FC20 Portable Breath Tester

Operations Manual

Lifeloc Technologies, Inc

Users Manual
Version 3.0

January 2004

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Introduction

To the FC20 Portable Breath Tester Operator:
WELCOME!

The FC20 breath alcohol tester is manufactured in Denver, Colorado, by Lifeloc Technologies, Inc. Lifeloc offers premium quality products combined with exceptional service and technical support.

The FC20 is a state-of-the-art breath alcohol tester that is software based and incorporates unique cutting edge technologies. Because of the advanced FC20 design:

- Results on a positive test register in 10 seconds.
- You can take another test 30 seconds after a positive.
- Your FC20 will automatically take the test when it senses a deep lung sample is delivered.
- Your FC20 will provide an accurate test, or else explain to you why it cannot, and even provide suggestions on how to proceed to complete an accurate test on your subject.
- Your FC20 includes a host of other features: Calibration/Calibration Check lock-out periods, Batch and Subject IDs, numerous printout options, passive testing, password protection (option) and more. All are explained in this manual.

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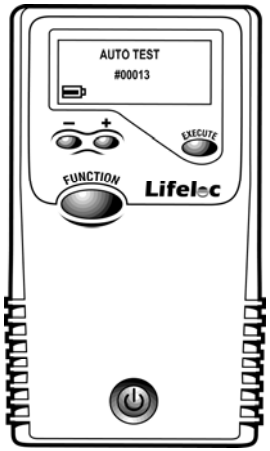
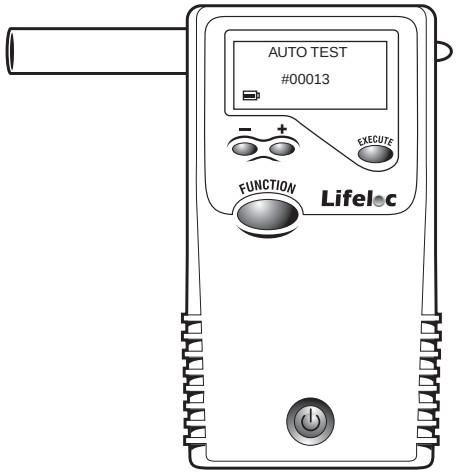


Front view without mouthpiece.



Mouthpiece removal tab.

Front view with mouthpiece attached.

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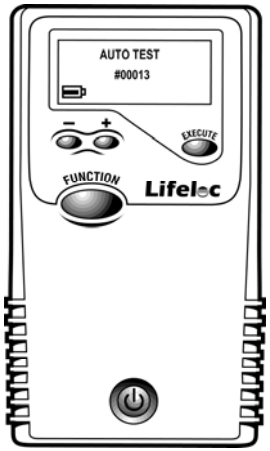

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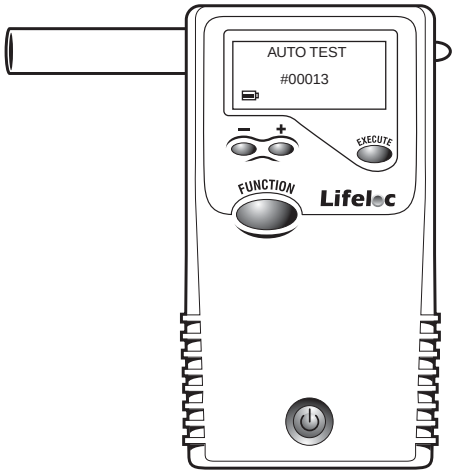

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Front view with mouthpiece attached.

Introduction

STANDARD FEATURES

Large graphic LCD display, capable of showing numbers, letters, icons, and plain-English text messages

Automatic Calibration, software controlled adjustments, no screwdriver or tools necessary

Auto Test Mode, the easiest, simplest way to take a test of any breath tester, Auto Test is fast, accurate, and virtually "hands-free"

On Board Memory, stores the last 500 tests

Real Time Clock, stores time and date information with test results as well as calibration and cal check results

Printer Ready, print out any or all results using the Lifeloc AP893 thermal printer

Auto Shut-Off, preserves battery life

Passive Test Mode, check for the presence of alcohol without using a mouthpiece

Two Printout Options, long or short

Calibration Reminder with Lockout, prevents you from using an FC20 when it is due for calibration

User Selectable Test Order, allows choice of either Auto Test or Passive Test default mode

I.D. Entry, capable of storing two separate I.D. numbers, one for subject and one for additional uses, operator, precinct, etc.

Fast Simple Operation, while the FC20 contains a host of features, it is still easy to use

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Fast Simple Operation, while the FC20 contains a host of features, it is still easy to use

Preparation

INSTALLING BATTERIES

Press in and down on the battery door located on the back of the FC20 in the direction of the arrow.

Install the 4 AA Alkaline batteries in the direction of the symbols in the battery case.

Close the case by pushing up on the battery door until it locks shut.

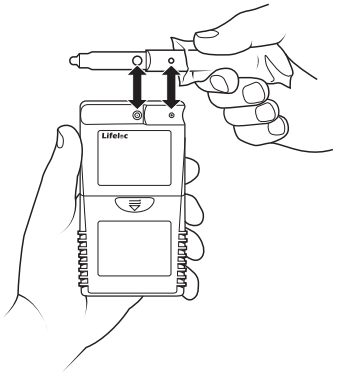
ATTACHING A MOUTHPIECE

Remove the mouthpiece from its wrapper, making sure not to touch the end which the subject will be blowing into.

Attach the mouthpiece to the port on the back of the FC20.

Line up the mouthpiece port over the hole in the back of the mouthpiece. Press in place.

Ensure it is snuggly fit.



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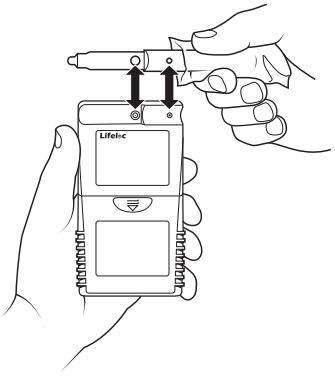
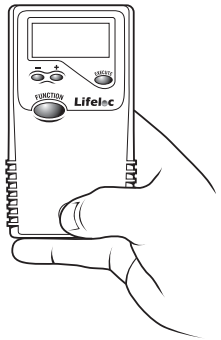


Preparation

TURNING THE FC20 ON & OFF



Press and hold the *Power* button on the bottom of the unit until it beeps. The FC20 performs an automatic internal diagnostics check.

To turn the unit off, press and hold the *Power* button until it beeps. The unit will shut down.

OBSERVING THE SUBJECT

The FC20 provides a highly accurate reading of breath alcohol acquired by sampling deep lung air. However, the reading can be corrupted by residual mouth alcohol.

To prevent mouth alcohol from affecting a test, make certain that the subject is not allowed to put anything in their mouth for the 15 minutes prior to taking a test.

If the subject just took a drink, a 15 minute observation period in which they are not permitted to put anything in their mouth should be observed before testing. This will ensure all residual alcohol from any source is completely dissipated and test results will be valid.

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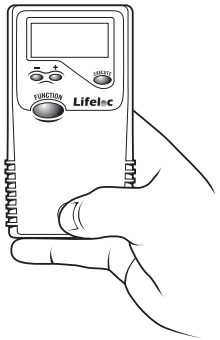
TURNING THE FC20 ON & OFF



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Operation

TAKING AN AUTO TEST

Attach the mouthpiece to the back of the unit.

Verify the display reads “AUTO TEST”.

