



INSTRUMENTS

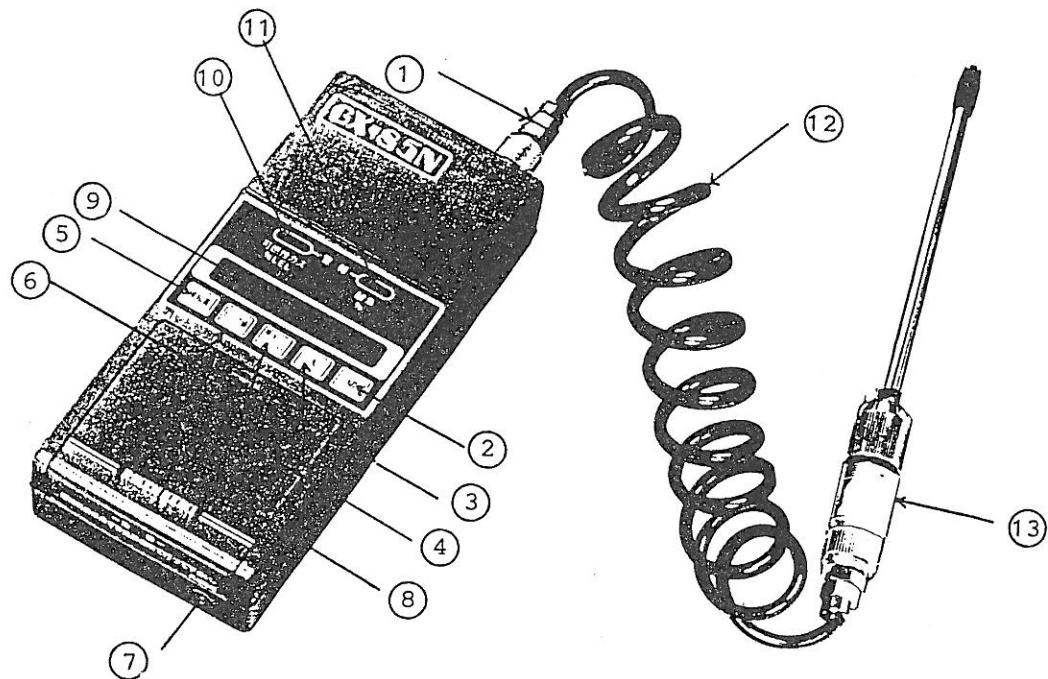
Gas Detection for Life!

INSTRUCTION MANUAL MODEL GX-85N

PERSONAL MONITOR AND ALARM FOR COMBUSTIBLE GAS

The accompanying instrument is sold and serviced in the USA by RKI Instruments, Inc. Please contact RKI Instruments Inc. for any follow up service needs, including questions, warranty issues, repairs, and spare parts and sensors. Any reference in the attached manual to Riken Keiki may be read as RKI Instruments, Inc. Thank you for selecting this fine instrument for your use. With proper care and maintenance, it will provide you with many years of reliable service.

1. DESIGNATION OF EACH PART



- | | | |
|-------------------------------|------------------------------|-----------------------|
| ① Nipple of gas inlet | ② Power " OFF " switch | ③ Power " ON " switch |
| ④ Voltage/light switch | ⑤ "Detector tube" switch | ⑥ "Peak hold" switch |
| ⑦ External alarm socket | ⑧ Battery cover | ⑨ LCD display |
| ⑩ Combustible gas alarm light | ⑪ O ₂ alarm light | ⑫ Sampling hose |
| ⑬ Sampling probe | | |

2. HOW TO USE

2-1. Preparation

- 1) Check that batteries are mounted in the battery holder.
See item 5-1 "Battery replacement" to set batteries.
- 2) Connect the sampling hose
To connect ; pull the kurling part of the coupler and connect the sampling hose to the nipple of gas inlet ⑫ by releasing its kurling part for complete connection of sampling hose.

