|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Button A | Button B | Button C | Button D |  |
|  |  |  |  |  |  |
|  | l-O |  |  |  |  |
| Figure 1: Instrument Buttons | | | | | |
| INTOXILYZER 400  PRESS DURING DIAGNOSITCS | | | | | |
|  | | B | C | D | DONGLE KEY |
| CAL ADJUST | |  | X1 | X2 | Required |
| CAL CHECK | | X2 | X1 |  |  |
| PRINT MEMORY | | X |  | X |  |
| PRINT CONFIGURATION | |  |  | X |  |
| SET TIME, DATE | | X |  |  | Required |
| PRESS WHEN DURING SCRN, CONF, S-C FLASING | | | | | |
| LAST TEST RECALL | |  |  | X |  |
| DISPLAY REMAINING SPACE | | X |  |  |  |
| CHANGE TEST MODE | |  | X |  |  |
| PRESS WHEN SCRN, CONF, S-C STEADY | | | | | |
| RECALL/REPRINT LAST TEST | |  |  | X |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INTOXILYZER 400 PROCEDURE  PERFORMING A TEST  SCRN | | | | |
|  | DISPLAY | B | C | D |
| TURN ON |  |  |  |  |
| Diagnostics-Test Mode | Flashing Scrn (Change if desired) |  | X |  |
| Assign Test # | SCRN |  | X |  |
| Observe Test # | XXX |  |  |  |
| Have Subject Blow | Sub | (X\*) |  |  |
| Observe Result | .XXX |  |  |  |
| Turn off or repeat test | SCRN |  |  |  |

\*To perform manual sample

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INTOXILYZER 400 PROCEDURE  PERFORMING A TEST  CONF | | | | |
|  | DISPLAY | B | C | D |
| TURN ON |  |  |  |  |
| Diagnostics-Test Mode | Flashing Scrn (Change if desired) |  | X |  |
| Assign Test # | CONF |  | X |  |
| Automatic Air Blank | AIR/.000 |  |  |  |
| Introduce Gas | STD | X |  |  |
| Observe & Record Cal check Results | .XXX |  |  |  |
| Replace Mouthpiece | TUBE |  |  |  |
| Automatic Air Blank | AIR/.000 |  |  |  |
| Have Subject Blow | Sub | (X\*) |  |  |
| Observe Results | .XXX |  |  |  |
| Remove Mouthpiece & Print | TUBE |  |  |  |
| Print Results | Print |  |  | X |

\*To perform manual test

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| INTOXILYZER 400 PROCEDURE  PERFORMING A TEST  S-C | | | | | | | | | |
|  | | DISPLAY | | | | B | C | D | |
| TURN ON | |  | | | |  |  |  | |
| Diagnostics-Test Mode | | Flashing S-C (Change if desired) | | | |  | X |  | |
| Assign Test # | | CONF | | | |  | X |  | |
| Have Subject Blow | | Sub | | | | (X\*) |  |  | |
| Observe Test # | | XXX | | | |  |  |  | |
| Observe Results | | .XXX | | | |  |  |  | |
| If > .020 | | Flashing .XXX | | | |  |  |  | |
|  | | Conf | | | |  |  |  | |
| 15 Minute Countdown | | XX:XX | | | |  |  |  | |
| Assign Test # | | Conf | | | |  | X |  | |
| Automatic Air Blank | | AIR/.000 | | | |  |  |  | |
| Have Subject Blow | | Sub | | | |  |  |  | |
| Observe Results | | .XXX | | | |  |  |  | |
| Remove Mouthpiece & Print | | TUBE | | | |  |  |  | |
| Print Results | | Print | | | |  |  | X | |
| \* To perform manual test | | | | | | | | | |
| CAL CHECK PROCEDURE | | | | | | | | |
|  | B | | C | D | DONGLE KEY | | | |
| During diagnostics –  Hold until beep |  | | X |  |  | | | |
| Ready Light Flashing | X | |  |  |  | | | |
| *CHC* Flashes once |  | |  |  |  | | | |
| CHC |  | |  |  |  | | | |
| Introduce Gas | X | |  |  |  | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CAL ADJUST PROCEDURE | | | | |
|  | B | C | D | DONGLE KEY |
| During diagnostics –  Hold until beep |  | X |  |  |
| Ready Light Flashing |  |  | X |  |
| *CHC* Flashes once .XXX |  |  |  |  |
| To Adjust (If needed) | Downward | OR | Upward |  |
| To Lock In |  | X |  |  |
| CAL Flashes |  |  |  |  |
| Introduce Gas | X |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SETTING TIME AND DATE | | | | |
|  | B | C | D | DONGLE KEY |
| During diagnostics –  Hold until beep |  | X |  | Required |
| YEAR | Down |  | Up |  |
| To lock in |  | X |  |  |
| MONTH | Downward |  | Upward |  |
| To lock in |  | X |  |  |
| HOUR | Downward |  | Upward |  |
| To lock in |  | X |  |  |
| MINUTE | Downward |  | Upward |  |
| To lock in |  | X |  |  |

