

GOLDAK Underground Detection Equipment

MODEL 720/820-S VALVE LOCATORS

OPERATING MANUAL


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Locating Since 1933*



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PRODUCTS

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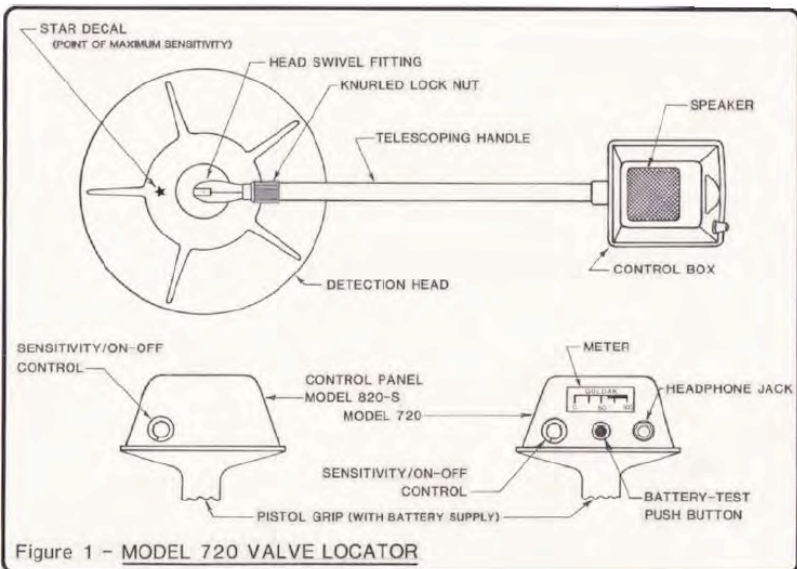


Model 720/820-S Valve Locators

A) General Description:

The Model 720 Valve Locator is a portable, solid-state, electronic detection instrument. It is used by municipalities, water and gas utilities, contractors, maintenance people, and others to locate valve caps, boxes, valve risers, manhole covers, etc. The major parts of the Model 720 are: **(see Figure 1)**

1. The Detection Head
2. The Head Swivel
3. The Telescoping Handle
4. The Control Box with:
 - a. Built-In Speaker
 - b. Indicating Meter, Signal Strength and Battery Condition
 - c. Sensitivity Control/On-Off Switch
 - d. Battery Test Push-Button
 - e. Headphone Jack
5. Pistol Grip
6. Battery Supply



The Model 820-S Valve Locator is a simplified version of the 720 with the same general detection capabilities. It uses a fixed-length (non-telescoping) handle and on the control box uses only a speaker and a sensitivity control. The 720/820-S **DETECTION HEAD** is a sealed metallic foils to either the top or bottom surface of the detection head. The star decal on the detection head is the center of sensitivity when sweeping an area to detect valve caps, etc.

The detection head **SWIVEL** and the **TELESCOPING HANDLE** (720 only) are mechanical fittings to enable the operator to place the instrument in a comfortable position for searching.

On the control box, the **SENSITIVITY, "ON-OFF" KNOB** is the key to the successful operation of the instrument. It is used to turn the instrument on, to control the sensitivity, and to compensate for uneven terrain, mineralized ground, etc.

The **SPEAKER** (720 only) produces a tone that enables the operator to pinpoint buried manhole covers, valve caps, etc. (The optional headphones on the 720 do the same thing.)

The **METER** on the 720 has several functions. It is an indicator to assist the operator in properly adjusting the instrument. It quickly "tells" the operator if a buried valve cap or other metallic object has been detected, and in conjunction with the **BATTERY TEST BUTTON** it shows the condition of the batteries.

The **HEADPHONE JACK** on the control panel of the 720 is used if headphone operation is preferred. When the phone plug is pushed into the jack, the speaker circuit is opened automatically which gives the operator a privacy feature. The instrument sensitivity and operating characteristic are the same in either case. The **PISTOL GRIP** is used, of course, to carry the locator. The **BATTERY SUPPLY** consists of two 9-volt batteries mounted inside

the pistol grip. They can be replaced by simply removing the single screw and the plate at the bottom of the pistol grip. Views of the control panels for the 720 and 820-S instrument are shown in **Figure (1)**.

B) Operating Procedures:

1. Mechanical Adjustment

- a) Loosen the knurled nut (720 only) on the telescoping handle and extend the detection head to a comfortable carrying position with the arm extended as shown in **Figure 2A**.
- b) Keep the extension arm vertical and set the detection head flat and as low to the ground or pavement as is practical for sweeping the area.

2. Electronic Adjustment

- a) First test the condition of the battery supply. Turn the unit "**ON**" by turning the **SENSITIVITY/ON-OFF** control knob clockwise until it clicks on. Now push the **BATTERY TEST PUSH-BUTTON** and observe the **METER**. A reading anywhere in the green shows that the battery supply is **OK**.
- b) With the unit "**ON**" and with the **DETECTION HEAD** away from any metal objects slowly turn the control clockwise. For the first one-quarter of a turn there will be no tone from the speaker and the meter will stay at zero. As the control is advanced a full tone or signal will be heard from the speaker. The meter needle will move quickly to the full-scale position as the speaker and meter always track together.

- c) To “tune” the instrument for maximum sensitivity, set the detection head flat and as low to the ground as is practical (see section B1-b on page 2).
- d) The correct operating point is with no tone (meter set at zero) but it must be at the edge of the signal. In other words, no sound, but any clockwise turn of the control will immediately bring in the signal.