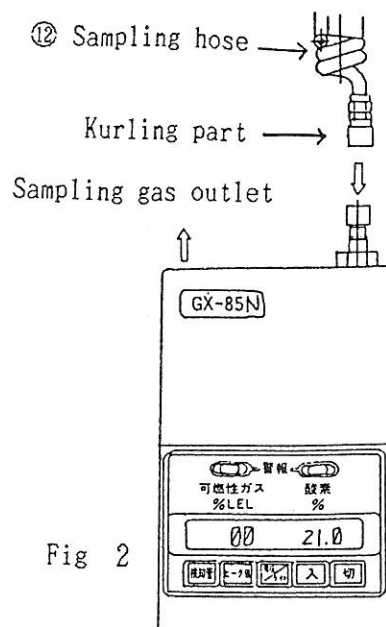


Fig 2

2-2. Operation

- 1) Depress power "ON" switch.
When power switch is turned on, the following dot-matrix messages are shown on LCD display, buzzer sounds in two intermittent tones and internal microprocessor starts checking/adjustments of the circuit.
- 2) After powered on, following message is displayed for about 5 seconds.

BAT. CK (MIN 4.5V)

This means that the minimum voltage of the battery is 4.5V.

- 3) If the battery voltage would be below 4.5V, following message is displayed.

LOW BAT

In this case, replace the battery with new one or recharge the battery (Ni-Cd battery only).
If the batteries do not contact with battery holder or battery voltage is not enough, there is no indication on the display even though depressing the power ON switch.

- 4) When the battery voltage is above 4.5V, the current voltage is displayed as shown below example.

BATT. (5.8V) (Approx 5 sec.)

If you want to use it for a long time, it is recommended to replace batteries with new ones even if it is above 4.5V.

5) Microprocessor starts auto zero/span and display as

AUTO ZERO/SPAN

 (Approx 3 sec.)

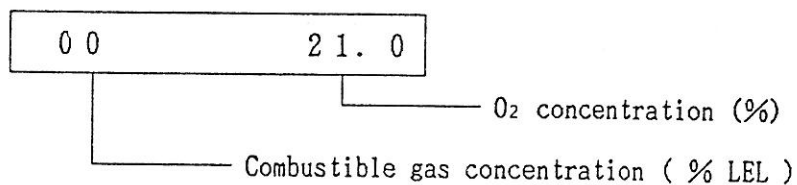
Zero adjustment for combustible gas and span (21%) adjustment for oxygen are carried out automatically under the current environment. For this reason, the power switch should be turned ON at fresh atmosphere.

6) After completion of the above, following messages are displayed.

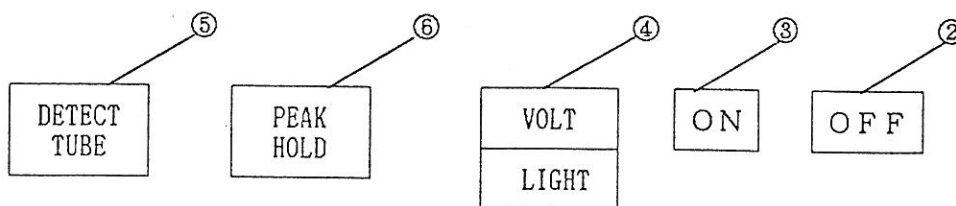
STAND BY

 (Approx 3 sec.)

And then, following readings are shown on the display just after a intermittent two short tones are sounded.



