and **will display that corrected value when the red button (**ON/BACK **button) is pressed.** This system provides a high level of accuracy in determining a dry gas standards' expected value. An alternative solution would be to use an elevation chart to

predict the standards' current expected value, but this method requires that you know your current elevation and it does not take into consideration the effect of weather conditions on current ambient pressure.

A CALIBRATION STATION consists of an Intoximeters approved dry gas standard, a regulator and a TRUE-CAL II device.

Accuracy Check Intervals

Unless stated otherwise by your programs protocol, if an accuracy check has not occurred within the past 31 days, it is recommended that an accuracy check be run in conjunction with a subject test to ensure the instrument has maintained proper calibration.

Accuracy Check Tolerances

The result of an accuracy check should not differ from the expected value by more than the tolerances prescribed by the program guidelines under which the test is being administered. Usually these tolerances range from ± .005 %BrAC or 5% whichever is greater, to ± .010 %BrAC or ± 10% whichever is greater.

Intoximeters has set a factory standard for accuracy checks run directly following a calibration. The factory standard states: the tolerance range for the expected value of the required accuracy check run ***directly*** following a calibration should be no greater than ± .003 %BrAC of the expected value if the calibration is to be considered successful.

Refer to your policy to determine the guidelines for your testing program.

Inspection and Routine Maintenance

The instrument should be calibrated when the displayed result of an accuracy check differs from the expected result of the standard gas sample by more than the accepted tolerances established by the protocols of the specific program under which the instrument is being utilized.

The instrument should be taken out of service if:

- the instrument repeatedly fails to maintain its calibration, (i.e. if after two successive attempts to calibrate the device a successful accuracy check was not obtained);
- the instrument fails to maintain its calibration on three consecutive, properly performed, monthly accuracy checks;
- the instrument consistently takes more than 50 seconds (the instrument will flash E or C68 if >50 seconds) to perform a breath analysis on a sample with a concentration less than .100 grams %BrAC.

IF THE INSTRUMENT EXHIBITS ANY OF THE ABOVE CHARACTERISTICS, CALL INTOXIMETERS SERVICE DEPARTMENT AT (314) 429-4000 OR (800) 451-8639.

Performing an Accuracy Check

Unit Temperature

The FST will only allow Accuracy Checks to be performed when the Alco-Sensor FSTs temperature is between 0°- 50°C.

Note: While wet bath Standard accuracy checks can be performed throughout the full 0°- 50°C temperature range, if you are using Dry Gas as your Standard for accuracy checks, then the unit and gas should be at or between 10°C and 40°C.

Accuracy Check Procedure Step by Step

Before beginning have these items available:

- Calibration Standard (dry gas or wet bath simulator)
- Calibration Logbook
- New Mouthpiece

1. Attach a new mouthpiece to the Alco-Sensor FST and power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
2. The display should show the **RCL** message, which is the first option in the function Menu. Momentarily depress the ON button, the displayed message should change to **PAS**, continue to press the ON button until the displayed message shows **ACC**.
3. With **ACC** on the display, press the OFF/ACCEPT button to select the Accuracy Check option. The temperature will be displayed followed by three digits – the first digit flashing (this three digit number, i.e. .080 %BrAC) indicates the last standard value used to conduct an Accuracy Check. If the standard value displayed is correct continue to press the OFF button until all displayed numbers have been accepted as your standard/target value. The display will flash .080 %BrAC three times and then display the test counter. (If the standard value displayed needs to be changed then press the ON button on each flashing number until the display shows the correct target value. Again pressing the OFF button will accept the number displayed).
4. **BlnK** will display indicating the instrument is running a blank, followed by the result of the blank check before a flashing **ACC** message will appear.
5. If the accuracy check is being done with a Wet Bath Standard skip this step and go to step 6. If the accuracy check is being performed with a Dry Gas, purge the regulator for at least 3 or 4 seconds before running your first accuracy check of the day. (Continue with step 7)
6. Prepare Wet Bath simulator for use. Be sure the stirrer is operating properly and the top is securely mounted. Also be certain that the bath temperature has reached 34°C and stabilized at this temperature for 15 to 30 minutes.
7. While the display shows a *flashing* **ACC**, make an airtight connection between the delivery tube of the regulator OR the outlet port of the simulator and the open end of the mouthpiece.
8. Depress the regulator control button OR blow into the inlet port of the simulator. If there is 6 LPM or more of airflow after several seconds the instrument should capture a sample automatically. Make certain that you continue to provide a sample for at least one or two seconds following the point in time where the sample has been captured (sample collection is identified by a *clicking* sound).
9. If for some reason you cannot provide an adequate flow rate for the instrument to collect an automatic sample, it is possible to perform an Accuracy Check by taking a manual sample. To perform a test in this manner, present a sample to the instrument for seven seconds. On the 5th second depress the ON button to take a manual sample. (The goal is to have gas still flowing through the Alco-Sensor FST mouthpiece when the sample is taken). Release the regulator control button OR stop blowing into the inlet port of the simulator on the 7th second.
10. The mouthpiece should remain connected to the regulator OR the simulator until a result is displayed.
11. Observe the result and compare it to the known value of the standard gas**.**
12. Record the result in your calibration log. If it does not meet your programs specified tolerances, the unit will require a calibration adjustment. If the result is within the required tolerances, the procedure is completed.