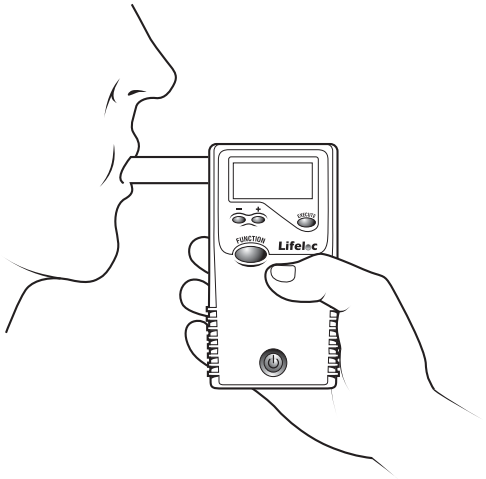
Instruct subjects to blow into the mouthpiece firmly and steadily for as long as they can. (Not necessarily as hard as they can.)

Read the result.

After taking a test the FC20 will display the results in large numbers on the display.

Additionally, the results are stored in memory and available for viewing at a later date.

Press the *Function* button to return to the test mode.



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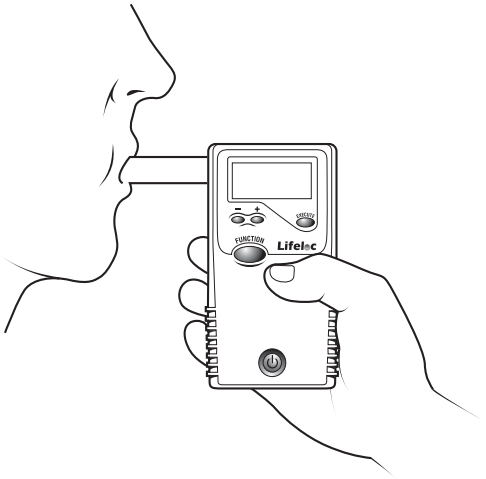

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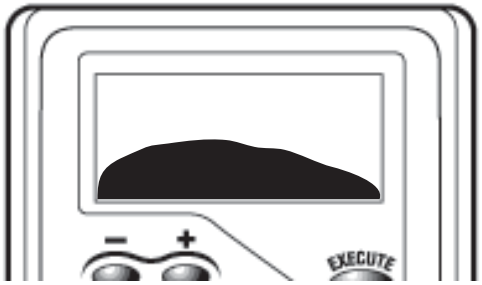
Operation

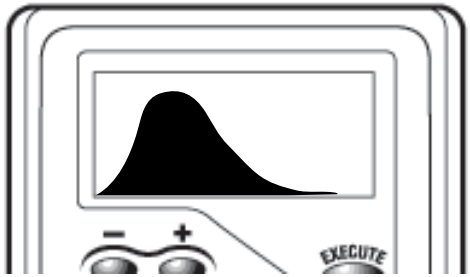
BREATH FLOW

As the subject blows into the mouthpiece, the FC20 will show a graph of the breath flow on the display.



ALCOHOL CURVE

If the FC20 detects alcohol, the alcohol level is graphed and will be displayed before the result.



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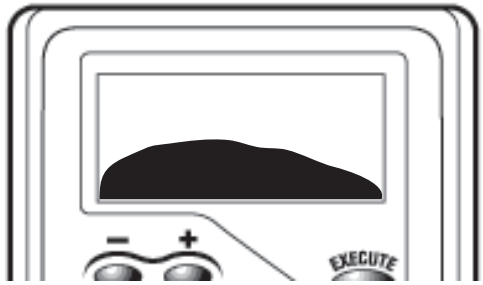

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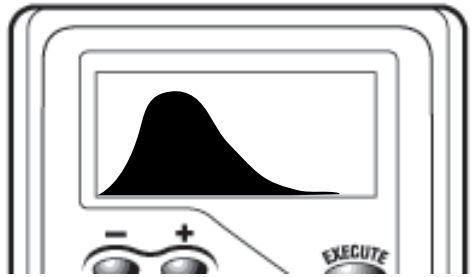
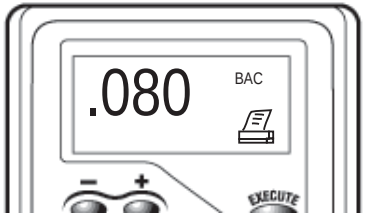


Operation

TEST RESULT

After the alcohol is graphed, the test result is displayed.



The result will remain on the screen for 90 seconds, or until the *Function* or *Power* button is pressed, or the test is printed.

REMOVING THE MOUTHPIECE

Remove the mouthpiece by pushing against the back of the tab located on the exhaust end.

VIEWING PREVIOUS TEST RESULTS

Press the *Function* button repeatedly until the printer icon is displayed. The results of the last test will be displayed along with its test number at the lower left of the display.

The FC20 retains up to 500 tests along with all related data in memory.

Press the + or- buttons to view previous tests.

Press the *Function* button repeatedly to return to the testing mode.

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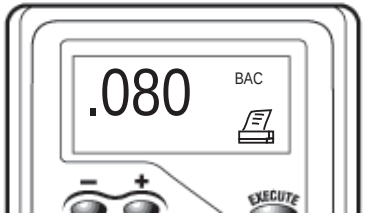

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PRINTING TEST RESULTS

Printing the Current Test

Take a test.

Plug the printer cable into the connector on the side of the FC20.

Press the *Execute* button, under the printer icon.

Printing a Specific Test

Press the *Function* button repeatedly until the printer icon is displayed.

Press the + or – button to select the test number you wish to print.

Press the *Execute* button, under the printer icon, and the printer will activate.

Printing All Stored Tests

Press the *Function* button repeatedly until the printer icon is displayed..

Press the + or – button to select 'ALL'.

Press the *Execute* button, under the printer icon, and the printer will activate.

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Breath Testing Modes

EXPLAINED

The FC20 is capable of conducting 3 distinct types of breath tests.

- **Automatic Test** is the most used and highest accuracy test. The FC20 monitors the subject's breath and automatically takes the sample near the end of the breath flow.
- **Manual Test** is normally used only when the subject is unable to provide a sufficient air sample for the automatic test.
- **Passive Test** is a quick screen to detect alcohol but is not designed to quantify the results. Passive results are reported as POS if alcohol is detected, NEG if alcohol is not detected. In this mode, no mouthpiece is required.

CONDUCTING AN AUTOMATIC TEST

Turn the FC20 on.

Attach a mouthpiece to the back of the unit.

Verify the display reads "AUTO TEST".

Instruct subjects to blow into the mouthpiece firmly and steadily for as long as they can. (Not necessarily as hard as they can.)

Read the result.

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Read the result.

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Breath Testing Modes

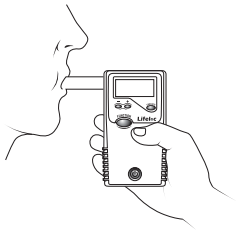
CONDUCTING A MANUAL TEST

Turn the FC20 on.

Attach a mouthpiece to the back of the unit.

Press the *Function* button until the display reads "MANUAL TEST".

Instruct the subject to blow into the mouthpiece firmly and steadily for as long as they can.



When they are near the end of their breath, press the *Execute* button.

Read the result.

MANUALLY OVERRIDING AN AUTOMATIC TEST

Note: This feature allows the completion of a test in the occasional instance when the subject may have diminished lung capacity and cannot activate the Auto Test .

Turn the FC20 on.

Attach a mouthpiece to the back of the unit and verify the display reads "AUTO TEST".

Instruct the subject to blow into the mouthpiece firmly and steadily for as long as they can.