2-3. Functions of each switch and how to use it



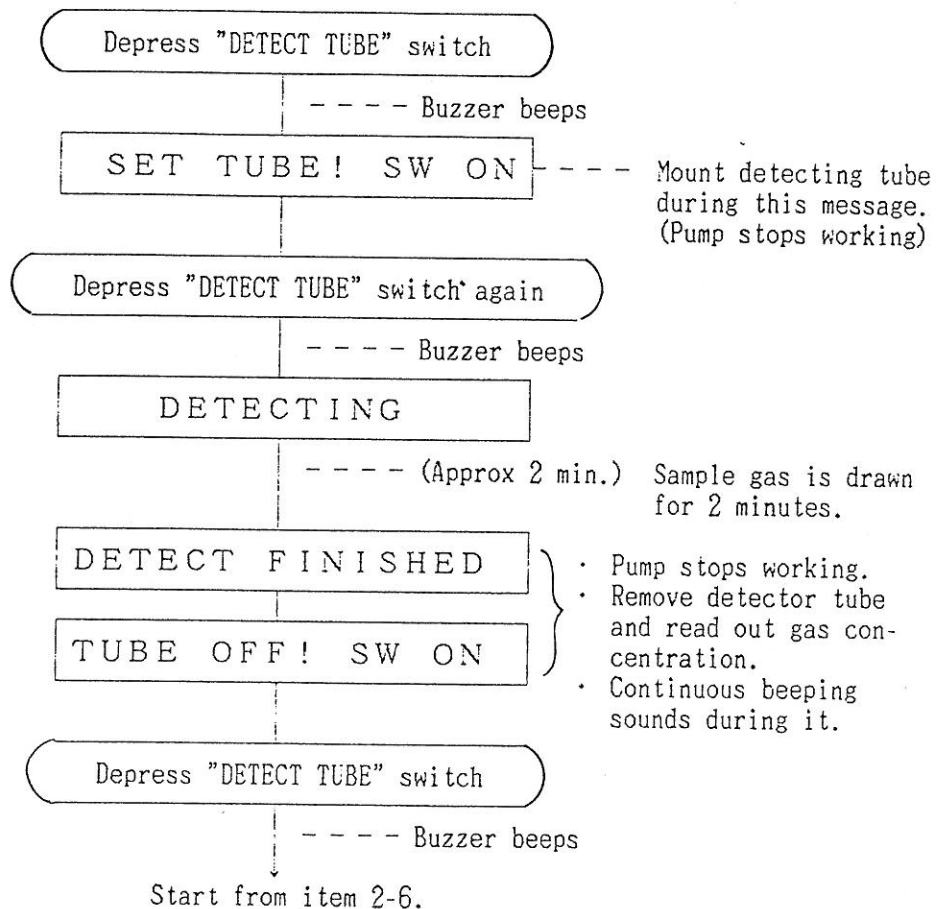
1) Power "ON" ③ and "OFF" ② switches

《 Calibration by use of fresh air 》

The readings for 0% LEL and 21.0% O₂ may vary a little during measurement of long period. In this case, depress "OFF" switch first. Then, depress "ON" switch in fresh atmosphere so that zero (combustible gas section) and span (21% O₂) adjustment can be performed automatically. The display details as it is shown in item 2-2.

2) Detector tube switch ⑤

This is used to measure CO or H₂S by use of gas detecting tube. Carry out the measurement of it in the following procedure.



3) PEAK hold switch ⑥

PEAK HOLD switch has a momentary type action. Pressing the PEAK HOLD position will cause the highest gas concentration reading (lowest in the case of oxygen) to be displayed and retained. At this time the letter P will show at the left of the display to show that the instrument is still in the HOLD mode. Pressing the PEAK HOLD position again restores normal operation. Each time the PEAK HOLD position is pressed, a single tone sounds.

4) VOLT/LIGHT switch ④

Current battery voltage can be checked by pressing this switch. This is combined with light (LCD light) switch. Display of voltage or illumination of display is discriminated by the following procedure.

a) To check battery voltage ;

When press VOLT/LIGHT switch and signal beep sounds once, put your finger off. Display at this time is as shown below.

BATT. 0.0 V	(approx 5 sec.)
-------------	-------------------

After it, it will be returned to normal operation.

b) To illuminate display at night or dark place ;

Depress VOLT/LIGHT switch continuously until two beep sounds are finished and then, put your finger off after confirm it. Word "L" appears at the left end and approx. 10 seconds later the word "L" disappears. While the word "L" is on, LCD is illuminated to read out gas concentrations in dark places. The light-out after 10 seconds is designed not to forget switch off.

