



AlcoHAWK[®] ABI

Owner's Manual

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INTRODUCTION

Overview of the AlcoHAWK® ABI

The AlcoHAWK® ABI is a breath alcohol tester designed to test for the presence of alcohol in the blood. This device provides a digital reading of an individual's approximate blood alcohol concentration (BAC) in seconds. The AlcoHAWK® ABI is powered by a 9 volt battery that generally lasts between 200-300 tests when using an alkaline battery.

To fully utilize this device to its potential, we recommend reading this entire manual. Enjoy your AlcoHAWK® and please do not drink and drive!

Alcohol Testing Theory

Ethyl alcohol is detectable in the breath because it is absorbed from the mouth, throat, stomach and intestines into the bloodstream. When blood flows through the lungs, some of the alcohol passes across the membranes of tiny lung air sacs (alveoli) into the air. The concentration of the alcohol in the alveolar air is proportional to the alcohol in the blood. As the alcohol in the alveolar air is exhaled, it can be screened by a breath alcohol testing device. Rather than drawing a subject's blood to test for alcohol level, a subject's breath can be tested using a breath alcohol testing device. Because breath alcohol concentration is proportional to blood alcohol concentration (BAC), BAC can be calculated by measuring alcohol content on the breath. The ratio of breath alcohol to blood alcohol is 2,100:1. This means that 2100 milliliters of alveolar air will contain the same amount of alcohol as 1 millimeter of blood. This concept is well established by Henry's Law, which states that the concentration of a volatile substance in the air above a fluid is proportional to the concentration of the volatile substance in the fluid.

When performing a breath alcohol test, it is necessary to analyze an alveolar or deep lung air sample. If the test sample is not based on a deep lung sample, the sample analyzed could be diluted with breath of lower alcohol concentration from the upper respiratory tract. This would result in a lower than optimum test result. As a result, breath alcohol testers listed on the Department of Transportation (DOT), National Highway Traffic Safety Administration's (NHTSA) Conforming Products List of Screening Devices To Measure Alcohol in Bodily Fluids, typically have protocols which require the subject to deliver at least 1.5 liters, or continuous blowing into the unit for least five (5) seconds.¹ Otherwise, the testing can be aborted or marked as unacceptable.

¹Federal Register: May 4, 2001 (Volume 66, Number 87)

Description Of Testing System

This device contains a sensor chip designed to test for the presence of alcohol. A thick film heater is printed on the reverse of the chip placed in the plastic housing. The metal oxide material is heated to a specific temperature. The resistance of sensing material changes rapidly according to gas concentration changes, thereby enabling the reading of alcohol concentration by resistance measurement. This alcohol concentration is directly related (as explained in the above paragraph) to the concentration of alcohol in the blood. Therefore, this device can give a reading that reflects an estimate of the concentration of alcohol in the blood.

Dose-specific Effects Of Alcohol Intoxication

The effects of alcohol intoxication are greatly influenced by individual variations among users, as well as other factors such as altitude and air temperature. The following are *general* dose-specific effects of alcohol, although some users may become intoxicated at a much lower BAC than shown below. Because a safe reading on a breath alcohol

screeners does not mean that a driver's reaction times can respond to any emergency encountered, do not drink alcohol and drive.

Some states prohibit driving with a .08% BAC or above reading, and in many states, individuals can be prosecuted for driving under the influence at any level.

Some states also prohibit driving commercial vehicles or any vessel with .04% or more. There is no safe way to drive under the influence of alcohol. Even one drink can make you unsafe.

BAC	Dose-Specific Effects²
0.02-0.03% ³	Generally no loss of coordination, slight euphoria or loss of shyness. Depressant effects are not apparent.
0.04-0.06%	General feeling of well-being, relaxation, lower inhibitions, sensation of warmth. Euphoria. Some minor impairment of reasoning and memory, lowering of caution. Driving skills may be impaired at this level of intoxication.
0.07-0.09%	Slight impairment of balance, speech, vision, reaction time, and hearing. Euphoria. Judgment and self-control are reduced, and caution, reason and memory are impaired. Driving skills are always impaired at this level of intoxication.
0.10-0.125%	Significant impairment of motor coordination and loss of good judgment. Speech may be slurred; balance, vision, reaction time and hearing will be impaired. Euphoria.
0.13-0.15%	Gross motor impairment and lack of physical control. Blurred vision and major loss of balance. Euphoria is reduced and dysphoria is beginning to appear.
0.16-0.20%	Dysphoria (anxiety, restlessness) predominates, nausea may appear. The drinker has the appearance of a "sloppy drunk."
0.25%-0.29%	Needs assistance in walking; total mental confusion. Dysphoria with nausea and some vomiting.
0.30%-0.39%	Loss of consciousness.
0.40% +	Onset of coma, possible death due to respiratory arrest.