**QAP For The Intoxilyzer 400** (Revised 10/98)

## Instrument Accuracy

The accuracy of the I-400 meets DOT specifications for breath alcohol readings. Accuracy at 0.020 and 0.040 BrAC is within + 0.005 BrAC of the actual value.

## Calibration Media (Solution and Gas)

Gas: With the availability of an appropriate NIST standard, it is possible for end users to obtain ethanol gas standards with direct tractability back to NIST approved standards from CMI’s supplier, Scott Specialty Gases. Each lot of cylinders will be marked with batch and cylinder numbers for direct traceability with the records being kept by the gas manufacturer. Copies of the fabrication and verification procedures for the manufacture of dry gas should be available through the gas manufacturer.

Solution: With the availability of an NIST standard for aqueous ethanol solutions, it is possible for end users to produce aqueous ethanol solutions to be used in web bath simulators. Failure to use NIST traceable solution may invalidate the results of subsequent tests performed on an instrument that was checked with an improperly mixed solution. Simulators used in web bath testing must be included on the US Department of Transportation Conforming Products List of Calibrating Units for Breath Alcohol Tests.

The manufacturers of web bath solutions should certify both the % BAC accuracy and provide the appropriate documentation for fabrication and verification.

The manufacturer of these materials will supply shelf life and operation procedures for the aqueous ethanol solutions and dry gas mixtures.

## Frequency of Calibration Verifications

The allowable interval between calibration verification tests for the I-400 breath-testing instrument should not exceed 30 days or 50 tests. The frequency of the verification tests can exceed the recommendation. A log of calibration verifications needs to be maintained as proof that the verifications are completed at these minimum intervals. Logbooks designed for this purpose are available.

## Removal From Service

The I-400 requires no fixed period for performing instrument maintenance or calibration. The I-400 should be removed from service if it does not pass the self-diagnostics tests or the instrument fails a calibration verification test. The instrument will respond with ‘E#’ displayed on the screen where ‘#” is the error number associated with the problem detected. A list of these error codes can be found in the I-400 operator handbook. The handbook should be consulted to determine whether the instrument needs factory maintenance.

The calibration of the I-400 may be verified with a standard whose concentration is between 0.040 and 0.110 BrAC and manufactured to a tolerance of + 0.002 BrAC. The tolerance for an acceptable calibration verification is the chosen concentration + 0.005 BrAC as displayed by the instrument.

**SOME DO’S AND DON’T’S**

Please remember for following points:

DO.. press the *On/Off* Switch ***gently***. Excessive force is **not** required.

DO.. keep the instrument in its leather pouch, whenever possible.

DO.. store the instrument either with batteries installed or a power pack

attached. This will avoid discharging the internal (lithium) battery that

backs up the computer circuitry.

(Note: for safety in transit, the instrument is normally supplied with no

batteries actually installed.)

DO.. use only genuine Intoxilyzer 400 mouthpieces, or as produced by a CMI

approved manufacturer.

DO.. use a clean, new mouthpiece for each donor test.

DO.. ensure that the mouthpiece is properly attached, and locked into place

between the instrument’s two upright mouthpiece locators.

DO.. ensure that the donor blows through the wide-bore lipped end of the

mouthpiece.

DO.. ensure the instrument is regularly checked by a Supervisor.

DO.. read this manual and the accompanying card carefully, and comply with

the instructions given.

DO.. report any full memory or error (“E”) message to your Supervisor.

DO.. keep the communications port fitted with its protective cover when not

in use for data transfer.

DO.. change the batteries as soon as possible once the first stage warning

appears.

