

ALCOLOCK™ WR2 Calibration Guide

Breath Alcohol Simulator



Description

The ALCOSIM breath alcohol simulator produces an air-to-alcohol vapor at a temperature of 34°C.

The Calibration Station (CS) provides the air supply to the ALCOSIM simulator, and logs the number of tests performed with each bottle of alcohol reference solution.

CAUTION! Failure to follow these instructions may result in injury or may damage the devices

- This guide is intended for use by authorized service technicians only
- Ensure that the ALCOSIM simulator and power supply are unplugged and switched off / disconnected until instructed
- Ensure that the CS is switched to “pump disabled” and is disconnected from a power source until instructed
- Never open the ALCOSIM top housing when the simulator is switched on or plugged in
- If the ALCOSIM was powered on, wait 15 minutes for the components to cool off before removing the top housing
- Ensure that the plastic tubes and mouthpiece connector are free of condensation

Equipment

- One (1) Power supply **07-0000063**
- One (1) ALCOSIM breath alcohol simulator **79-007600**
- One (1) Calibration Station **79-004401**
- One (1) ALCOSIM communication cable add-on **79-007851**
- One (1) power cord **07-000062 (N.A.) 07-000061 (EU)**
- Two (2) plastic tubes **70-000002**
- One (2) mouthpiece connector **79-001956**
- One (1) bottle of alcohol reference solution 50 mg/dL (0.50 g/L) **95-000305**
- One (1) WR2 Genius+ **94-000506**

ALCOSIM Simulator Leak-Check

Remove the top housing, fill the solution jar with water, and return the top housing, careful not to over tighten. Connect plastic tubing to the air outlet (**side**) and the air inlet (**top**). Cover the air outlet tube with your thumb and blow into the air inlet tube. No air should bubble through the water. Discard the water and continue to the next section.

Setup

1. Detach the ALCOSIM top housing, pour the entire 500ml solution bottle contents into the jar (up to the fill line marked on the jar), and return the top housing, careful not to over tighten.

2. Note batch number and serial number of solution used.

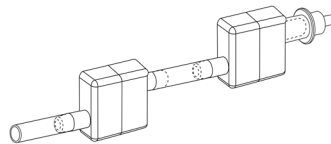
NOTE: Keep the empty bottle to input to the WR2 Genius+.

3. Connect the ALCOSIM power input to a wall port. Switch on the ALCOSIM simulator.

The propeller begins turning and the solution automatically begins heating up to 34°C. This takes up to 20 minutes. The ALCOSIM screen displays the temperature.

4. Connect the plastic tube of the mouthpiece connector to the ALCOSIM air outlet (**side**) setting the connector as follows:

To ALCOSIM simulator



5. Connect the CS air outlet (**top**) to the ALCOSIM air inlet (**front**).
6. Connect the ALCOSIM communication cable add-on (79-007851) from the ALCOSIM simulator, to the communication plug (front of the CS):



CAUTION! Make sure that the pegs align; forcing the plug will cause damage.

7. Connect the black and red wires of the CS (**front**) to the black and red output terminals of the power supply (**back**). Plug in power supply to a wall port.



8. Connect the electronic control unit (ECU) power plug to the CS power input cable (**top**).

The ECU automatically powers on.

9. Connect the WR2 Genius+ to the ECU communication port (**front**).

The ECU displays Service.

10. On the Genius WR2+, press **3 (DIAGNOSTIC)**.

11. Press **6 (PREVIOUS)** or **9 (NEXT)** to scroll to **Bottle #** and press **#** to select.

12. Use the key pad to enter the bottle number (circled below), and press **7(OK)**.

ACS ALCOHOL COUNTERMEASURE SYSTEMS		Alcohol Countermeasure Systems 60 International Boulevard Toronto, ON M9W 6J2 Tel: 416.619.3500 Fax: 416.619.3501 Email: info@acs-corp.com	
Ethyl Alcohol Standard When used at 34 ± 0.2°C, this solution will provide a BAC value of:		Standard d'alcool éthylique Quand employée à 34 ± 0.2°C, cette solution donnera une valeur (TA) de:	
50 Milligrams of alcohol in 100 millilitres of blood.		50 Milligrammes d'alcool dans 100 millilitres de sang.	
Product / Produit 95-000305		Date of Mfr / Date de Fab	
Lot No / Lot Numero 200708G		Expiry Date / Date de Fab 09.08.17	
Bottle No. 100			

13. The ECU displays **OK**.

14. Unplug the Genius WR2+ from the ECU. The test counter on the WR2 is resets 25 tests.

15. Connect the Handset (HS) cable to the ECU communication port (**Front**) and connect the HS and the ECU to the adhesive pads of the CS.

