

TESTING FOR GAS IN CABLE VAULTS

1.00 GENERAL

1.01 This section describes the use of the B Gas Indicator when testing for combustible gases in cable vaults (formerly called the Explosimeter Model 2).

1.02 Tests and maintenance procedures for the "B Gas Indicator" are included.

Caution: Be sure the B Gas Indicator is in working condition before using. (See Fig. 2.)

2.00 USE OF B GAS INDICATOR IN CABLE VAULTS

2.01 Tests for gas in cable vaults shall be made when vault is entered the first time in any one day. If any possibility of gas concentration exists (based on locations of gas mains, past experiences, etc.) the tests shall be made daily until the trouble is cleared.

2.02 In some buildings, two 1/4" tubes have been installed through the vault walls for use with B Gas Indicators. These tubes are terminated inside the vault so samples can be taken without entering. One tube is terminated near the ceiling of the vault, the other near the floor. A test for explosive gas should be made from each tube.

A. Calibrate and flush the B Gas Indicator as described in Paragraph 3.05 of this section.

B. Attach the upper intake tube which has been inserted through the vault wall to the indicator.

C. Draw atmosphere from the vault through the indicator compressing the aspirator bulb five times plus one squeeze for each five feet of intake tube. If the needle does not move beyond the graduated scale, keep aspirating until the highest reading is obtained. The needle will fluctuate slightly at each aspiration.

D. The movement of the needle should be observed carefully from the first squeeze of the bulb until the test is completed. If there is a high concentration of gas, the needle may move to the right side and return to some lower point on the scale.

E. IF THE METER READS ABOVE 10 ON THE SCALE, OR THE NEEDLE MOVES TO THE RIGHT-HAND SIDE AND THEN RETURNS TO NORMAL OR ANY OTHER POINT ON THE SCALE, CONSIDER THE ATMOSPHERE DANGEROUS. Operate the "On-Off" switch to "Off" immediately and report the condition to a supervisor.

F. If no gas condition is encountered on the first test, make a second test using the lower tube as outlined in A through E of Paragraph 2.02, this section.

G. After the tests, the meter should be turned off and if gas was detected during the test, the indicator should be purged with fresh air.

2.03 In buildings where testing tubes have not been placed, open the vault door, lay the free end of the hose on the floor and close the door as much as practicable without squeezing the tube. Test the vault atmosphere as described in Items A through E, Paragraph 2.02, this section.

B. If the bulb inflates in less than 10 seconds, there is a leak which should be corrected before the indicator is used. If the leak cannot be stopped by tightening the hose fittings or the filament unit, the instrument should be returned for repairs in accordance with local routine.

3.00 TESTS AND MAINTENANCE OF THE B GAS INDICATOR

3.04 Adjustment of Indicator To Zero (See Fig. 3.)

3.01 Aspirator Bulb Test (See Fig. 1)

- A. Lift the left end of the ON-OFF bar on the rheostat knob and turn the knob 1/4 turn in a clockwise direction.
- B. Flush the indicator with the sampling hose detached by squeezing the aspirator bulb four or five times.
- C. Adjust the rheostat knob until the needle comes to rest on zero.

- A. Remove the bulb and short hose from the indicator.
- B. Hold a finger tightly over the end of the hose and depress the bulb.
- C. When released, the bulb should not inflate in less than four to six seconds.
- D. If the bulb operates satisfactorily, reattach the short hose to the indicator.

3.05 Check Hose For Contamination (See Fig. 1)

3.02 Filter Test (See Fig. 2)

- A. Make the adjustments described in Paragraph 3.05, this section.
- B. Attach the sampling hose to the indicator and tighten the knurled nut by hand firmly.
- C. Draw fresh air through the indicator (about five squeezes of the bulb plus one for each five feet of sampling hose). The needle should rest on zero. If more than a slight fluctuation of the needle occurs, the inside of the hose may be contaminated with gas from a previous test.

- A. Remove the inlet fitting and examine the chamber to ensure that it contains a filter.
- B. Detach the sampling hose and depress the bulb.
- C. If the bulb does not inflate within five seconds, the filter may be clogged and should be replaced.

3.03 Test for Gas Tightness (See Fig. 2.)

D. The hose generally can be cleared by aspirating fresh air through it.

- A. Place one finger over the inlet fitting, squeeze the bulb and hold another finger over the outlet of the bulb. The bulb should remain deflated.