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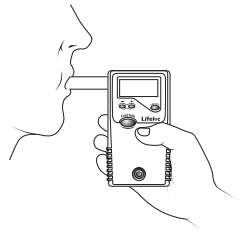

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When they are near the end of their breath, press the *Execute* button.

Read the result.

Breath Testing Modes

CONDUCTING A PASSIVE TEST (No mouthpiece)

Turn the FC20 on.

Press the *Function* button until the display reads "PASSIVE TEST".

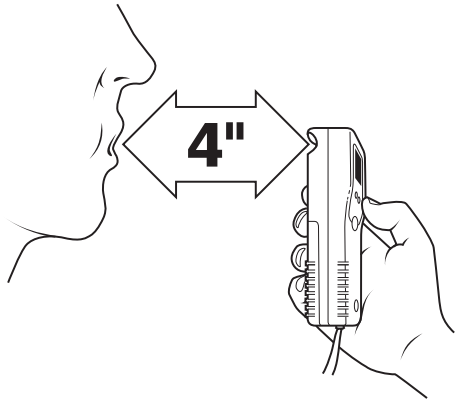
To take the test:

Hold the FC20 sample port (orange-colored opening labeled Port on the back label of the FC20) about 4 inches from the subjects mouth.

Have the subject blow towards the port.

Press the *Execute* button while the subject is blowing.

Read the result. ("POS" or "NEG")



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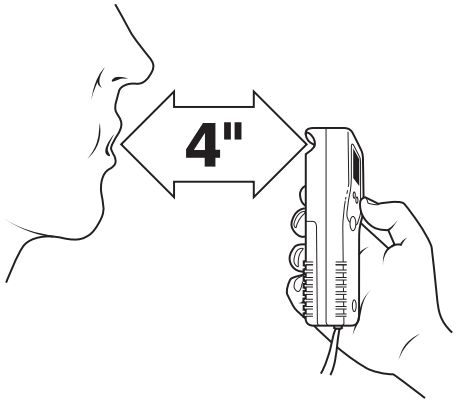

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Summary

OK, was that easy or what!

Now that you have been through the first part of this manual you know everything necessary to begin using your FC20. You are capable of conducting Auto, Manual, and Passive tests with ease… but that's not the entire story.

The following pages will guide you through the additional user-selectable settings available in this state-of-the-art instrument. We highly recommend you look these over and see if they can improve the efficiency and ease-of-use of your FC20 breath alcohol tester by customizing it to your particular situation.

After looking over the settings you will want to proceed to the Calibration and Maintenance section. There, we will take you through step-by-step processes for calibration of your FC20 and make maintenance recommendations, to keep your unit functional for years of trouble-free use.

Finally, in the warranty and service section, you can find the details of your FC20 factory warranty, and information on service and high quality supplies available through Lifeloc Technologies.

Fast, accurate, and easy to use, the FC20 breath alcohol tester is a premium quality, precision, state-of-the-art breath alcohol tester, designed for professional use.

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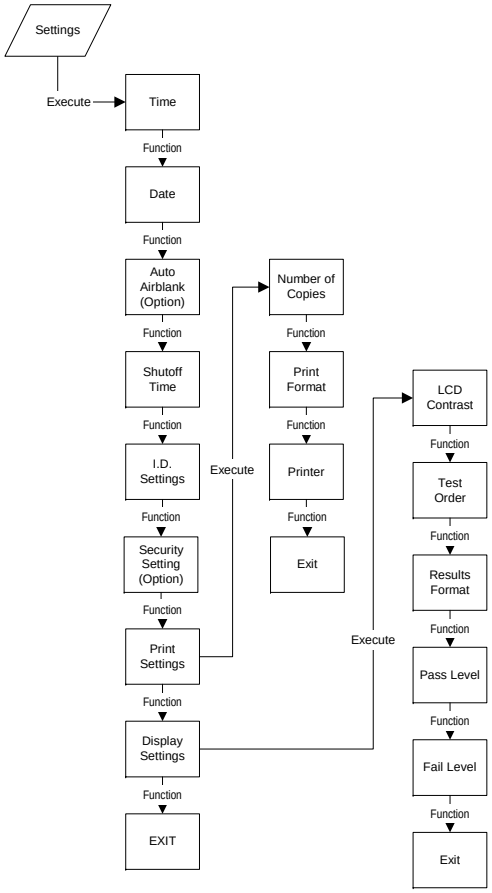
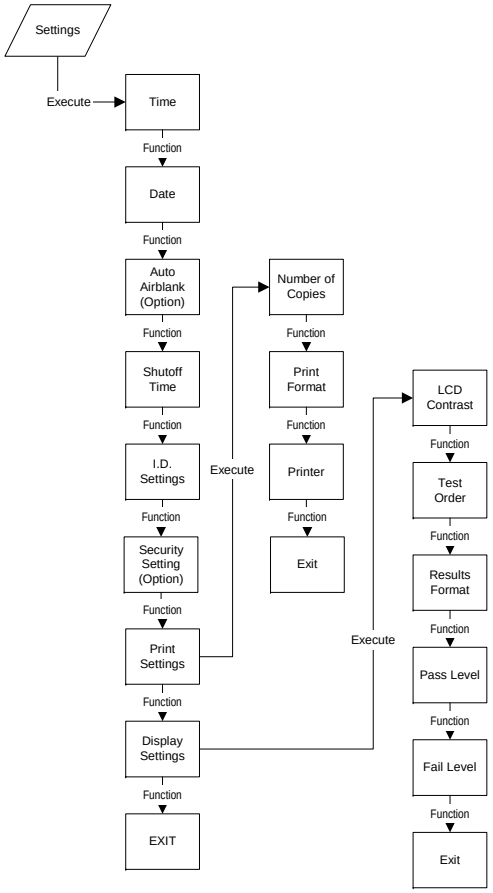
User Settings

THE SETTINGS CHART



User Settings

THE SETTINGS CHART



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User Settings

THE SETTINGS SCREEN

The FC20 has numerous internal settings allowing you to customize the unit to your individual needs. The settings include the following:

1. Time

2. Date

3. Auto Air Blank (If installed see page 33)

4. Auto Shut-Off Time (1 – 15 minutes or "Off")

5. I.D. Settings

- Batch ID
- User + Batch ID

6. Password Protection (If installed see page 32)

7. Print Settings

- Number of copies printed (1, 2 or 3)
- Print Format (Long or Short)
- Printer selection (Ap890, DataTrak, Other)

8. Display Settings

- LCD Contrast
- Test Order
- Results Format
- Pass & Fail Level Settings

User Settings

THE SETTINGS SCREEN

The FC20 has numerous internal settings allowing you to customize the unit to your individual needs. The settings include the following:

1. Time

2. Date

3. Auto Air Blank (If installed see page 33)

4. Auto Shut-Off Time (1 – 15 minutes or "Off")

5. I.D. Settings

- Batch ID
- User + Batch ID

6. Password Protection (If installed see page 32)

7. Print Settings

- Number of copies printed (1, 2 or 3)
- Print Format (Long or Short)
- Printer selection (Ap890, DataTrak, Other)

8. Display Settings

- LCD Contrast
- Test Order
- Results Format
- Pass & Fail Level Settings

User Settings

THE SETTINGS SCREEN

Press the *Function* button repeatedly until display reads “SETTINGS”.

Press the *Execute* button once.

Pressing the *Function* button repeatedly scrolls you through the FC20 user settings.

1. CHANGING THE TIME

From the “Settings” display, press the *Execute* button. The display will now read “Time” with the hours digits flashing.

Press the + or – buttons to change the hour.

Press the *Execute* button to move to minutes.