Note: Depending upon the version of the Alco-Sensor FST, the result may be displayed in two or three digits and the unit of measure may or may not be displayed.

Performing a Calibration Adjustment

When to Perform a Calibration Adjustment

A calibration or calibration adjustment should be performed when either **C34** is displayed and/or the result of an accuracy check indicates the unit does not read a known standard within your testing program's specified acceptable tolerances. A calibration adjustment should not be confused with the term "calibration check". A calibration check is synonymous with an Accuracy Check. A calibration adjustment is a process of introducing a known standard and modifying the instrument's result to match the value of the known standard.

Note: Certain versions of the Alco-Sensor FST have a pass code or security feature on some menu functions. If you access a menu function and the instrument does not operate according to the instructions in this manual, contact your Supervisor. If your Supervisor does not have a pass code key Intoximeters will need to be contacted.

Unit Temperature

To calibrate an instrument its temperature must be between 15°C - 35°C. If the temperature is not within this range, the unit will display **C09 or C10** and block the calibration procedure.

Calibration Procedure - Step by Step

Before beginning this procedure have these items available:

- New mouthpiece
- Approved calibration standard (ASFST standard software requires a calibration alcohol concentration between .015 - .200)
- Calibration logbook

Note: Depending upon the version of the Alco-Sensor FST, the result may be displayed in two or three digits and the unit of measure may or may not be displayed.

Ready your calibration standard according to its instructions, then

1. Attach a new mouthpiece and power the instrument **ON** by first pressing and holding the OFF button and then simultaneously pressing ON button.
2. The display should show the **RCL** message, which is the first option in the function Menu. Momentarily depress the ON button; the displayed message should change to **PAS**, repeat this step until **CAL** appears on the display.
3. Once **CAL** is displayed, depress the **OFF**/ACCEPT button; this will initiate the Calibration sequence.
4. The temperature will be displayed followed by the test counter, and if within range then **BlnK** (*flashing*) will be displayed on the instrument.
5. **BlnK** will display indicating the instrument is running a blank, followed by the result of the blank check before a flashing **CAL** message will appear.
6. Make an airtight connection between the delivery tube of the regulator OR the outlet port of the simulator, and the open end of the mouthpiece. Depress the regulator control button OR blow into the inlet port of the simulator. If there is adequate and consistent flow, after several seconds the instrument should capture a sample automatically. Make certain that you continue to provide a sample for at least one or two seconds following the point at which the sample has been captured (identified by a *clicking* sound).

   If for some reason you cannot provide an adequate flow rate for the instrument to collect an automatic sample, it is possible to perform a Calibration by taking a manual sample. To perform a test in this manner:

7. Present a sample to the instrument for seven seconds. On the 5th second depress the ON button to take a sample. The goal is to have gas still flowing through the Alco-Sensor FST mouthpiece when the sample is taken. Release the regulator control button OR stop blowing into the inlet port of the simulator on the 7th second.
8. The mouthpiece should remain connected to the regulator OR the simulator until a result is displayed.

9. The microprocessor will analyze the output from the fuel cell and will report a result.
10. **If the value displayed equals the current expected value** of the standard then depress the OFF Button. You will see that each time you depress the OFF Button, the *flashing digit* moves from the left most digit of the number to the right. After depressing the button three times, the value displayed will be accepted as the Calibration Value and will flash three times before the instrument will power down.
11. If the result **does not** match the expected value or current target value of the standard gas, you will need to adjust the displayed result to the proper value. The result displayed will have the digit furthest to the left flashing. If the flashing digit is incorrect, press and release the ON button as many times as it is necessary to cycle the displayed digit to the correct number. When the digit is correct, press the OFF button to move the flashing highlight to a digit to the right. After you have adjusted the furthest to the right digit and the OFF Button is depressed, the new calibration value will be flashed on the display three times. If you need to adjust this number further, pressing the OFF Button again, while the entire calibration number is flashing, will provide you this option by displaying the most recently entered number with the digit furthest to the left flashing. If the calibration value is correct and you have not pressed the OFF button a second time, after the third flash the new Calibration value will be accepted.
12. Cycle the power on the instrument **OFF** and then **ON** and perform an Accuracy Check to verify the calibration adjustment.
13. It is essential to verify the calibration. Use a new mouthpiece and an approved gas standard. **THE RESULT SHOULD BE WITHIN ± .003 OF THE EXPECTED VALUE OF THE STANDARD GAS READING.**
14. If this Accuracy Check does not produce a result within ± .003 of the standards target value repeat the calibration procedure after waiting several minutes.