L 00 21.0

2-4. Detection of toxic gas (See Fig. 3)

- 1) Screw up the adaptor of detector tube to the tube mounting hole (Fig 3-1).
- 2) Take out detector tube from the box. Put it into the center of tube cutter. Cut off the both ends of tube by declining it (Fig 3-2).
- 3) Put the tube into the tube adaptor by checking the direction of tube (Fig 3-3).

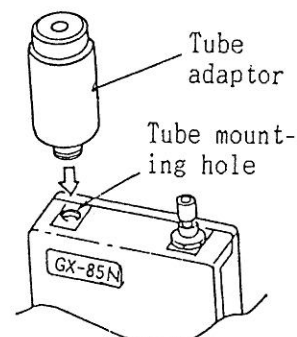


Fig 3-1

- 4) Carry out measurement according item 2-3-2.
- 5) Judge the concentration from the sample of discoloration shown in the detector tube manual card.
- 6) After completion of test, remove the detector tube and its adaptor.

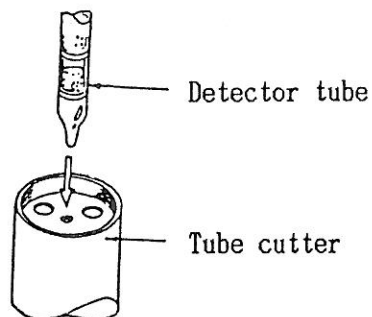


Fig 3-2

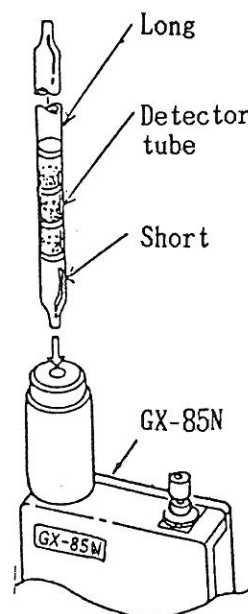


Fig 3-3

3. ALARM PATTERN

3-1. Gas alarm

When gas concentration exceeds alarm preset level, audible and visual alarm will trigger. The correlation between gas concentration and alarm pattern is shown below;

		1st alarm (Low)	2nd alarm(High)	Over alarm
Combustible gas		Above 20% LEL	Above 50% LEL	Above 100% LEL
Oxygen		Below 18% by vol	Above 25% by vol	Above 40% by vol
Alarm pattern	Light	Intermittent	Continuous	Continuous
	Buzzer	Intermittent	Continuosu	Continuous
	Display	Reading	Reading	OVER

The Above pattern is non-latched mode.

3-2. Alarm pattern except for gas alarm

Condition	Light	Buzzer	Display
Power switch "ON"	————	Single beep	————
Stand - by	————	Double beeps	————
Either sensor is not connected enough	————	7 times Intermittent	FAIL (eighter)
Both sensors are not connected enough	Two lights ON	Continuous	FAIL (LEL O ₂)
Low output of O ₂ sensor	Two lights ON	Continuous	FAIL O ₂
Disconnection of combustibile gas sensor while measurment	————	7 times Intermittent	FAIL LEL
Battery voltage is below 4.5V when depressing ON switch	Two lights ON	Continuous	REPLACE BATT

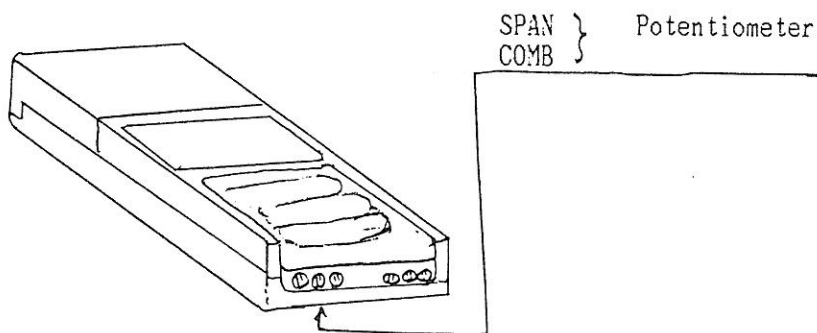
4. SPAN ADJUSTMENTS

Prepare optional gas sampling bag and canned standard gas to make span adjustment.