MAINTENANCE

3.07 Dry Batteries: Six KS-14711 dry batteries are located in the bottom of the case. To replace the batteries, loosen the two thumb screws in the bottom of the case and remove it. The batteries operate in parallel and should be installed with their tops toward the top of the battery compartment. The batteries should be replaced as a group. The position of the arrow on the rheostat gives an approximate indication of the condition of the batteries. With fresh batteries in the case and the circuit balanced, the arrow should point toward the outlet side of the indicator. The batteries are exhausted when the meter needle remains below zero and cannot be brought up to zero when the rheostat is turned to its extreme clockwise position (see Figure 3).

3.07 Detector Unit: If the meter needle moves to the extreme right side of the scale when the indicator is turned on and cannot be adjusted to zero, it indicates that the filament is burned out and should be replaced. To replace the filament unit, remove the top of the case, disconnect the green wires from the terminals at the base of the filament unit. Unscrew the unit counterclockwise. Screw the replacing unit tightly in the combustion chamber making sure that the gasket is clean and properly seated. Then replace the green wires and replace the top of the case. Space is provided in the case for a spare filament unit (see Fig. 4).

3.08 Ballast Lamp: This lamp must be firmly screwed in the socket and should have indefinite life. In case of breakage it should be replaced with a ballast lamp for B Gas Indicator (see Figure 4).

3.09 Filter Chamber: The filter chamber is located in the inlet fitting and is reached by unscrewing this fitting (see Fig. 3). The filter should be replaced if clogged or after four weeks of ordinary use.

CAUTION: IF USED TO TEST FOR GASOLINE VAPORS, SEE BSP SECTION G82. 649.1.

3.10 Meter: When the indicator is not in operation, the meter should rest on zero. If the mechanical adjustment of the needle has been disturbed, it should be reset with a small screwdriver (see Fig. 3).

3.11 Flashback Arresters: The flashback arresters are located in the inlet and outlet of the detector filament chamber. The inlet arrester is reached by removing the detector chamber and the baffle plate at the bottom of the detector chamber. The outlet flashback arrester is reached by removing the aspirator bulb coupling (see Fig. 2).

3.12 Flow Regulating Orifice: The orifice controlling the rate of flow through the indicator is located in the aspirator bulb coupling. It can be screwed out after the rubber tubing is removed. If it is clogged, it may be cleaned by pushing a fine wire through its opening.

3.13 The indicator should be returned every six months for inspection. At this time repairs, if needed, will be made. Indicators subsequently supplied will be equipped with a label showing the date they should be returned for test. B Gas Indicators will be returned for repairs or tests to Western Electric Company, 1717 Airport Way, Seattle 4, Washington as follows:

SECTION A299.530

A. Individual workmen or foreman shall upon receipt of a new or repaired B Gas Indicator immediately prepare and forward through regular channels Imprinted Supplies Requisition Form P-505 ordering a B Gas Indicator to replace the one just received. The P-505 (with the appropriate 564-C code) shall list only the B Gas Indicator.

B. The date to be entered in the "Ship to Arrive" space on the requisition to be six months from current date. When a new or repaired B Gas Indicator is received the above procedure is to be repeated.

C. The old B Gas Indicator to be returned to the Western Electric Company on Form A-109 on the 564-X Code.

3.14 Replacement Parts: The standard listings of replacement parts are given below:

<u>Part</u>	<u>Manufacturer's Catalog Number</u>
Arrester, Flashback	DN-15264
Battery, Dry KS-14711	
Bulb, Aspirator (including check valves)	DN-16839
Filter, Cotton (pk. of 6)	DN-16499
Hose, 15 Ft. (with couplings)	DN-11912
Lamp, Ballast	DN-15148
Tube Bulb, Aspirator	DN-14762
Unit, Filament	DN-11355
Word orders for replacement parts (except cotton filters) as follows: (Name of Part), for B Gas Indicator.	
Word orders for the filters as follows: PK Filter, cotton, for B Gas Indicator, pkg. of 6.	

