

# Service Guide

## General Inspection

- Visually inspect the handset. No damaged or disconnected parts should be present.
- Check that none of the labels on the handset are loose.
- Check the cables for any cuts or nicks, also check that the cable connectors are not exposed.
- Check that the mouthpiece insertion area of the handset is free of debris, dirt or contaminants.

## Maintenance Procedures

- Maintenance of the unit is ensured through calibration. Please refer to the calibration procedures section of this guide for step by step instructions on calibrating the unit.
- WR3s are made for field use, making them susceptible to dirt and debris. The handset should be cleaned with a damp cloth and mild soap. Do not use abrasive cleaners or solvents on the unit.

## General Functional Test

To check that the interlock system is functioning properly follow this procedure:

1. Plug in the handset.
2. Enter the main menu by holding the right **Menu** button.
3. Keep pressing the left next button till you see Service, select service with the **Select** right button.
4. Enter the service code into the handset by pressing the right **[+]** button to increment the digit and the left **next** button to go to the next digit. Move the cursor under **OK?** and press the right select button.

*Note: The service code can be obtained from the proprietary software Enterprise.*

5. Once you enter the service menu, keep pressing the left **Next** button till you see either install or monitor, select the appropriate choice using the right **Select** button. (Install is used for a first time service, and monitor is used in subsequent service appointments to download the handset data)
6. The interlock will now test the Handset LCD screen, LEDs, and speaker. Press the left **OK?** button if everything is functioning properly. The interface module, cpc connector LED and speaker are checked next. Press the left **OK?** button if everything is functioning properly. Finally the car siren is tested, press the left **OK?** button if it is functioning properly.
7. The system will then test the ignition. Turn the ignition on and off, as prompted.
8. The handset will then ask for the ignition to be turned on again, and then for the motor to be switched on.
9. Next the tachometer signal is tested. The handset asks you to accelerate to confirm the tach signal.
10. Next the brake is tested. When asked to do so press the car brake, then the handset will ask for the motor to be turned off.
11. You will then be asked to enter the amount of kilometers on the odometer. Enter this value the same way the service code was entered. Select **OK?** after the odometer value is entered.
12. The next screen that appears tells you that the install or monitor service is completed.

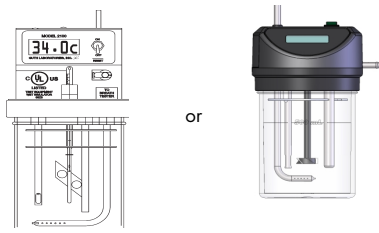
## Service Procedures

- Service procedures are carried out using a proprietary software called *Enterprise*. More information on the use of the software is provided in a training session.

**\*Note: The proprietary software Enterprise is used to download data from the handset.**

## Calibration Procedures

Important Note! This calibration procedure is intended for use by trained technicians only.



Calibration can be done using a Guth breath alcohol simulator or a Toxitest breath alcohol simulator.

## Equipment Needed

Guth breath alcohol simulator ACS part number #79-007092 (110V), #79-007091 (220V)

or

Alcosim

Calibration station ACS part number #79-006104

Plastic tubing

Liquid trap mouthpiece ACS part number #79-001956

Ethyl alcohol standard 50 mg% BAC ACS part number #95-000305

*Note: The ethyl alcohol solution is good for 25 tests or 5 days, whichever comes first. Using expired solution may result in incorrect calibration results.*

## Guth Simulator Setup

The Guth Simulator is a breath alcohol simulator that produces an air to alcohol vapor at a temperature of 34°C to simulate breath.

**CAUTION!** Make sure the Guth is unplugged before assembling or disassembling.

1. Visually inspect the unit and verify the solution container is clean and free of any cracks.
2. If the Guth unit has a reference thermometer, ensure that the mercury has no separation.
3. Ensure that the display indicates 34.0°C before use, if temp. does not reach 34.0°C +/- 0.1, incorrect calibration will occur.

## Toxitest Simulator Setup

The Toxitest is a breath alcohol simulator that produces an air to alcohol vapor at a temperature of 34°C to simulate breath.

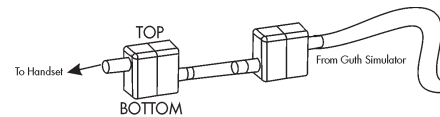
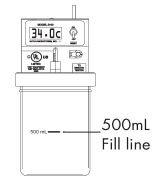
**CAUTION!** Make sure the Toxitest is unplugged before assembling or disassembling.

1. Visually inspect the unit and verify the solution container is clean and free of any cracks.
2. Check that the mercury column on the thermostat and thermometer have no separation.
3. Check for leaks in the seal by blowing into the Toxitest with the VAPOR OUT port covered. No air should bubble through the solution.
4. Check that the ready light turns green before use, if the light is yellow or red incorrect calibration will occur. Ensure that the thermometer reads  $34 \pm 0.2$  when green light is on.