² Bailey, William J., *Drug Use in American Society*, 3rd ed., Minneapolis: Burgess, 1993.

³ Some individuals may experience impairment at BAC levels at .03% or even lower.

Uses Of Breath Alcohol Screening Devices

Breath alcohol screeners are used in a wide variety of applications. For example, law enforcement officials use breath alcohol screeners on the roadside to determine if a subject should be further tested on an evidential alcohol test (a test given to determine an exact blood alcohol concentration). In addition, breath alcohol screeners are used in a wide range of professions and industries to screen for the presence of alcohol before an individual performs certain job functions. Since the presence of alcohol in a person's body can impair numerous activities of an individual, a simple breath alcohol screening device that can test for the presence of alcohol in a individual's system can be of great value.

PREPARATION

Installing The Battery

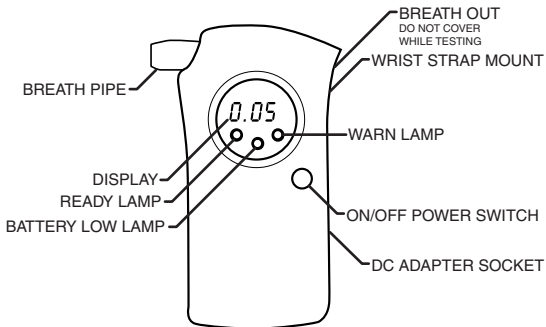
Apply a small amount of pressure on the indentation of the battery compartment cover located on the rear of the unit and push down and away from the unit simultaneously to release the cover. See the following diagram.



Inserting A Mouthpiece

Insert the mouthpiece cover firmly over the breath pipe. See diagram below.

COMPONENTS DIAGRAM



OPERATION

Operating Instructions

WAIT 20 MINUTES AFTER SMOKING, EATING, OR DRINKING BEFORE USE. FAILURE TO DO SO CAN ALTER THE BAC READING AND CAN DAMAGE THE SENSOR.

1) Press the ON/OFF power switch. The detector will start to count down from 200 to 000 on the DISPLAY. This warm-up process prepares the sensor and circuit for testing.

2) When you hear a BEEP and the green READY light comes on, take a deep breath, then blow steadily and continuously into the BREATH PIPE until you hear another BEEP. You will be blowing for up to 5 seconds. Your lips should be sealed around the mouthpiece while blowing. Be careful not to cover the BREATH OUT opening on the unit. If you don't blow within 30 seconds, the unit automatically displays "OFF". Press the ON/OFF power switch to turn the unit off and repeat step 1).

3) After the red and green display lights blink for 4 seconds, the test result will be displayed by 3 digits for 15 seconds. This number is your estimated Blood Alcohol Concentration (%BAC).

- If the BAC reading is over 0.05%, the red WARN lamp will flash along with a BEEP sound.
- If the BAC reading is over 0.40%, the display will read "HOT" and the red WARN lamp will flash along with a BEEP sound. This can also occur if a subject blows alcohol from their saliva into the tester.
- If you consumed very little alcohol, your actual concentration may be below 0.01%BAC (Blood Alcohol Concentration), and the reading may not be activated. However, the display will show 0.00%.
- If ErH is displayed, see the Error Messages section in this manual.

4) Finally, the unit will display “OFF” for turn-off, along with a BEEP sound. Press the ON/OFF power switch to turn the unit off.

5) **READ THE RESULTS (NEVER DRINK AND DRIVE).**

Reading	What It Generally Means
0.02-0.03%	Generally no loss of coordination, slight euphoria or loss of shyness. Depressant effects are not apparent. DO NOT DRIVE.
0.04-0.06%	General feeling of well-being, relaxation, lower inhibitions, sensation of warmth. Euphoria. Some minor impairment of reasoning and memory, lowering of caution. Driving skills may be impaired at this level of intoxication. DO NOT DRIVE.
0.07-0.09%	Slight impairment of balance, speech, vision, reaction time, and hearing. Euphoria. Judgment and self-control are reduced, and caution, reason and memory are impaired. Driving skills are always impaired at this level of intoxication. You are legally intoxicated at 0.08% in most states! DO NOT DRIVE.
0.10-0.125%	Significant impairment of motor coordination and loss of good judgment. Speech may be slurred; balance, vision, reaction time and hearing will be impaired. Euphoria. DO NOT DRIVE.