Note: ***Depending upon the software version installed on the Alco-Sensor FST, a Calibration procedure followed by a successful Accuracy Check must be conducted before a Subject Test can be run.***

Uploading Test Memory [For ASFST's with software versions that support this function.]

All tests in the memory of the Alco-Sensor FST instrument can be downloaded to a PC/Laptop using one of two Software packages available from Intoximeters, and the instrument must also be connected using a download cable. The available software packages are FST VIEW or TOTAL RECALL. (Note: The ASFST instrument must have a software version that is memory capable). Not all ASFST instrument software is capable of communicating with the ASFST VIEW or TOTAL RECALL software.

For additional information on these software packages and the download cable, contact Intoximeters at (314) 429-4000.

Battery Replacement Procedure

The batteries will need to be replaced as soon as possible, after the battery charge icon at the top of the display indicates no bars, the display shows BAT or there is not enough power to power the instrument ON.

It is always safest to allow the instrument's processor to perform an orderly shutdown. For this reason, when changing batteries power the instrument OFF before pulling the batteries out of the instrument.

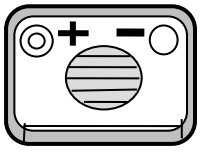
If your instrument's software is keeping track of time, after replacing the batteries you may be required to reset the time if the back-up power was not sufficient to keep the clock running while the instrument was without power. You will know that there was a loss of time keeping if after you put new batteries in the instrument if the "C63 SET/TIME" message is displayed. Follow the instructions for setting time and date which is described earlier in this manual.

To replace the batteries follow these instructions:

- Remove the optional rubberized grip (if the ASFST is equipped with this option).
- Slide BATTERY DOOR open.
- Remove both BATTERIES (if there is still a charge on the batteries to be replaced you should have about five minutes, after removing the batteries, to replace them with new batteries without losing the clock/calendar settings.
- Insert **two new** BATTERIES. (AA heavy duty alkaline batteries or Intoximeters approved AA NiMH rechargeable batteries)
- (Note the + and – labels within the battery compartment to insert the batteries properly).
- Close BATTERY DOOR.
- Replace rubberized grip
- After changing batteries and while the instrument is **OFF**, always turn the instrument **ON**, check the battery condition on the top of the display and then turn the unit **OFF**. In the rare event that the display does not come on, wait five seconds and press the ON button again. If that does not work, remove the batteries and press the ON button while the batteries are out of the instrument before reinstalling the batteries or installing a new set of batteries. Once these steps are taken, try to check the battery level again. If you continue to have issues, contact Intoximeters Technical Support.

Caution

- When changing batteries always replace both batteries and never mix battery types.
- When installing **batteries**, the **proper** polarity, or direction, must be observed. (On both the inside of the case and on the circuit board in the battery compartment there is a guide for proper polarity or direction). In addition, ASFSTs have a battery cover with the proper polarity displayed on the outside of the battery cover.
- The Alco-Sensor FST has both electronic and hardware polarity protection to ensure that incorrect insertion of the batteries will not damage the ASFST. The battery cover also provides hardware polarity.



After replacing the batteries, always power the instrument **ON** and **OFF** to verify proper installation and that the sleep state is reset.

SECTION VI TROUBLESHOOTING & TECHNICAL SUPPORT

Troubleshooting

Aborting a Test

To abort a test, depress the OFF button to turn the instrument **OFF**.

C06 - Insufficient Breath Sample

The standard instrument will allow the subject a preset number of attempts to provide a sample before it will display the Status Code **C06** and power off. (The majority of Alco-Sensor FST software versions are preset to allow the subject three attempts to provide a proper sample).