- 1) Carry out items 2-1 and 2-2.
- 2) Pack the canned standard gas into the sampling bag.

Note : Draw out air in sampling bag before introducing the gas into it.

- 3) Check that readings are 00 for combustible gas and 21.0 for oxygen.
- 4) Connect the gas sampling bag with gas sampling probe.
- 5) Wait for about one minute and watch reading carefully. If reading does not correspond to desired value, adjust it by turning SPAN COMB potentiometer.



5. MAINTENANCE

5-1. Battery replacement

- 1) Press the OFF switch
- 2) Take out the instrument from the protective case.
- 3) Remove battery cover by pressing and sliding off to the side.
- 4) Remove 4 batteries by pulling up the orange colored tape. Place the tape to the battery compartment and put new batteries onto it.
- 5) After replacement, put battery cover as before.

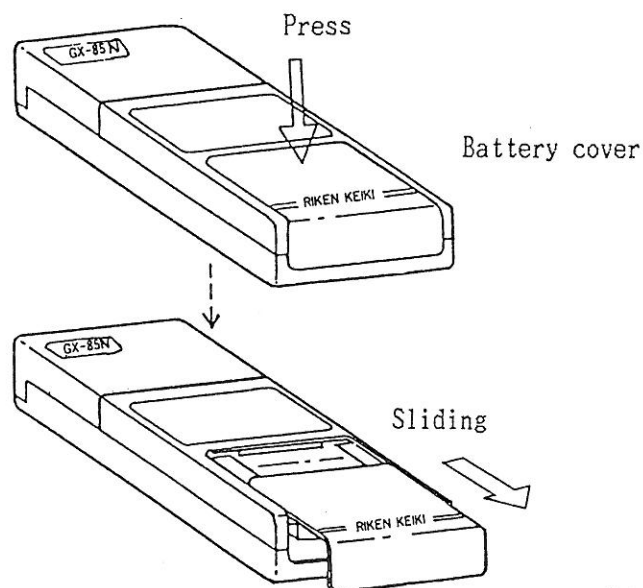


Fig 4

5-2. Sensor replacement (Fig 5)

- 1) Press the OFF switch.
- 2) Remove two screws for head cover.
- 3) Pull head cover upward to remove it.
- 4) Disconnect 7P connector for sensors and 3P connector for pump respectively.
- 5) Pull the chamber upward to remove it (Fig 5-1).

- 6) Remove the oxygen sensor by turning the sensor holder counter-clockwise (Fig 5-2. 3).
- 7) Remove two fixing screws for combustible gas sensor holder, take off its holder and pull out the sensor from its holder.
- 8) After replacement, fix them as before.

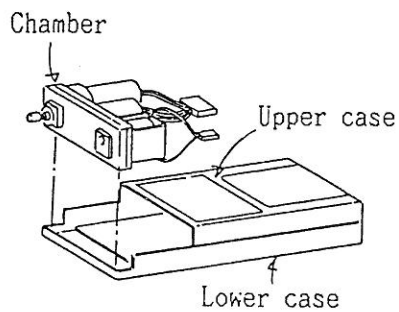
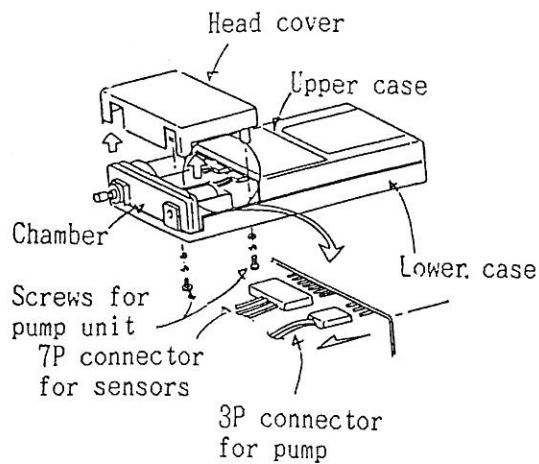


