

# INSTRUCTION SHEET FOR CANARY III MODEL 4083

## INTRODUCTION

The Canary III is an electronic personnel dosimeter that measures integrated dose in mR. The instrument is small, light, and rugged. In addition it has several features:

- Variable Beeper
- Variable Integrate Alarm
- Long Battery Life
- Memory Feature
- 6 Digit Display
- Battery Test Button



## OPERATION

Operation of the Canary III is very easy. It is supplied with batteries already installed. To turn the instrument on, turn the switch on the top marked ON in the direction of the arrow. The display will display 0. To check the condition of the battery push the button on the top marked BAT TEST. If the battery is good the beeper will beep. If the battery is bad the beeper will not beep at all. When the beeper warbles the instrument has at least 8 hours remaining on the battery.

To reset the instrument and the display, turn the instrument off for 5 seconds then back on. The display should now show 0.

The beeper beeps every preset interval. The integrate alarm turns the beeper on continuously when its level is reached. To turn it off it is necessary to turn the instrument off. Note: this will of course also destroy the radiation reading. As supplied, the integrate alarm is turned off and the beeper is set to beep every mR. To change these settings see below.

## BATTERY CHANGE

To change the batteries the front of the instrument needs to be removed. First make sure the instrument is off. Turn the instrument over and place it face down on a table and look at the back. On the end opposite the clip is a slot for a screwdriver. Insert a medium size screwdriver into the slot about 1/8 inch. The screwdriver should be vertical. Twist the screwdriver to pry the bottom out. Then keeping the screwdriver only 1/8 inch into the case pry the back away

from the front. The two tabs holding the front on are located on each side of the bottom.

The batteries are 2 ea. # BR2325. They are Lithium coin cells. To remove the old batteries insert the tapered end of the battery removing tool between the two batteries and gently pull the top battery out. Insert the tool under the bottom battery and pull it out. The new batteries are slipped in one at a time. The polarity is marked on the battery holder.

To replace the front, put the switch end on first, then snap it over the bottom.

## INTERNAL CONTROLS

There are four internal controls, Alarm and beeper set, display memory and calibration adjust. They are accessed by removing the front panel as described under the battery change section.

|   | DISPLAY                  |                   |
|---|--------------------------|-------------------|
|   | ABCDEFGHIJ               | KLMN              |
|   | Integrate Alarm Red Wire | BEEPER White Wire |
| A | 1                        | 2                 |
| B | XX                       | aprox .1          |
| C | 4                        | 8                 |
| D | 8                        | 16                |
| E | 64                       | 128               |
| F | 16                       | 32                |
| G | XX                       | 1                 |
| H | OFF                      | OFF               |
| I | 2                        | 4                 |
| J | 256                      | 512               |
| K | 128                      | 256               |
| L | 512                      | 1024              |
| M | 1024                     | 2048              |
| N | 32                       | 64                |
|   | Levels In mR             |                   |
|   | XX DO NOT USE            |                   |

## ALARM AND BEEPER SET

The alarm and beeper set are located in the center of the instrument and consist of two jumper wires, one red and one white that are pushed into the holes in the switch block. The white wire is the Beeper and the red wire is the integrate alarm. The table shows the levels for each position on the block for each wire. A copy of this table is inside the front cover. Note that the same position has different meanings for each wire. Both wires cannot occupy the same position. The integrate alarm should be set higher than the beeper or the beeper/alarm may not function properly. If no alarms or beepers are wanted we suggest setting the beeper to off and the integrate alarm to 1024. This will result in the instrument beeping only if 1024 mR was reached which is a good safety alarm.

## DISPLAY MEMORY

The display has two possible modes of operation, normal and memory. These are set by a jumper to the left of the display. When the jumper is on the two lower pins it is in the memory mode. In this mode the display is powered all the time. When the instrument is turned off the display will not turn off and the data that was in the display will be retained. When the instrument is turned on the display will reset to zero. Since the display is on all the time the instrument will appear to be turned on even if it is turned

off. An operational check for the instrument is to push the battery test button, if the beeper does not beep then either the instrument is off or the instrument is on and the batteries are dead. Either way the instrument is not operative.

If the jumper is on the top two pins then the display is in the normal mode and the display will turn off when the instrument is turned off.

NOTE: For long term storage use the normal mode. With the instrument turned off the batteries will still operate after 10 years in the normal mode but will be dead after 1 year in the memory mode.

## CALIBRATION

The instrument is calibrated in a known radiation field. Expose the instrument from the front. With the instrument standing up the center of the detector is centered front to back, 5/8 in from the bottom and 1/4 in from the left side if the display is facing you. If the cover is removed during calibration, lay it in front of the detector module. The detector should be exposed through the cover just as it would be in normal operation.

The instrument can be exposed at any dose rate from 10 to 1000 mR/h for calibration purposes. We recommend exposing it to 600 mR/h (10 mR/minute) and timing the exposure for 1 minute. The display should read 10 mR. Longer times of 10 minutes should result in a display of 100. The calibration pot on the lower left hand side of the circuit board controls the sensitivity of the instrument. Adjust it for a correct reading. If the reading is off more than + or - 40% it may be necessary to change the divide by solder jumpers on the bottom of the board. Please consult the factory for this change.

## REPAIR

The instrument should be returned to HPI for repair. A repair manual is available for those wishing to do their own repair.

## WARRANTY

The instrument has a limited warranty of 1 year. Please call or write the factory for a copy of the warranty.

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