If the subject has impaired breathing it is possible to take the sample manually with the standard version Alco-Sensor FST. *(see also:* Manual Sampling*).*

C09 & C10 Temperature of Instrument too Cold or too Hot

The instrument temperature is displayed after the mouthpiece has been inserted. If this temperature is below 0°C or above 50°C (the standard Alco-Sensor FST range), the test cannot be initiated. Remove the mouthpiece and place the unit in an environment that will bring it to proper operating temperature. The instrument should come to an acceptable operating temperature within several minutes if placed in a pocket close to the body. *(Certain software versions of this instrument can be set up so that they operate outside of the standard temperature range).*

C11 - Blank Test is not Successful

Before the subject provides a sample the instrument automatically performs a blank test to ensure that the unit is free of alcohol. If this test does not result in a zero reading the test will display **C11**. Remove and replace the mouthpiece. Make certain that you are using a new, clean mouthpiece. Wait a few moments before initiating another test. If repeated attempts do not result in a zero reading contact Intoximeters Service Department.

Improper Breath Sample

An Improper Breath Sample was detected by the instrument and is indicated by the **Flow** message flashing several times along with one of the following descriptors: **LOW**, **HIGH**, **INS** or **CUT. Flow LOW -** indicates subject breath flow fell below the instrument's minimum flow requirements; **Flow HIGH -** indicates subject breath flow exceeded maximum allowable flow rate; **Flow INS -** indicates subject breath flow was not consistent; **Flow CUT -** indicates subject provided enough sample to capture a sample, but breath flow stopped too abruptly.

Low Battery

The battery level indicator is displayed on power up and will give the user an indication of current battery strength. If the battery strength is lower than the instrument's requirement for performing a test **BAT** will flash on the display and the instrument will power off. Battery replacement is required. *(see also:* Battery Replacement Procedure).

C12 - Radio Frequency Interference (RFI) Sensor

The Alco-Sensor FST has been designed to be immune to RFI. This immunity has been tested and the ASFST found to meet International EMC requirements by internationally accredited test houses in the USA and Europe. In addition, an RFI detection function is also built into the ASFST instrument. If an interference signal is detected, the test will be voided and **C12** will be displayed. The test will have to be re-started. The mouthpiece should be removed to turn the unit off, and the source of the RFI located and removed from the testing site before the test is initiated again. Some common sources of RFI include walkie-talkies, cell phones and other radio transmitting sources.

Time Outs

If no breath sample is blown into the instrument, **Blow** will be displayed for 30 seconds before the test is aborted and the instrument powers down.

If the Alco-Sensor FST is being used in the passive mode and no test is performed for 120 seconds the instrument will power off.

Pass Code Features

Certain versions of the Alco-Sensor FST have a pass code or security feature on some menu functions. If you access a menu function and the instrument does not operate according to the instructions in this manual, contact your Supervisor. If your Supervisor does not have a pass code key Intoximeters will need to be contacted. Not all Maintenance Menu Features listed/described in this Manual are included in all versions of the Alco-Sensor FST.

Depending on the version of the ASFST, *Pass Coded functions may display three digits with the first digit flashing or one digit flashing and two stars (i.e.)* 3 * *.

Quick Reference Status Messages

(Status Codes/Messages may be displayed with an E or C).

BlnK	Indicates that a blank test is in process.
OFF	Indicates that the instrument has been turned OFF.
Blow or BLO	Indicates that the instrument is ready to accept a sample.
PAS	This menu item indicates the Passive Testing Option.
NEG	Indicates, during a PASSIVE TEST, that the test result was negative.
POS	Indicates, during a PASSIVE TEST, that the test result was positive.
RBL	In the Maintenance Menu this menu item indicates the Screen Test / Road Block Testing Mode.
ACC	Menu item indicating the Calibration/Accuracy Check Option.
CAL	Menu item indicating the Calibration Mode Option.
BAT	Battery power low – Change the battery after powering the instrument off.
Flow LOW (C65)	Subject's breath flow fell below the instrument's minimum flow requirements before the minimum volume requirement was met. Subject is given a preset number of attempts to provide an adequate sample before the test is aborted. Instruct the subject to provide a continuous sample with a moderate rate of breath flow.
Flow HIGH (C64)	Subject's breath flow exceeded maximum allowable flow rate. Subject is given a preset number of attempts to provide an adequate sample before the test is aborted. Instruct the subject to provide a continuous sample with a moderate rate of breath flow.
Flow INS or FLO INS (C66)	Subject's breath flow was not consistent. Subject is given a preset number of attempts to provide an adequate sample before the test is aborted. Instruct the subject to provide a continuous sample with a moderate rate of breath flow.