Press the + or- buttons to change the minutes.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

User Settings

THE SETTINGS SCREEN

Press the *Function* button repeatedly until display reads “SETTINGS”.

Press the *Execute* button once.

Pressing the *Function* button repeatedly scrolls you through the FC20 user settings.

1. CHANGING THE TIME

From the “Settings” display, press the *Execute* button. The display will now read “Time” with the hours digits flashing.

Press the + or – buttons to change the hour.

Press the *Execute* button to move to minutes.

Press the + or- buttons to change the minutes.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

User Settings

2. CHANGING THE DATE

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Date”.

Press the + or – buttons to change the year.

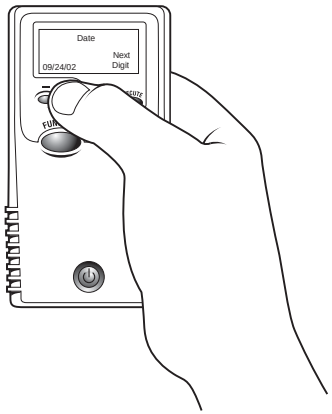
Press the *Execute* button to move to the month setting.

Press the + or – buttons to change the month.

Press the *Execute* button to move to the day.

Press the + or- button to change the day.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.



User Settings

2. CHANGING THE DATE

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Date”.

Press the + or – buttons to change the year.

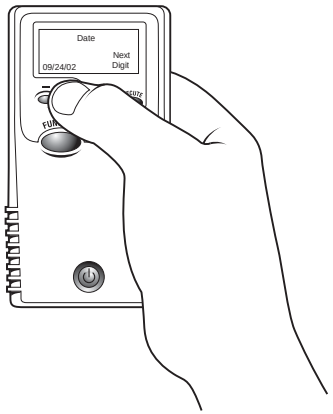
Press the *Execute* button to move to the month setting.

Press the + or – buttons to change the month.

Press the *Execute* button to move to the day.

Press the + or- button to change the day.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.



3. AUTOMATIC AIR BLANK (OPTION)

Auto Air Blank is a factory option available on the FC20.

If you have this option installed, refer to page 34 of this manual for instructions on set-up and use.

4. SETTING THE AUTO SHUTOFF TIME

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Shutoff Time”.

Press the + or - buttons to adjust the shutoff time between 1-15 minutes or disable auto shutoff by selecting “0”.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

User Settings

3. AUTOMATIC AIR BLANK (OPTION)

Auto Air Blank is a factory option available on the FC20.

If you have this option installed, refer to page 34 of this manual for instructions on set-up and use.

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From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Shutoff Time”.

Press the + or - buttons to adjust the shutoff time between 1-15 minutes or disable auto shutoff by selecting “0”.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

5. I.D. ENTRY EXPLAINED

The FC20 allows you to enter two different I.D. numbers and/or names: the Operator (Batch I.D.) and the Subject (Subject I.D.).

The **Batch I.D.** remains the same once entered, until changed again. If entered, it is stored and printed out with every test result.

The **Subject I.D.** is unique to each test. If turned on, you will be prompted to enter a Subject I.D. every time you take a test. The Subject I.D. will be stored and printed out with the test result.

5. ENTERING A BATCH I.D.

From the "Settings" display, press the *Execute* button.

Press the *Function* button until the display reads "I.D. Setting".

Press the *Execute* button to select either "Subject + Batch" or "Batch", then press the *Function* button once. The display will read "Batch I.D."

Press the + and – buttons to enter numbers/letters of the I.D you wish to enter (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to save the changes and return to the testing mode.

User Settings

5. I.D. ENTRY EXPLAINED

The FC20 allows you to enter two different I.D. numbers and/or names: the Operator (Batch I.D.) and the Subject (Subject I.D.).

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5. ENTERING A BATCH I.D.

From the "Settings" display, press the *Execute* button.

Press the *Function* button until the display reads "I.D. Setting".

Press the *Execute* button to select either "Subject + Batch" or "Batch", then press the *Function* button once. The display will read "Batch I.D."

Press the + and – buttons to enter numbers/letters of the I.D you wish to enter (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to save the changes and return to the testing mode.

5. ENTERING A SUBJECT I.D.

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “I.D. Setting”.

Press the *Execute* button to select “Subject + Batch”, then, press the *Function* button once. The display will read “Batch I.D.”

Press the + and – buttons to enter numbers/letters of the Batch I.D. (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to save the changes and return to the testing mode.

The FC20 will now prompt you to enter a Subject I.D. using the + and - buttons before every test.

Use the + and – buttons to enter numbers/letters (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to proceed to take a test. The Subject I.D. will be stored and printed with the next test taken.

To by-pass entering a Subject I.D., simply press the *Function* button and take a test.

User Settings

5. ENTERING A SUBJECT I.D.

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “I.D. Setting”.

Press the *Execute* button to select “Subject + Batch”, then, press the *Function* button once. The display will read “Batch I.D.”

Press the + and – buttons to enter numbers/letters of the Batch I.D. (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to save the changes and return to the testing mode.

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Use the + and – buttons to enter numbers/letters (hold down to scroll quickly).

Press the *Execute* button to move to the next digit. Up to 16 characters may be entered.

Press the *Function* button to proceed to take a test. The Subject I.D. will be stored and printed with the next test taken.

To by-pass entering a Subject I.D., simply press the *Function* button and take a test.

6. PASSWORD PROTECTION (OPTION)

The password option is a factory installed option that allows the FC20 administrators to prevent field personnel from performing any change to the FC20 user settings or from performing a calibration or cal check.

For more information regarding the use of this option refer to page 33 of this manual for instructions on set-up and use.

User Settings

6. PASSWORD PROTECTION (OPTION)

The password option is a factory installed option that allows the FC20 administrators to prevent field personnel from performing any change to the FC20 user settings or from performing a calibration or cal check.

For more information regarding the use of this option refer to page 33 of this manual for instructions on set-up and use.

7. PRINT SETTINGS EXPLAINED

The FC20 settings allow you to customize your printout to your particular needs. You can choose between the following:

Number of Copies, choose to print 1, 2 or 3 copies of a test when you print.

Print Format, choose to include or not to include the calibration and calibration check information with every printout by selecting the long or short format.

Printer, select between the AP890, DataTrak, or Other to print your results.

7. NUMBER OF COPIES PRINTED

From the "Print Settings" display, press the *Execute* button.

Press the *Function* button until the display reads "Number of Copies".

Press the + or- buttons to change the number of copies printed to 1, 2 or 3.

Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

User Settings

7. PRINT SETTINGS EXPLAINED

The FC20 settings allow you to customize your printout to your particular needs. You can choose between the following:

Number of Copies, choose to print 1, 2 or 3 copies of a test when you print.

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7. NUMBER OF COPIES PRINTED

From the "Print Settings" display, press the *Execute* button.

Press the *Function* button until the display reads "Number of Copies".

Press the + or- buttons to change the number of copies printed to 1, 2 or 3.

Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

Page 26

7. PRINT FORMAT

From the “Print Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Print Format”.

Press the *Execute* button to select “Long” or “Short” printouts.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

7. PRINTER SELECTION

Printer selection allows you to select what device your FC20 will communicate with.

From the “Print Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Printer”.

Press the *Execute* button to select between the Lifeloc “AP890” printer, “DataTrak” computer based download software or “Other” printer.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

User Settings

7. PRINT FORMAT

From the “Print Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Print Format”.