## Alcohol Wet Bath Calibration

### For Guth ....

1. Remove the top housing, and fill the solution container with a new 50 mg% ethyl alcohol standard. Retain the container for referencing the lot and bottle number later in the procedure. Do not fill past the fill line.
2. Place the top housing assembly back into the solution container. Lift the solution container to meet the top housing and turn the knob to tighten. Do not over tighten as this will result in cracking the solution container.
3. Verify the Guth to handset liquid trap mouthpiece is connected as shown in the diagram below.



4. Plug in the Guth power cable and switch to the **ON** position. The simulator alarm will sound once, the heater and power indicator lights will turn on, and the display will completely illuminate. This indicates that the display is functioning properly.



5. The whole LED display remains completely illuminated for approximately one second, then the display indicates Cold.



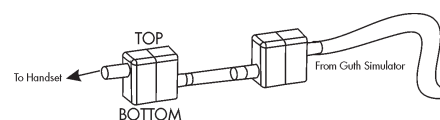
6. The dots between the letters keep pulsing on and off to indicate that the solution temperature is being heated by the simulator.
7. When the solution temperature reaches 33.6°C, the display will indicate the actual temperature. As the simulator keeps the temperature balanced, the last dot in the display will keep pulsing to indicate that the simulator is operating properly.
8. When the desired temperature of 34°C is reached, the heater indicator light will pulse less frequently. It is normal for the temperature to fluctuate between 33.9°C and 34.0°C.



34°C is reached after approximately 15 minutes, after the temperature is reached the simulator is ready for use. If 34°C takes longer to reach or is not reached, please consult the troubleshooting section.

### For Alcosim ....

1. Fill the solution container with a new 50 mg% ethyl alcohol standard. Retain the container for referencing the lot and bottle number later in the procedure. Do not fill past the fill line.
2. Place the top housing assembly back into the solution container. Lift the solution container to meet the top housing and turn the knob to tighten. Do not over tighten as this will result in cracking the solution container.
3. Verify that the mouthpiece is connected as shown in the diagram below.



4. Plug in the Alcosim power cable and switch to the **ON** position. The mixing propeller begins to rotate as power is being supplied to the heating element. It takes approximately 15-20 minutes for the alcohol solution to heat to 34°C. The temperature has been reached when the **Ready** green light is on.

If Alcosim does not reach or maintain this temperature, refer to the troubleshooting section of this document.

## Rest of calibration procedure is common for both simulators ....

### Calibration station setup

The Calibration station provides the air pump to the simulator and logs the number of tests performed with each bottle of ethyl alcohol standard. It also has the capability to be connected to a PC and the InterTrack Enterprise / Express software.

1. With the power switch in the **OFF** position, plug the power cable to the rear of the station. Do not turn on the Calibration station at this time.
2. From the simulator, connect the plastic tube from the **AIR IN** port to the plastic valve on the rear of the Calibration station.
3. Connect Calibration station to simulator with stereo jack cable provided.
4. Connect the handset to the other end of the coil handset cable, and place the handset in the cradle on the top of the Calibration station.

### Calibration procedure

*Note: There are different versions of firmware which display slightly different messages. The newest version's instructions are used, with the older version's messages in parentheses. ( ).*

1. With the handset connected and in the cradle and the simulator ready and connected, turn the Calibration station power **ON** using the switch at the rear of the station.

The Calibration station initializes and displays the serial number of the handset, the simulator state and the current date and time.

2. Press **#** to enter the Menu, and use **#** to scroll to **Solution**. An alternate method is to press 5. Press **\*** / **Select**. The calibration station beeps until the solution information is entered.
3. Refer to the label on the ethyl alcohol solution standard bottle. Enter the lot number and bottle number. The **#** is used to scroll digits and the number pad to enter the numbers. When complete, scroll to Enter and press **\*** / **Select**. Press 0 to exit.

<b>Alcohol</b>	Alcohol Countermeasure Systems 60 International Boulevard Toronto ON M9W 6J2
<b>Countermeasure</b>	Telephone: 416 619 3500 Facsimile: 416 619 3501
<b>Systems</b>	
<b>Ethyl Alcohol Standard</b>	<b>Standard d'alcool éthylique</b>
When used at 34 ± 0.2°C, this solution will provide a BAC value of:	Quand employée à 34 ± 0.2°C, cette solution donnera une valeur (TA) de:
<b>50</b>	<b>50</b>
milligrams of alcohol in 100 milliliters of blood.	milligrammes d'alcool dans 100 millilitres de sang..
Product/Produit <b>95-000305</b> Lot No/Lot Numero <b>200708G</b>	Date of Mfr/Date de Fab <b>07.08.17</b> Expiry Date/Date d'Exp <b>09.08.17</b>
<b>Bottle No: 100</b>	<b>500 mL</b>

4. The Select HS function message is displayed on the Calibration station and on the handset screen. Select **CAL** on the handset using the left button.