Fig 5-1

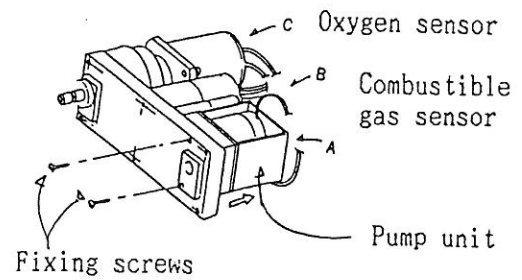


Fig 5-2

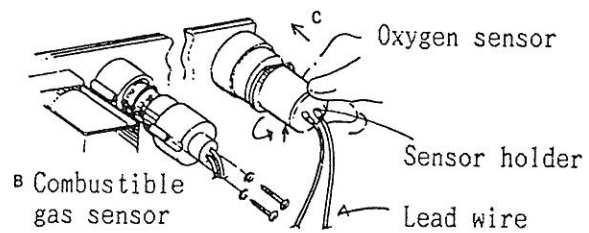


Fig 5-3

5-3. Replacement of pump (Fig 5)

- 1) Press the OFF switch.
- 2) Remove two screws for head cover.
- 3) Pull head cover upward to remove it.
- 4) Disconnect 7P connector for sensors and 3P connector for pump respectively.

- 5) Pull the chamber upward to remove it (Fig 5-1).
- 6) Remove two screws in Fig 5-2 and replace pump unit with new one.
- 7) After replacement, fix them as before.

5-4. Replacement of LCD display cover (Fig 5-4)

LCD display cover is provided with carrying case. Replace the cover with new one if the LCD is hard to see through transparent cover.

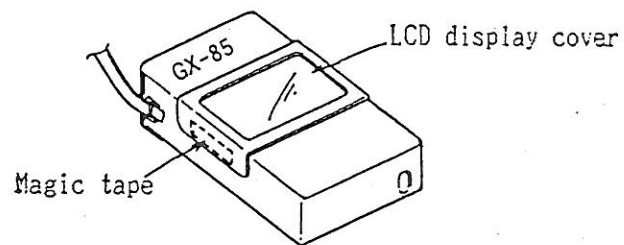
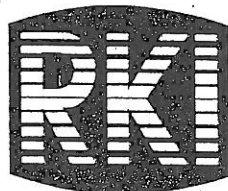


Fig 5-4



INSTRUMENTS

RKI INSTRUMENTS, INC. WARRANTY GAS DETECTION INSTRUMENTS

RKI Instruments, Inc. warrants gas alarm equipment sold by us to be free from defects in materials, workmanship, and performance for a period of one year from the date of shipment from RKI Instruments, Inc. Any parts found defective within that period will be repaired or replaced, at our option, free of charge. This warranty does not apply to those items which by their nature are subject to deterioration or consumption in normal service, and which must be cleaned, repaired or replaced on a routine basis. Examples of such items are:

- a) Absorbent cartridges
- b) Pump diaphragms and valves
- c) Fuses
- d) Batteries
- e) Filter elements

Warranty is voided by abuse including mechanical damage, alteration, rough handling, or repair procedures not in accordance with instruction manual. This warranty indicates the full extent of our liability, and we are not responsible for removal or replacement costs, local repair costs, transportation costs, or contingent expenses incurred without our prior approval.

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We do not assume indemnification for any accident or damage caused by the operation of this gas monitor and our warranty is limited to the replacement of parts or our complete goods.