It should be mentioned that if an attempt is made to locate a valve cap or some other buried metal object with the sensitivity Control too low or too far into the “dead” area, then the instrument will be very weak and insensitive. Of course, if the control is advanced too far during the initial tuning and a signal is constantly present, then there will be no change when the detection head is carried over a manhole cover, buffalo box or valve cap.

- e) **IMPORTANT:** Remember; tune (or adjust) the instrument with the detection head at the distance above the ground that it is to be carried. **Do not** hold it a foot or two above the ground while turning and then lower it to the operating position. This will reduce the sensitivity or cause false signals.
- f) Now sweep the area keeping the detection head flat and at a constant distance above the ground. (See **Figure 2A**)

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- g) Follow the same rules when attempting to spot an electrical outlet box or other metal objects behind walls: (See **Figure 2B**)
- 1) Set the detection head close to the wall and parallel to it.
 - 2) Find the “dead” area and very slowly turn the knob clockwise until the signal is just ready to appear.
 - 3) Now “sweep” the wall keeping the distance from it the same.

- h) To localize or pinpoint a valve cap or other object that has been detected and is producing a full signal, slowly decrease the sensitivity (turn control counter-clockwise) without moving or removing the detecting head. At some point the tone will disappear. Now turn it back up only enough to bring the signal back in. Slowly move the detection head away. The signal is weak now (because the sensitivity control is turned down) so very quickly as the head is moved away the signal will disappear. Eventually as the head is moved back and forth, while reducing the sensitivity control, a point will be reached where the signal “peaks” or is very narrow. This is the pinpointing operation and the metal object being detected will be directly under the star decal on the detection head.

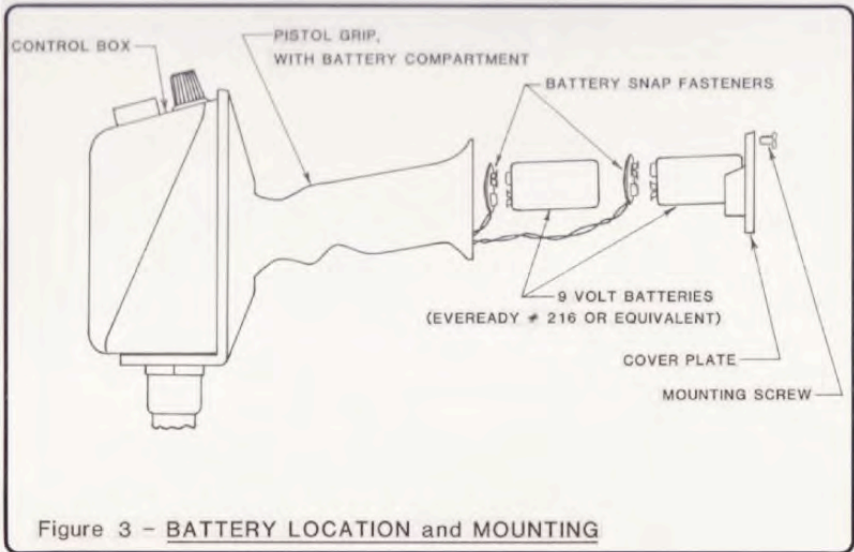
C) Notes and Suggestions:

1. Remember when initially tuning the instrument to try to find a spot that is relatively free of metal. If it is difficult to adjust and signals seem to be very strong, move away a few feet and try it again.
2. If the terrain is uneven and the detection head must be raised and lowered during the sweep operation be aware of the fact that false signals may occur. Particularly if the instrument is very sharply tuned. To solve this problem it is suggested that the detection head be raised to clear the terrain as the area is covered. This will result in a slight loss of sensitivity.

3. During the tuning procedure the operator is actually compensating for mineralization or conductivity of the earth at that particular point. Different areas have different amounts of mineralization and must be “tuned out” at each locating site. If this were not so, then the instruments could be tuned and locked at the factory. On some rare cases the conductive mineral content of the earth is so high that the sensitivity control must almost be turned off to find the dead spot for proper tuning. This, of course, will reduce sensitivity.
4. Check the battery supply frequently. The test can be done quickly and easily while the instrument is being used. Even though tuning is usually possible, low battery voltages will result in low sensitivity.

D) Maintenance:

1. Both the 720 and 820-S employ solid-state circuitry and they use no adjustable tuning coils so routine maintenance is limited to occasional battery replacement. Two transistor-type 9-Volt batteries are used and **Figure 3** shows where they are located and how they are mounted. Since the cost is very low it is our suggestion that both batteries be replaced at the same time. Remove the small screw holding the plate in place at the bottom of the pistol grip. Disconnect the snaps, discard the old batteries, install the new ones and reassemble.



E) Servicing:

Should the Model 720 or the Model 820-S Valve Locator require repair or servicing aside from normal product maintenance, we suggest that you contact the factory at the following address:

Goldak, Inc.
15835 Monte Street, Unit 104
Sylmar, CA 91342

Phone: 818-367-0149
Fax: 818-833-7694

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We will inform you of any local repair stations in your area or advise you to ship the instrument directly to the factory. If you ship the product, we suggest you:

- a) Pack the instrument carefully and secure.
- b) Include any accessory items normally used with the instrument.
- c) Include a note with the instrument stating the nature of the problem(s) you have encountered in using the instrument.
- d) Include a contact name, telephone number, and fax number.

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