6) For more testing, wait one (1) minute and repeat steps 1 – 5.

Error Messages

Error Message	Cause and Course Of Action
HOT	The unit detected a very high alcohol concentration (above 0.400% BAC). REPEAT TEST.
ErH	The sensor has been exposed to pollutants or high alcohol levels. Unit requires servicing. Visit www.q3i.com/support for information on getting the unit serviced.

Understanding The Results

The result that displays on this device is an estimate of the subject's BAC. The Department of Transportation (DOT) employs the standard of 0.02% as a threshold for a positive test for alcohol in no tolerance screening. Nearly all states have 0.08% as the legal BAC limit for tasks such as operating a motor vehicle. Some states prohibit driving commercial vehicles or any vessel with a 0.04% BAC or higher. This device should only be used as a screening device and may only give a reading of the possible presence of alcohol in the blood of the test subject. Correlation between breath alcohol content and BAC depends on many factors, including temperature and health conditions. **The exact BAC in the blood of the test subject cannot be exactly determined by using a breath alcohol screening device. Never drink and drive.**

Precautions

1. After drinking, smoking and eating, users should **wait at least 20 minutes** before testing.
2. Avoid testing in strong winds, in a closed room with a heavy amount of smoke, or where a lot of alcohol is being consumed.
3. When the battery low light is glowing, replace the 9V alkaline battery.
4. Do not blow cigarette smoke, food or liquid into the instrument because this may damage the sensor.
5. This device is designed to be used in a temperature range of 10– 40 (C) or 50-104 (F). Operation of the unit in temperature ranges above or below this range may affect the accuracy of results.
6. Do not leave the device connected to an AC/DC outlet when the unit is not being used.
7. Avoid testing in the presence of any liquids that contain alcohol or acetone. These substances may interfere with the results of the test.
8. Conditions that increase the amount of ketones on the breath, such as diabetes and low caloric intake, may cause a false positive test. (i.e., showing a non-zero reading despite not drinking alcohol)
- 9. AN INDIVIDUAL'S BAC CAN CONTINUE TO INCREASE OR DECREASE OVER TIME, DEPENDING ON MANY FACTORS. OBTAINING A BAC READING AT ONE TIME DOES NOT MEAN THE BAC READING WILL BE THE SAME EVEN A FEW MINUTES LATER.**
- 10. DO NOT USE THIS DEVICE IN CONJUNCTION WITH AN IGNITION INTERLOCK DEVICE OR WHILE SITTING IN A MOTOR VEHICLE.**

11. THE RESULTS OF THIS DEVICE CANNOT BE USED IN A COURT OF LAW FOR EVIDENTIAL ALCOHOL TESTING PROGRAMS REQUIRING A CONFIRMATION TEST PURSUANT TO 49 CFR PART 40.

12. DO NOT USE THIS DEVICE AS A TOOL TO DETERMINE WHETHER YOU OR ANYONE ELSE SHOULD OPERATE ANY MOTOR VEHICLE OR MACHINERY.

13. DO NOT DRINK AND DRIVE. ALWAYS HAVE A DESIGNATED DRIVER WHEN YOU DRINK ALCOHOL.

SPECIFICATIONS

Housing	Shock resistant, molded plastic
Power	9V Alkaline Battery
Battery Life	300+ tests
Sensor	Sensitive semi-conductor sensor
Warm-UP Time	20 seconds
Blowing Time	5 seconds
Response Time	3 seconds
Digital Display	3 Digits (0.00 % B.A.C.)
Operating Temp	10 - 40 c (50 - 104 f)
Detection Range	0.00 - 0.40% BAC(Blood Alcohol Content)
Air Sample	5 Second Deep Lung Sample
Calibration	Visit www.q3i.com
Operation	Single Button
Warranty	1 Year Limited Warranty

ACCESSORIES

Visit our online store at www.q3ats.com to purchase the following accessories that are available for this device:

- Mouthpieces
- 12 Volt DC Adapter
- Wall Adapter
- Soft Carrying Case
- Hard Carrying Case
- Wrist Strap

VERIFICATION AND CALIBRATION

Overview

Verification is a procedure using an advanced Alcohol Breath Test Simulator that verifies whether the unit is displaying the specific BAC level. If the verification procedure determines that the BAC is not consistent with actual BAC levels, calibration of the device is performed by using an advanced Alcohol Breath Test Simulator. A breath alcohol screening device can start to drift or become contaminated after 6 – 12 months, depending on frequency of use and whether alcohol or other substances penetrate the sensor.