Flow CUT (C67)	Subject provided enough breath flow to capture a sample but their breath flow stopped too abruptly. Subject is given a preset number of attempts to provide an adequate sample before the test is aborted. Instruct the subject to provide a continuous sample with a moderate rate of breath flow.
C12	Instrument detected possible radio frequency interference at the time of the test and aborted the test process.
RCL	Indicates that the result that is being viewed is a recalled test result from the previous sample.
DSR	Menu item that allows the Operator to view the Displayed Software Revision.
TIME	Menu function that is used to enter the Year/Month/Day/Hour/Minute Mode.
LocK	Menu item for entering the maximum number of days and/or tests allowed between successful calibration checks.
MEM	Menu item used to clear the instrument test memory. Password Protected.
SUM	Print Test Summary – Menu item will only appear if the PRNT function is enabled.
C03	Sensor Blank Timeout (> 60 seconds). Too long to establish Fuel Cell Baseline.
C05	Breath Timeout. No sample provided within the 3-minute timeout.
C06	Insufficient Sample. Subject unable to provide adequate sample on present number of sample attempts - normally 3 attempts.
C07	Calibration Failed (unable to calibrate – usually due to a sample out of range). Too low/high of Fuel Cell output difference from last calibration outside of set parameters.
C09	Temp too Cold for Test Type Being Performed.
C10	Temp too Hot for Test Type Being Performed.
C11	Failed Air Blank – Replace mouthpiece with new mouthpiece and begin test again.
C12	Invalid Sample – instrument detected an anomaly in the fuel cell wave form during analysis and aborted test sequence.
C20	Indicates that an invalid password has been entered.
C21	Fuel Cell Baseline Unstable – stable fuel cell baseline could not be established in the allotted time.
C27	Insufficient drive voltage to sample.
C29	Fuel Cell Signal Clipping Condition – Fuel Cell reading exceeded A/D maximum range.
C31	Result Over Range – Fuel cell result greater than configured maximum reading.
C32	Internal Error - normally hardware or firmware related.
C33	Accuracy Check Required – event requires accuracy check (could be a required scheduled check or post calibration requirement).
C34	Calibration Required.
C43	Operator Abort – appears when using RCL function.
C45	Accuracy Check Out of Range.
C63	Time Not Set. The DATE/TIME must be set.
C68	Fuel Cell Timeout.
X * *	Random-digit number displays - *flashing* – you have accessed a pass-coded menu option – Contact your Supervisor.

Frequently Asked Questions

Q: After a fifteen-minute deprivation period does the Alco-Sensor FST respond to anything other than alcohol found in the human breath?

A: The Alco-Sensor FST responds only to alcohol. It does not respond to acetone or hydrocarbons, which also might be present in the breath.

Q: What is the life of a fuel cell?

A: Field use indicates that fuel cells have an average life of 5-7 years.

Factory Support and Repair

Intoximeters service has been organized around one premise: to offer customers convenient and speedy access to information and support for instruments manufactured by Intoximeters.

Intoximeters has representation throughout the United States and in many countries around the world. In order to find the representative most convenient for you, call the St. Louis, Missouri office or our Totnes UK office. You will be provided with a local name and number. Likewise, for product replacement parts and pricing for mouthpieces, protector set, passive sample cup, carrying case, in-service training, etc., a list of technical service locations or general information, the St. Louis office, UK office or your local representative can help you.

Intoximeters, Inc.
2081 Craig Road
St. Louis, Missouri 63146
(314) 429-4000
(800) 451-8639 (USA)
FAX: (314) 429-4170

Intoximeters UK Ltd.
Alpha Center Unit 6 A-D
Babbage Road
Totnes, Devon UK
TQ9 5JA
44 (0) 1803 868602

Information is also available at: www.intox.com

Shipping Methods and Instructions

Shipping Product to the Customer

Unless specifically requested otherwise, surface transportation is used in the U.S and U.K; this may include motor freight or United Parcel Service. Airfreight or air express will be used only if the purchaser has specified it on their order. Unless the purchaser requests collect shipment, all shipping charges are prepaid and added to the invoice as a separate line item.

Shipments to destinations outside the U.S. or U.K. (*for instruments repaired in the UK*) are made by either surface or air, as directed by the purchaser. Please note that shipments by sea usually require commercial export packaging at an extra charge.

Shipping Product to Factory for Repair

When returning a product to Intoximeters for repair the product must be sent to the Intoximeters service center with an RMA sheet, which you can obtain from our website (https://www.intox.com/incident-form-return-material-authorization/) or request information by calling customer service at 314-429-4000. Additionally, we will accept units for repair that arrive with a letter describing in detail the difficulty being experienced with the product. The letter must also include a name and phone number of the contact person and proper billing and shipping instructions.

Intoximeters Authorized Sales/Service Outlet assumes no risk for damage in transit. The product should be sent to the service center postage and insurance prepaid.

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