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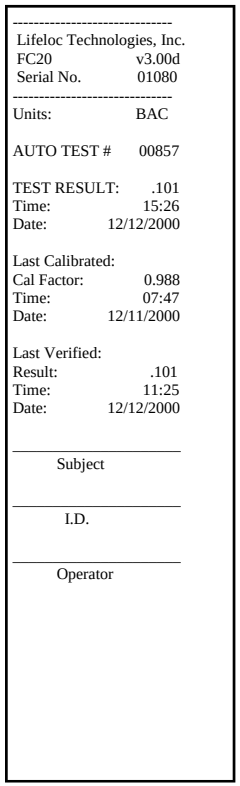
Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

7. SAMPLE PRINT-OUTS

Long Printout



Lifeloc Technologies, Inc.
FC20 v3.00d
Serial No. 01080

Units: BAC

AUTO TEST # 00857

TEST RESULT: .101
Time: 15:26
Date: 12/12/2000

Last Calibrated:
Cal Factor: 0.988
Time: 07:47
Date: 12/11/2000

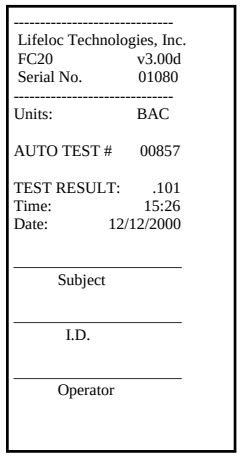
Last Verified:
Result: .101
Time: 11:25
Date: 12/12/2000

_____
Subject

_____
I.D.

_____
Operator

Short Printout



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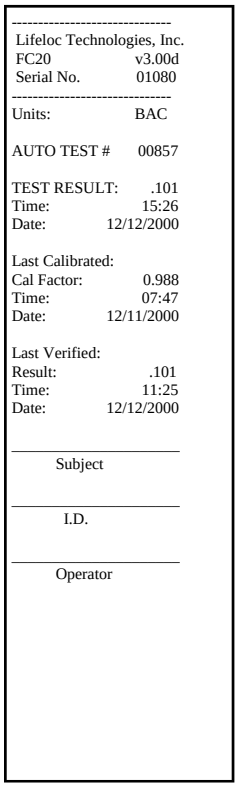
Long Printout



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I.D.

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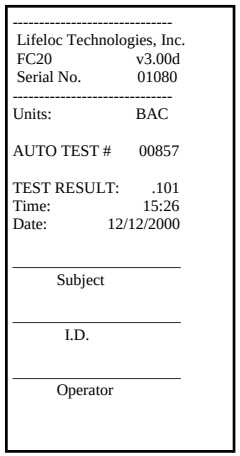
Short Printout



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FC20 v3.00d
Serial No. 01080

Units: BAC

AUTO TEST # 00857

TEST RESULT: .101
Time: 15:26
Date: 12/12/2000

_____
Subject

_____
I.D.

_____
Operator

8. DISPLAY CONTRAST

From the “Display Settings” screen press the *Execute* button.

Press the *Function* button until the display reads “LCD Contrast”.

Press the + or- buttons to set the contrast to the desired level.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

8. TEST ORDER SEQUENCE

From the “Display Settings” screen, press the *Execute* button.

Press the *Function* button until the display reads “Test Order”.

Press the Execute button to choose between “Auto” or “Passive” testing as the default when you turn the unit on.

Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

Test Order 1	**Test Order 2**
Auto Test (Default)	Passive Test (Default)
Manual Test	Auto Test
Passive Test	Manual Test

User Settings

8. DISPLAY CONTRAST

From the “Display Settings” screen press the *Execute* button.

Press the *Function* button until the display reads “LCD Contrast”.

Press the + or- buttons to set the contrast to the desired level.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

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Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

Test Order 1	**Test Order 2**
Auto Test (Default)	Passive Test (Default)
Manual Test	Auto Test
Passive Test	Manual Test

8. RESULTS FORMAT EXPLAINED

The FC20 displays Auto Test and Manual Test results in a 3 digit BAC format. Passive test results are displayed as POS or NEG.

If however, you are simply trying to qualify whether the subject is within "set" limits, you may not need a quantitative result. Especially if the user is not trained in understanding BAC levels (such as teachers at a high-school dance testing juveniles).

In this instance you may choose to have the FC20 display the results as PASS, WARN, or FAIL (PWF mode).

8. SETTING RESULTS FORMAT (PASS/WARN/FAIL)

From the "Display Settings" screen, press the *Execute* button.

Press the *Function* button repeatedly until the display reads "Results Format".

Press *Execute* button, to toggle between "Numeric" or "PWF".

Press the *Function* button until the display reads "Pass Level".

Press + or – button to set the BAC Pass level (eg., .005).

User Settings

8. RESULTS FORMAT EXPLAINED

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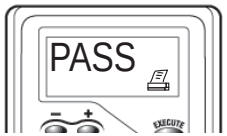

8. SETTING RESULTS FORMAT (PASS/WARN/FAIL)

From the "Display Settings" screen, press the *Execute* button.

Press the *Function* button repeatedly until the display reads "Results Format".

Press *Execute* button, to toggle between "Numeric" or "PWF".

Press the *Function* button until the display reads "Pass Level".

Press + or – button to set the BAC Pass level (eg., .005).

8. SETTING RESULTS FORMAT (PASS/WARN/FAIL)

Press the *Function* button till the display reads “Fail Level”.

Press + or – button to set the BAC Fail level (eg., .040).

Press the *Function* button until the display reads “Exit”. Press the *Execute* button to save and return to the testing mode.

NOTE: You cannot set the PASS level higher than the FAIL level.

An alcohol reading higher than the PASS level and lower than the FAIL level will read WARN.

User Settings

8. SETTING RESULTS FORMAT (PASS/WARN/FAIL)

Press the *Function* button till the display reads “Fail Level”.

Press + or – button to set the BAC Fail level (eg., .040).

Press the *Function* button until the display reads “Exit”. Press the *Execute* button to save and return to the testing mode.

NOTE: You cannot set the PASS level higher than the FAIL level.

An alcohol reading higher than the PASS level and lower than the FAIL level will read WARN.

User Settings-Factory Options

FACTORY OPTIONS EXPLAINED

The FC20 has extended features that can be ordered from the factory. These are not standard on the unit but only available as a special order items.

The available factory options include Password Protection, Auto Air Blank and Automatic Altitude Compensation for use with dry gas standards.

Contact Lifeloc Technologies for further information on FC20 factory options.

PASSWORD PROTECTION EXPLAINED

If installed, this option limits field personnel to basic breath testing tasks such as taking tests and printing results.

Without a password, operators will not be able to change any setting or calibrate/cal check the unit.

Note: Failure to remember your password will require that the FC20 be sent back to Lifeloc to re-initialize the password.

User Settings-Factory Options

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Note: Failure to remember your password will require that the FC20 be sent back to Lifeloc to re-initialize the password.

Page 32

User Settings-Factory Options

SETTING PASSWORD PROTECTION

From the “Settings” screen, press the *Execute* button. The display will read “Time”.

Press the *Function* button until the display reads “SECURITY SETTINGS”.

Press the *Execute* button. The unit is now ready to accept a password. Use the + or - buttons to enter a number or letter.

Use the Execute button to move to the next digit or press the *Function* button repeatedly until the display reads “EXIT”. Press the *Execute* button to return to the testing mode.

AUTO AIR BLANK EXPLAINED

If installed, this options inserts an automatic air blank function in front of Auto, Manual, and Passive tests.

An automatic air blank is a test of the ambient air. It checks to ensure that no alcohol is present, which could affect the test result.

If Auto Air Blank is enabled, the FC20 will prompt you to take a sample *before* testing the subject.

Auto Air Blank is normally utilized to satisfy the requirements of a specific testing protocol.