Procedure

If the device is providing inconsistent, unusually high or low readings, or no readings at all, your device may need to be re-calibrated. **In addition, this device should be re-calibrated at least every 6-12 months. More frequent calibrations may be required depending on**

frequency of use; such as once per month if the unit is used daily.

For detailed information on how to have the device re-calibrated or for technical support, please visit us online at www.q3i.com.

LIMITED WARRANTY

The manufacturer warrants this device to be free from defects in workmanship or material (excluding calibration) under normal use for one year from the date of purchase. Manufacturer's obligations under this limited warranty are limited to replacing, adjusting, or repairing the unit if returned along with the proof of purchase. This warranty is void if the unit has been tampered with, maliciously damaged, or physically abused.

The enforceability of this warranty is limited to the original consumer purchaser and is not transferable to, or enforceable by, any subsequent owner. In the event of a defect, malfunction or other failure to conform to this warranty, Q3 Innovations, LLC, (Q3I), will, at its sole discretion, repair or replace the unit at no charge. You are responsible for all shipping cost in connection with warranty service. This warranty commences on the date of retail purchase and shall be effective for a period of one year.

THERE ARE NO EXPRESS WARRANTIES COVERING THE UNIT OTHER THAN THOSE SET FORTH IN THIS WARRANTY. ALL IMPLIED WARRANTIES ARE LIMITED TO THE PERIOD OF THIS WARRANTY AND NO WARRANTIES, EXPRESS OR IMPLIED, EXTEND BEYOND THIS PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

Manufacturer and Q3I will in no event be liable for any consequential,

incidental, indirect or special damages (including, but not limited to, lost profits) arising out of or in connection with the use, misuse or function of the unit. Some states do not allow exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

If you feel the device is not functioning properly please review this manual, particularly the instructions. If you still feel warranty service is required, please follow the instructions below:

1. To obtain service during the warranty period, please call 888-399-1687 or email service@q3i.com to obtain an RMA number and shipping instructions. Remember to return the device postage paid, insured and in suitable packaging.

2. For your own protection, obtain a proof of delivery receipt. Shipping costs are your responsibility.

3. You must enclose with the unit the following information:

a. The completed RMA form (available at www.q3i.com/support.htm)

b. Your name, complete return address and written description of the problem. (No PO Box please.)

c. A telephone number where you can be reached during normal business hours.

d. A copy of your dated sales receipt or invoice.

Note: Failure to obtain an RMA number prior to returning the device can result in extended delays and the device may be returned to you without servicing.

DISCLAIMER

Q3I makes no warranties, expressed or implied, as to the ability of this device to determine whether a person is intoxicated, and Q3I expressly disclaims any liability for incidental, special, or consequential damages of any nature. Decisions and/or actions based upon the reading of this device shall be at such person's own risk. Q3I assumes no responsibility for consequences of subjects who test negative when using this device and later show that they are under the influence of alcohol or their judgment has been impaired by alcohol. This device should only be used as a screening device and may only give an indication of the possible presence of alcohol in the blood of the test subject. Correlation between breath alcohol content and blood alcohol concentration depends on many variables, including temperature and health conditions. A safe or low BAC reading on a breath alcohol screener does not mean that the driver's reaction times can respond to any emergency encountered. The exact concentration of alcohol in the blood of the test subject cannot be exactly determined by using a breath alcohol screening device.

This device is intended to measure alcohol in the human breath. The accuracy of this model has been tested at an ethyl alcohol concentration of 0.008% and 0.032%. Accuracy at other concentrations has not been evaluated.

DO NOT DRINK ALCOHOL AND DRIVE

ALWAYS USE A DESIGNATED DRIVER
AFTER DRINKING ALCOHOL

BE SAFE AND DRINK RESPONSIBLY

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