DON’T.. test the donor if you have reason to believe they may have been either drinking within the last 20 minutes or smoking within the

Last 2 minutes.

DON’T.. permit the donor to hyperventilate immediately prior to supplying his or breath sample.

DON’T.. store the instrument in extreme temperature of either hot or cold.

DON’T.. leave the instrument for long periods with no batteries or a power pack attached to it. Such a condition will unnecessarily discharge the internal battery to the memory and clock circuits.

DON’T.. subject the instrument to unnecessary shock. Treat it with respect.

DON’T.. use excessive force on the *On/Off* switch.

DON’T.. clean the case with chemical or abrasive products. These could cause permanent damage.

DON’T.. allow the sampling port to become blocked. If you suspect this may be blocked or restricted in some way, then hand in the instrument for checking by a Supervisor.

DON’T.. use other than the Intoxilyzer 400 mouthpieces. These have been carefully designed and are specifically manufactured for use with this instrument.

DON’T.. restrict the end of the mouthpiece, such as with your finger, while the donor is blowing. This may seriously damage the instrument.

DON’T.. reuse mouthpieces, for reasons of both hygiene and accuracy.

DON’T.. open the instrument or attempt any repairs. If you suspect the unit is not working properly, hand it in for checking.

DON’T.. deviate from the instructions given in this manual.

**APPENDIX A**

**WARNING AND ERROR MESSAGES**

Apart from the usual display of the donor’s alcohol level and the date and time, the instrument has a number of other ***visual*** and ***audible*** warning messages, and several “EX” error messages.

VISUAL WARNING MESSAGES

***Flashing “WAIT” Light***

This is the first stage low battery power warning. You may still use the instrument.

***Four Bars on the Digital Display***

This is the second stage low battery power warning: the instrument is automatically inhibited from further use until the batteries have been replaced or recharged, as appropriate.

***Low Memory Countdown***

When the remaining memory is within 20 tests of being full the remaining test capacity is displayed when the unit is turned on.

Even when the memory is full, the instrument can still be used to run a breath test, with no effect on its analytical performance.

The software may have been set to ***Shunt*** or ***Ignore*** on further testing when the memory is full.

AUDIBLE WARNING MESSAGES

A single, (500ms) low pitch beep signifies a change in status of the **“READY”** or **“WAIT’** indicator lights.

A continuous, low-pitched tone indicates the donor is blowing at a flow rate above the minimum requirement

Two short beeps indicate that the donor has provided a suitable sample of breath and that its analysis is underway.

A single, (500ms) high-pitched beep means the analysis is complete and the final sample alcohol reading can be taken. The second, shorter and lower beep signifies storage in memory of the breath test result.

A medium pitched tone, lasting for 1.5 seconds, means the donor has stopped blowing prematurely, i.e. before satisfying the minimum breath volume requirement.

Three longer, high pitched beeps mean the donor has sucked back, rather than blown properly through the mouthpiece.

A twelve second period of continuous short, high pitched beeps mean the instrument is about to switch itself off. To prevent this, simply press and release the On/Off switch until:

two short beeps are heard. The ***Auto Power Down Time*** is then reset to full.

Holding down the *On/Off* switch for 5 seconds produces a continuous low-pitched tone. On releasing the switch two short beeps, one high and one lower pitched, are produced: n n. This signifies storage of a donor refusal or “failure to provide” event.

Three long, low-pitched beeps (in conjunction with a flashing “WAIT” light) indicate a low, but useable power supply.

Two long, low-pitched beeps (in conjunction with 4 bars flashing in the digital display) indicate the power supply voltage is too low for further use of the instrument.

Successive long and short beeps (in conjunction with a displayed number) indicate a low remaining memory capacity.

**THE “EX” ERROR MESSAGES**

The following messages will be shown on the digital display in the event of a component or system failure. If any of these messages appears, the instrument is automatically inhibited from further use.

E 1 Error in fuel cell calibration (loss of fuel cell calibration data from memory).

E 2 Hardware over range.

E 3 The fuel cell sensitivity is too low for calibration.

E 4 The output from the breath flow sensor is too low for calibration purposes.

ES There is a fault with the breath sampling system.

E 6 There is a fault with the temperature sensor controlling the fuel cell heater.

|  |
| --- |
| If any E message appears (with the  exception of E2) the Instrument cannot be  used. Please refer to your Supervisor or  authorized service personnel for attention. |