User Settings-Factory Options

SETTING PASSWORD PROTECTION

From the “Settings” screen, press the *Execute* button. The display will read “Time”.

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If Auto Air Blank is enabled, the FC20 will prompt you to take a sample *before* testing the subject.

Auto Air Blank is normally utilized to satisfy the requirements of a specific testing protocol.

User Settings-Factory Options

SETTING THE AUTO AIR BLANK

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Auto Air Blank”.

Press the *Execute* button to turn the air blank “On” or “Off”.

Press the *Function* button to move to the next setting or repeatedly until the display reads “Exit”. Press the *Execute* button to save the changes and return to the testing mode.

AUTOMATIC ALTITUDE COMPENSATION

The FC20 may be purchased with a fully integrated automatic barometric pressure sensor installed.

This sensor greatly simplifies calibration with dry gas standards by automatically adjusting for the effects of altitude.

User Settings-Factory Options

SETTING THE AUTO AIR BLANK

From the “Settings” display, press the *Execute* button.

Press the *Function* button until the display reads “Auto Air Blank”.

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Calibration Settings

CALIBRATION EXPLAINED

Calibration of an FC compares its internal settings to a known alcohol standard, thereby providing it with the baseline from which it can accurately calculate the subject's alcohol level.

You can use most available BAC levels of gas or solution to calibrate your FC20, however, most commonly used are: .100, .080 or .040 BAC.

The FC20 must be between 67° and 100° to calibrate. (19° - 37° C)

Lifeloc recommends you calibrate your FC20:

Once every 12 months, regardless of how many tests you have performed;

OR, after two failed Calibration Checks;

OR, at intervals specified by your Internal Policies, Quality Assurance Plan, or State Regulations.

A Calibration Check simply verifies the FC20 was calibrated correctly and is within the acceptable accuracy range. (Commonly called "External Calibration Check", "Accuracy Check", "Cal Check", or "Verification").

Lifeloc recommends you check your FC20:

Once every 30 days;

OR, at intervals specified by your Internal Policies, Quality Assurance Plan, or State Regulations.

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Calibration of an FC compares its internal settings to a known alcohol standard, thereby providing it with the baseline from which it can accurately calculate the subject's alcohol level.

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Lifeloc recommends you check your FC20:

Once every 30 days;

OR, at intervals specified by your Internal Policies, Quality Assurance Plan, or State Regulations.

Calibration Settings

CALIBRATION EXPLAINED

There are two types of Calibration/Calibration Check methods:

- **Wet Bath Simulator**
- **Dry Gas**

You can calibrate and check your FC20 using either method. However, you must **first** set your FC20 to recognize which method, or which 'Standard Type', you will be using.

Once you choose the standard type, the FC20 will store that information in memory. You do not have to set it again unless you change to a different method of performing a calibration/calibration check.

Dry Gas Calibration requires that you enter the corrected Standard Value before calibration, based on your altitude or elevation. Using the chart on the outside of the canister, multiply the number next to your elevation by the standard. **Example:** Denver Colorado elevation 5280 Ft. above sea level. Correction factor .820 x .100 = .082 corrected standard.

If you move to a location at a significantly different altitude, you will have to change the standard in the FC20.

Note: The FC20 comes from the factory set for wet bath simulator and a .100 solution standard.

Calibration Settings

CALIBRATION EXPLAINED

There are two types of Calibration/Calibration Check methods:

- **Wet Bath Simulator**
- **Dry Gas**

You can calibrate and check your FC20 using either method. However, you must **first** set your FC20 to recognize which method, or which 'Standard Type', you will be using.

Once you choose the standard type, the FC20 will store that information in memory. You do not have to set it again unless you change to a different method of performing a calibration/calibration check.

Dry Gas Calibration requires that you enter the corrected Standard Value before calibration, based on your altitude or elevation. Using the chart on the outside of the canister, multiply the number next to your elevation by the standard. **Example:** Denver Colorado elevation 5280 Ft. above sea level. Correction factor .820 x .100 = .082 corrected standard.

If you move to a location at a significantly different altitude, you will have to change the standard in the FC20.

Note: The FC20 comes from the factory set for wet bath simulator and a .100 solution standard.

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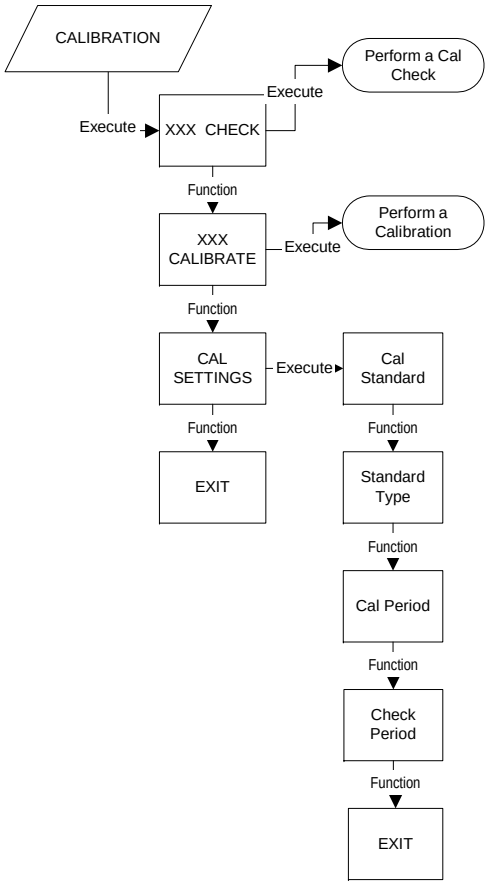
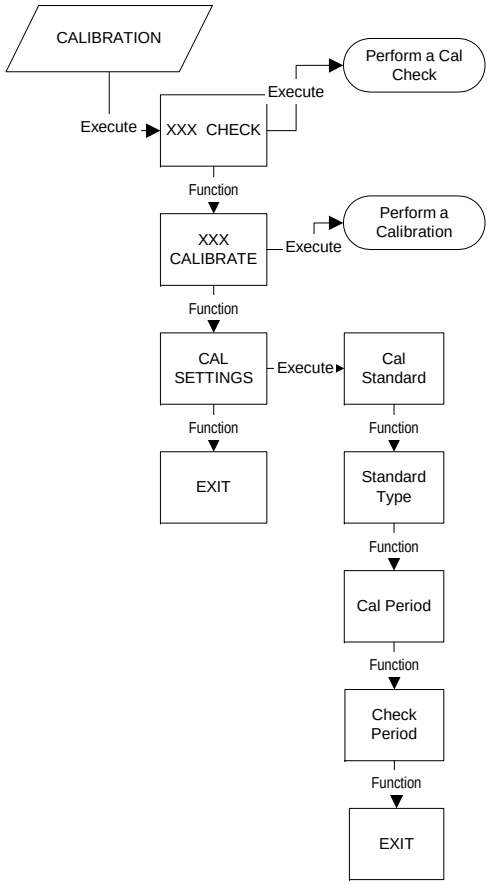
Calibration Settings

CALIBRATION DISPLAY CHART



Calibration Settings

CALIBRATION DISPLAY CHART



Calibration Settings

SETTING THE CALIBRATION STANDARD

From the "CALIBRATION" display, press the *Execute* button. The display now reads "XXX CHECK".

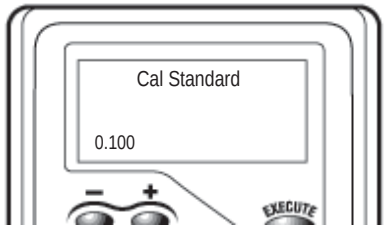
Press *Function* button until the display reads "CAL SETTINGS".