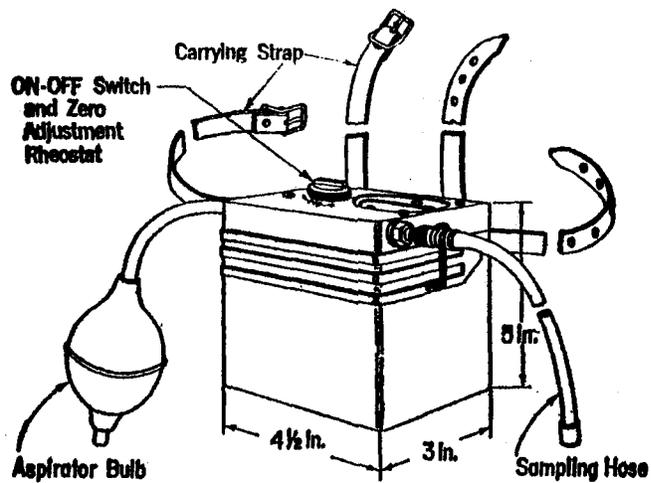


Fig. 1

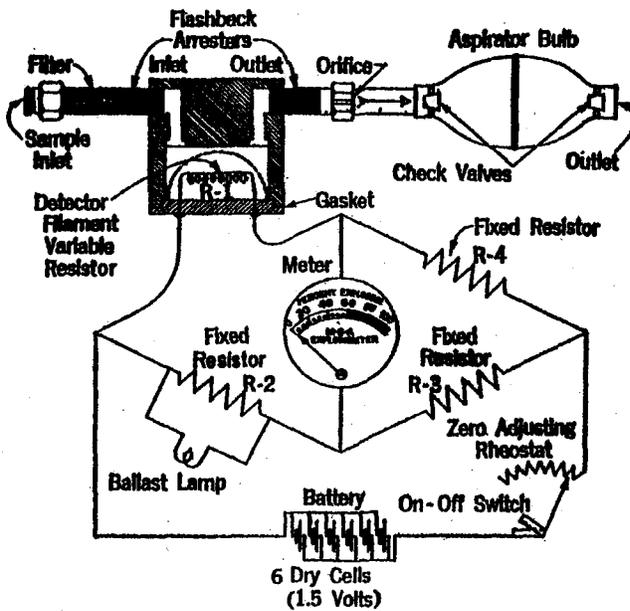


Fig. 2

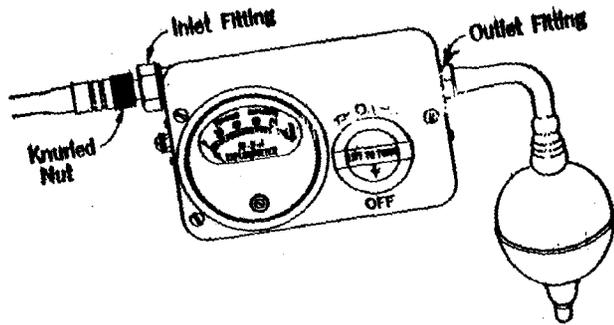


Fig. 3

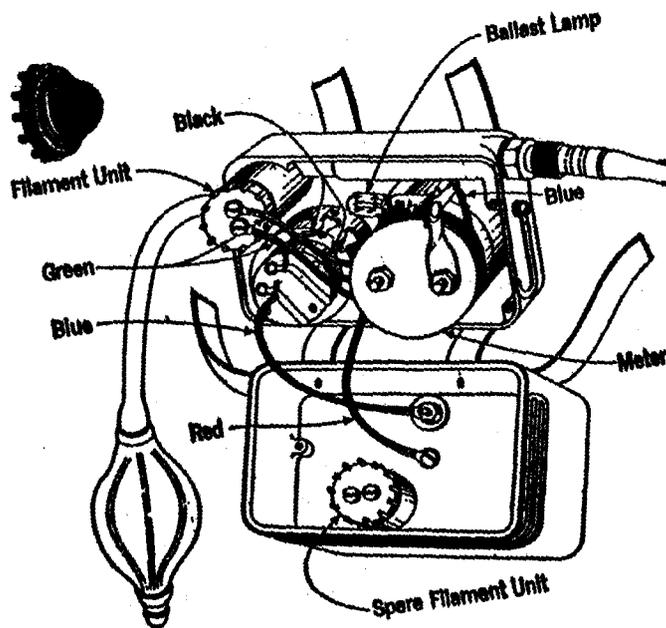


Fig. 4