16. Switch the CS to “Pump Enabled” (**top**).

17. Press the ECU button to **Zero** tests.

Functional Procedures

The ECU displays the old calibration factor, followed by **WAIT**.

The ECU warms up and performs a functional test for:

- Blow tube temperature
- Fuel cell temperature
- Pump temperature
- Pump operation

NOTE: Failure of any of the above tests will disable the HS. In this case the HS must be returned to your distributor. If the HS is defective, the ECU will display an error message with a beep.

The ECU displays: **PRESS BUTTON TO START.**

NOTE:

- A calibration cannot commence until the solution is at the correct temperature.
- The Auto-Cal station is pre-programmed to disable any HS that does not pass the calibration parameters. Once disabled the HS cannot be re-activated. Return any disabled HSs to your distributor

Verification Process

The sample head is tested 2 to 3 times for compliance in the calibration BAC range, and the verification BAC range.

To begin verification, press the ECU button.

During a test, the ECU displays the following:

- - - - - (while the sample is injected)
- **WAIT** (while the sample is analyzed)
- **WAIT.....** (while purging)

These messages repeat one to two times.

NOTE: The ECU will display **Solution Not Ready** if the solution temperature is incorrect, if the ALCOSIM simulator is connected incorrectly, or if the ALCOSIM simulator is disconnected during testing.

After two tests in this range, the ECU displays **Verify OK.** The HS is ready for use.

Press the ECU button to view the following:

- old calibration factor • BAC 1
- new calibration factor • BAC 2

NOTE: After a successful verification process the old and new calibration factors will be the same.

Calibration Process

If the verification is not successful, but the HS is in the calibration BAC range, the CS automatically begins the calibration procedure. Calibration involves subsequent tests and software action designed to bring the HS into the verification BAC range.

Press the ECU button to commence testing:

During a test, the ECU displays the following:

- - - - - (while the sample is injected)
- **WAIT** (while the sample is analyzed)

- **WAIT.....** (while purging)

These steps will be repeated two to three times to complete the calibration test.

After three tests (sometimes four) in this range, the ECU displays **CAL DONE.** The HS is ready for use.

Press the ECU button to show the following:

- New calibration factor • BAC 2
- Old calibration factor • BAC 3
- BAC 1 • BAC 4 (sometimes)

NOTE:

- After the successful completion of the calibration the HS can be used for up to 67 days.
- All calibrations completed on the Auto-Cal are retained in memory for uploading. Refer to the Cal Station Read Procedure in the WR2 Calibration Station Instruction Manual.

When all HS calibrations are complete, discard the alcohol reference solution and clean the mouthpiece connector, all plastic tubing and the solution container, for proper storage.

Troubleshooting Checklist

In the event of a calibration failure, first check that:

- The plastic tubing is not overused and is free of condensation
- The alcohol reference solution value is 50 mg/dL (0.50 g/L)
- The alcohol reference solution is not expired and has not been in the ALCOSIM simulator for more than 5 days
- All connections to and from the ALCOSIM simulator are correct and secure

ALCOSIM Simulator Troubleshooting Table

If	Then
There is leak in the seal.	The rubber "O" ring seal is damaged or misaligned. Remove the top housing and reposition the seal. Replace the seal if it is worn or damaged. Call service if you need a replacement "O" ring.
The ALCOSIM simulator does not reach or maintain a solution temperature of 34°C.	The thermostat or heating element may be defective. Send for service.
There is condensation in the plastic tubing.	Fit the plastic tubing on an aquarium air pump or similar setup for drying.

Contact Information

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