Press the *Execute* button and the display will read "Cal Standard"

Use the + and – buttons to change the number to the BAC level of standard you will be calibrating to (it should be the same as on the bottle of certified solution or your corrected standard if using a dry gas tank).

Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

Once you set the standard you do not have to set it again unless you change to a different method of performing a calibration/calibration check.



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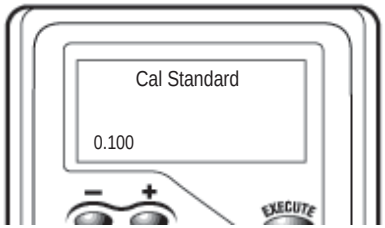

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Calibration Settings

SETTING THE STANDARD TYPE

From the "CAL SETTINGS" display, press the *Execute* button.

Press the *Function* button until the display reads "Standard Type XXX XXX".

Press the *Execute* button to choose between "Dry Gas" and "Wet Bath".

Press the *Function* button to move to the next setting or repeatedly until the display reads "Exit". Press the *Execute* button to save the changes and return to the testing mode.

CALIBRATION /CAL CHECK LOCK-OUT EXPLAINED

The calibration/cal check lock-out allows you to prevent usage of your FC20 if it is not calibrated or cal checked in a specified time period.

Beginning 48 hours before the specified lock-out time, the unit will display "WARNING CAL EXPIRING", "WARNING CHECK EXPIRING" or both.

When the time period has elapsed, the unit will display "CAL EXPIRED", "CHECK EXPIRED" or both and not allow testing until it is calibrated/cal checked.

You can specify time periods up to 999 days between calibrations or cal checks.

Calibration Settings

SETTING THE STANDARD TYPE

From the "CAL SETTINGS" display, press the *Execute* button.

Press the *Function* button until the display reads "Standard Type XXX XXX".

Press the *Execute* button to choose between "Dry Gas" and "Wet Bath".

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Calibration Settings

SETTING THE CALIBRATION LOCK-OUT PERIOD

From the "CAL SETTINGS" display, press the *Execute* button.

Press the *Function* button until the display reads "Cal Period XXX".

Press the +/- buttons to enter the number of days until you require the next calibration of your FC20. Choosing "0" turns this setting off.

Press the *Function* button to move to the next setting or repeatedly until the display reads "Exit". Press the *Execute* button to save the changes and return to the testing mode.

SETTING THE CALIBRATION CHECK LOCK-OUT

From the "CAL SETTINGS" display, press the *Execute* button.

Press the *Function* button until the display reads "Check Period XXX".

Press the +/- buttons to enter the number of days until you require the next cal check of your FC20. Choosing "0" turns this setting off.

Press the *Function* button to move to the next setting or repeatedly until the display reads "Exit". Press the *Execute* button to save the changes and return to the testing mode.

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Wet Bath Calibration

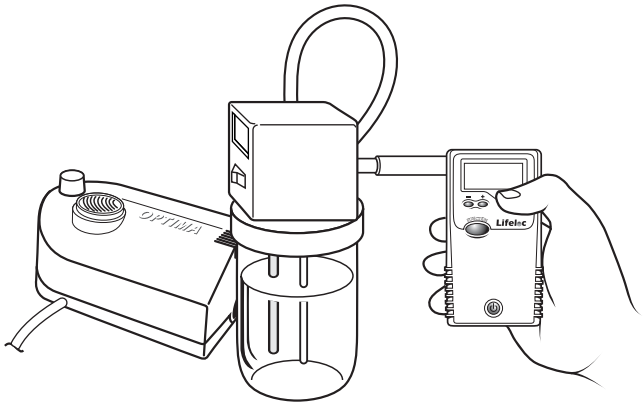
SIMULATOR SET-UP

Pour a bottle of alcohol solution into the simulator glass jar, tighten lid securely.

Turn on the simulator.

The simulator automatically heats the solution to 34°C.

Attach a mouthpiece adapter snuggly to the outlet port on the simulator lid.



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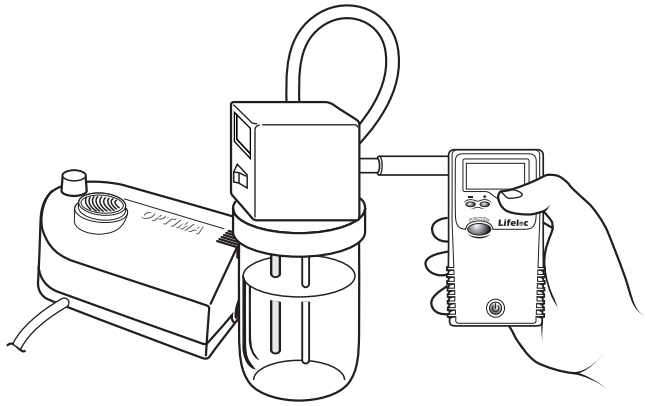

Wet Bath Calibration

CALIBRATION (Simulator)

Turn the FC20 ON. Attach a mouthpiece to the back of the unit.

Verify the “Cal Standard” is set to the concentration you will be using when you calibrate.

Verify the “Standard Type” is set to “Wet Bath”.

Press *Function* button until display reads “CALIBRATION”, then press the *Execute* button.

Press *Function* button until display reads “WET CALIBRATE”.

Slide the FC mouthpiece over the other end of the adapter.

Blow through the input tube (or use a calibration pump) to create 1/2” bubbles on the surface of the solution.

After 3 seconds of blowing, press the *Execute* button to take the sample, while continuing to blow for another 3 seconds.

Stop blowing.

If successful, the display will read “CAL COMPLETE”.

Disconnect the equipment and wait two minutes before conducting a Cal Check.

Wet Bath Calibration

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If successful, the display will read “CAL COMPLETE”.

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Wet Bath Calibration

CALIBRATION CHECK (Wet Check)

Turn the FC20 ON. Attach a mouthpiece to the back of the unit.

Verify the Standard Type is set to Wet Bath.

Press *Function* button until display reads "CALIBRATION".

Press *Execute* button. The display will read "WET Check".

Slide the FC20 mouthpiece over the mouthpiece adapter.

Blow through the input tube (or use a calibration pump) to create 1/2" bubbles on the surface of the solution.

After 3 seconds of blowing, press the *Execute* button to take the sample, while continuing to blow for another 3 seconds.

Stop blowing.

Read the result. It should be within +/- .005 BAC of the standard used.

Example: a .100 BAC solution should read between .095 and .105 BAC.

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Turn the FC20 ON. Attach a mouthpiece to the back of the unit.

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Example: a .100 BAC solution should read between .095 and .105 BAC.

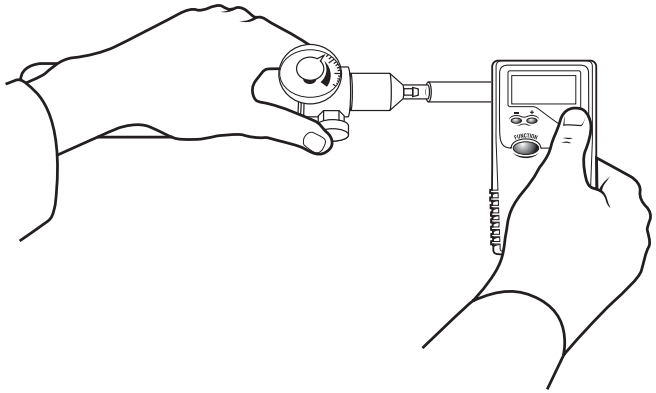
Dry Gas Calibration

DRY GAS SET-UP

Screw the regulator onto the dry gas tank.