*Note: The PC option is used for downloading with a PC and the InterTrack Enterprise/Express software.*

5. Verify the date and time. If correct, select **OK** by pressing the right button of the handset.

If the date and time are incorrect, select **Set** (Next) using the left button. The date and time of the Calibration station is used to set the clock. If correct, select **Yes** by pushing the right button.

6. The method is **Automatic**. Press the right button to Select. (The older firmware does not support this option).
7. The simulator is **Wet Bath**. Press the right button to Select (OK). (The newer firmware does not support this option).
8. The standard value is **50mg%**. Press the right button to Select. (The older firmware does not support this option).
9. The handset beeps and displays a **Ready** (Wait) message. The Calibration station displays the message Wait 2:00 for handset to warm up.
10. After the two minute countdown, the Calibration station beeps and displays the message Press HS right button to start test.

11. Begin the test by pressing the right button on the handset.

If the simulator is not ready, the Calibration station beeps and a Wait for simulator ready light message is displayed until the ready light turns on.

12. The Calibration station beeps and the air pump turns on. The **Blowing air...** and **Blowing...** message is displayed on both the Calibration station and handset displays.

After approximately 8 seconds, the pump turns off and the Calibration station display reads **Wait for result..** followed by 1st test OK, wait 0:45 for next test.

13. After the 45 second countdown, the Calibration station beeps and the air pump turns on a second time.

When the second sample is complete, the Calibration station displays:

14. A **Verification Passed/OK** message, which appears on both displays if only two tests are required.
15. **Wait for result..** followed by 2nd test OK, wait 0:45 for next test if a third test is required.

The Calibration station may repeat the test up to 4 times, in which case the display reads **Calibration Passed/OK** on both displays when all tests are complete.

16. Press the right button on the handset. The handset can be unplugged.








*Note! If the calibration fails on numerous attempts, the sensor may need replacement. Contact ACS for return instructions.*

## Troubleshooting

### For Guth Simulator ....

In the event of a calibration failure, first check the common causes of errors:

1. Plastic tubing has been overused, condensation is present.
2. The alcohol standard solution value is NOT 50mg% BAC.
3. The alcohol standard solution is expired, or has been in the Guth simulator for more than 5 days.
4. All connections to and from the Guth simulator are secure.

If the simulator displays....	Reason and Action
	The solution container is empty, or the simulator power has been turned on without the top housing being attached to the container. Turn the simulator off, and fill the container with 500ml of the alcohol reference solution
	The temperature sensor is (open or shorted) defective. The computer is not receiving a signal from the temperature sensor. Return the simulator to ACS for service.
	The simulator electronics need to be reset. Turn off the simulator, and turn it back on after 3-5 seconds.
	The temperature of the solution is above 34.2°C, or radio frequency interference (RFI) has been detected. Turn the simulator off and allow the solution to cool down. Remove the source of RFI or change the location of the simulator. Now turn the simulator on, if the error persists, return the simulator to ACS for service.
	The simulator electronics need to be reset. Turn off the simulator, and turn it back on after 3-5 seconds.
	Longer than normal (15 minutes) amount of time taken to reach the operating (34°C) temperature. The heating element may be defective or the solution may be colder than normal hence the longer heating time. Reset the simulator, by turning it off, and turn it back on after 3-5 seconds. If the simulator does not heat the solution, the heating element may be defective. Return the simulator to ACS for service.
	The temperature of the solution is below 33.8°C after it had initially obtained the required 34°C. Reset the simulator by turning it off then on. If the simulator does not heat the solution, the heating element may be defective. Return the simulator to ACS for service.

### For Alcosim Simulator ....

In the event of a calibration failure, first check the common causes of errors:

1. Plastic tubing has been overused, condensation is present.
2. The alcohol standard solution value is NOT 50mg% BAC.
3. The alcohol standard solution is expired, or has been in the Alcosimjar for more than 5 days.
4. All connections to and from Alcosim are secure.

If...	Then...
Mercury in Alcosim is separated in the thermostat or thermometer	There may be a separation in the mercury column of either the thermometer or thermostat. Remove the top housing and spray an aerosol "chiller" solution onto the bulb of the thermostat or thermometer. Alternatively, place the assembly in the freezer for 2 hours. The mercury column will shrink within the bulb and rejoin.
Alcosim has a 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.
Alcosim does not reach or maintain 34°C temp.	The thermostat or heating element may be defective, and Alcosim must be sent for service.
Alcosim has 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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