Attach the mouthpiece adapter to the outlet port on the regulator.

Note: Do not store the dry gas tank with the regulator attached. The regulator is not designed as the primary sealing mechanism and your dry gas may leak from the tank.



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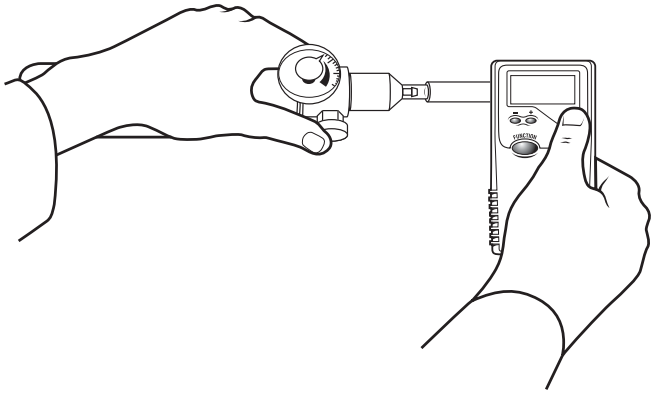

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Dry Gas Calibration

CALIBRATION (Dry Gas)

Verify the “Calibration Standard” is set correctly (refer to pages 36 and 39).

Verify the “Standard Type” is set to Dry Gas.

Turn FC20 on. Attach a mouthpiece to the back of the unit.

Press *Function* button until display reads “CALIBRATION”.

Press *Execute* button. The display will read “DRY CHECK”.

Press *Function* button until display reads “DRY CALIBRATE”.

Attach the FC20 mouthpiece to the regulator by sliding it over the mouthpiece adapter, ensuring a snug fit.

Press and hold down the regulator button to deliver a gas sample.

After the gas flows for 3 seconds, press and release the *Execute* button to take the sample.

After 3 more seconds release the valve button to discontinue the flow of gas from the tank.

If successful, the display will read “CAL COMPLETE”.

Disconnect the equipment and wait two minutes before conducting a cal check.

Dry Gas Calibration

CALIBRATION (Dry Gas)

Verify the “Calibration Standard” is set correctly (refer to pages 36 and 39).

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The display will read a result that should be within +/-.005 BAC of the standard (if .100 BAC or less).

Check your result against the actual tank standard, not the corrected standard.

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Maintenance

FUEL CELLS

Fuel cells are highly durable sensors that are capable of providing accurate breath alcohol results for years. There are however, a few precautions you should take to make certain that these devices perform for the longest period of time possible.

Use the device. Fuel cells like moisture. It is a good idea to take tests periodically to provide needed moisture to the fuel cell, especially in dry climates. You do not need alcohol, just breath.

Avoid cigarette smoke. Make certain no one is permitted to blow cigarette smoke into the unit. This can damage the fuel cell quickly.

CLEANING

Use of a mild disinfectant cleaner and a soft cloth on the outside of the case is recommended periodically to keep your unit clean. Do not use alcohol to clean the unit.

BATTERIES

The 4 AA batteries in your FC20 should last for about 160 hours of "on" time which can equate to as many as 6000 to 8000 tests. It is recommended you use high-quality alkaline batteries with your unit.

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Computer Connection

DATATRAK EXPLAINED

DataTrak™ is a software program developed by Lifeloc, exclusively for use with Lifeloc's breath testing equipment. Ordered separately, DataTrak software enhances the capabilities of the FC20 by allowing it to communicate with a computer and comes complete with CD, cable and instructions.

Data Download, with DataTrak™ you can download any or all the tests stored in the FC20 in a comma delimited text format for easy import into most spreadsheet or datbase programs.

Printout, with DataTrak™ and your computer you can print the results of any test result stored in the FC20.

Remote Troubleshooting, with just a click of a button, DataTrak can download critical operation parameters of the FC20. This information can then be e-mailed or sent to Lifeloc Technical support for analysis.

DATATRAK SET-UP

Connect the FC20 to the serial port on the PC, using the FC20 computer cable supplied with DataTrak software.

From the "PRINTER" screen choose the DataTrak option.

Refer to the *DataTrak Operations Manual* to establish communication with the FC20.

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Error Messages

ERROR MESSAGES	COURSE OF ACTION
Flow Error Retry & Blow Steadily	Exhalation not complete or unterrupted. Instruct subject to blow steadily as long as they can.
<1.3L Retest or Try Manual Test	Breath flow ended before the subject blew 1.3 liters of breath. Instruct subject to try again or use manual test mode.
Temperature	When taking a test, unit is outside of temperature limits for taking a test.
Low Battery	Battery voltage is too low to take a test. Replace batteries.
Low Li Battery	The internal clock battery is low. Contact Lifeloc support.
Pump Failure or Pump Reset Needed	The pump needs reset. Restart unit or follow screen instructions. If this problem persists contact Lifeloc support.
Excessive Sensor Noise	External interference (such as RF noise) has been detected. Try to move to a different location and try again.
Calibration / Cal Check expiring	The unit is within 48 hours of the Calibration or Cal Check lockout time. Calibrate or Cal Check the unit.
Calibration / Cal Check expired	Calibrate or Cal Check the unit.
Air Blank Failure	The unit detected alcohol on an air blank. Move to a different location, use a new mouthpiece and try again.

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Page 49

Warranty

FACTORY LIMITED WARRANTY ON NEW UNITS

The FC20 comes with a one year limited parts and labor warranty, effective on the date of purchase by the end-user.

The Warranty covers:

- Parts and labor on covered repairs
- Software updates as applicable
- Airfreight back to the customer after the unit is repaired (U.S. only)

The Warranty does not cover:

- Freight to the Lifeloc factory
- Misuse, abuse, negligence or accidents

EXTENDED SERVICE PLANS

Extended service plans are available for your FC20. These provide complete coverage for an additional year at a reasonable cost and include free Factory Diagnostic Checks. Call Lifeloc for additional details, or apply online.

SERVICE

If your FC20 should require repairs or maintenance Lifeloc is there for you. Just an email or phone call will put you in contact with our technical support personnel.

Lifeloc typically repairs units within 4 working days from the time it is received.

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Notice

The FC20 is a professional device designed to be used by trained operators in conjunction with a specified, periodic maintenance and calibration/ calibration check regimen. *Use by untrained operators or without periodic calibration or calibration checks may result in invalid results or incorrect interpretation of results.*

DO NOT DRINK AND DRIVE. Lifeloc strongly recommends that no vehicle be operated after alcohol consumption. Even small quantities of alcohol can result in driving impairment.

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Lifeloc
TECHNOLOGIES
Premium Quality Breath Alcohol Testing Equipment
Since 1983

Mailing address	12441 West 49th Avenue
	Unit 4
	Wheat Ridge, CO 80033
Telephone	(303) 431-9500
Toll Free (in US)	(800) 722-4872
Facsimile	(303) 431-1423
E-mail	service@lifeloc.com
	sales@lifeloc.com

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To receive a pricelist or brochure, or to find your nearest Distributor or Sales Representative, please call the Lifeloc Sales Department.

All Lifeloc products,, including mouthpieces, calibration equipment, dry gas, alcohol solution, etc., are in stock and are available from our factory in Denver, Colorado.

Order by fax, phone or online at www.lifeloc.com

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TECHNOLOGIES
Premium Quality Breath Alcohol Testing Equipment
Since 1983

Mailing address	12441 West 49th Avenue
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Telephone	(303) 431-9500
Toll Free (in US)	(800) 722-4872
Facsimile	(303) 431-1423
E-mail	service@lifeloc.com
	sales@lifeloc.com

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