

Inspection Procedure **GDF-02**

Gasoline Dispensing Facilities

BAG TEST FOR SINGLE-NOZZLE VACUUM ASSIST SYSTEMS

1. PURPOSE

- 1.1** Air ingestion caused by a leaking nozzle degrades vapor collection during vehicle refueling and increases pressure-related fugitive emissions by promoting gasoline evaporation in the vapor recovery system. This inspection procedure provides a method to determine if “bootless” Phase II vacuum assist vapor recovery nozzles allow air ingestion into the vapor recovery system. It can be used on dispensers that have one nozzle on each side.

2. PRINCIPLE

- 2.1** A plastic bag is placed over the nozzle, with the nozzle spout extending through a small hole in the sealed end of the bag. The bag is secured to the nozzle, both at the spout and at the base of the nozzle. After dispensing has started, the nozzle is latched in the high-clip mode and the bag is observed while the nozzle dispenses at least 2.5 gallons of fuel into a vehicle. If the bag shows a definite collapsing during the dispensing event, there is a leak in the nozzle, causing ingestion of air into the vapor recovery system.

3. INTERFERENCES

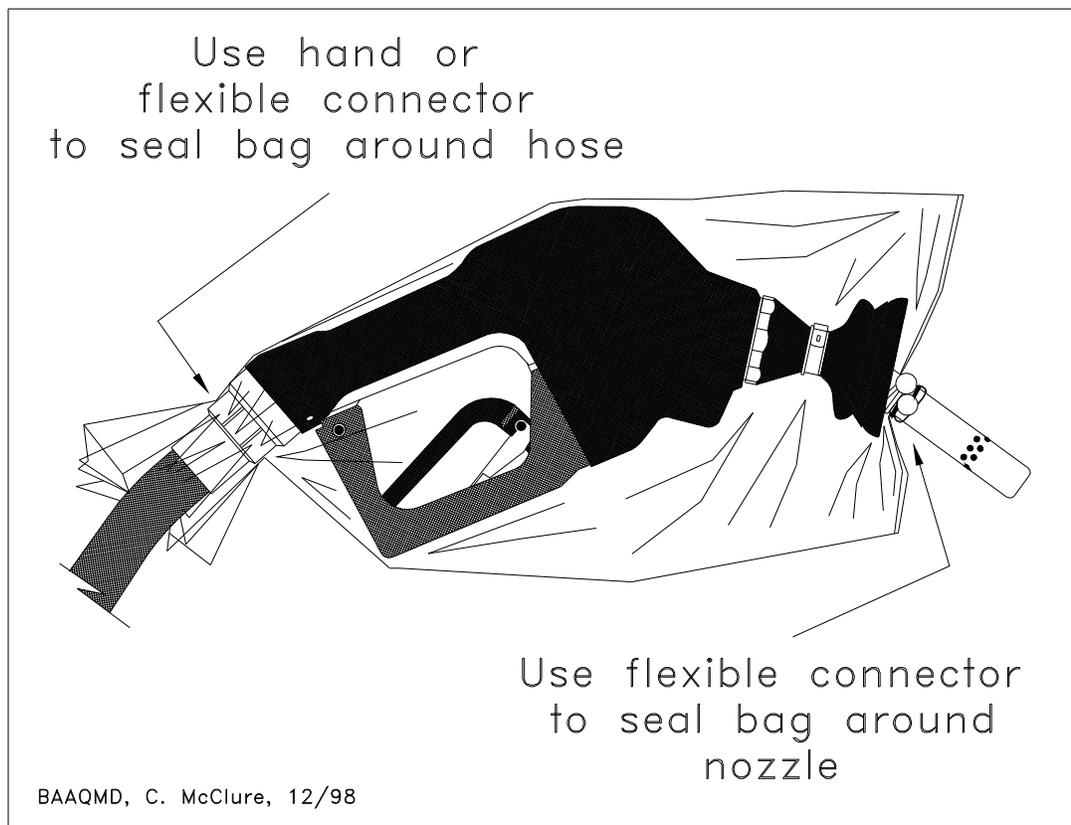
- 3.1** If the vapor recovery vacuum pump is not operational, this procedure will not detect a leaking nozzle.
- 3.2** If the vapor passage of the hose has a column of gasoline larger than the vacuum capabilities of the vacuum pump, a leaking nozzle may not be detected.

4. EQUIPMENT

- 4.1** **Bag.** Use a bag large enough to enclose the entire vapor recovery nozzle. Recommended sizes for a polyethylene bag are 10 to 12 inches in width and 18 to 20 inches in length. The bag should be at least 1.5 mils thick, but not greater than 4 mils thick. Bags that are too thin will tend to break while bags that are too thick may tend to mask a leak in the nozzle. A small hole, approximately 0.75 inches in diameter, must be cut into the sealed end of the bag. The nozzle spout will be inserted through this hole.
- 4.2** **Data Sheet.** Use a data sheet to keep track of which nozzles have been tested. This data sheet will help ensure and verify that all nozzles have been checked on a routine basis. Example of a data sheet is shown in Figure 3.
- 4.3** **Flexible Connector.** Use a flexible connector, such as a tie-wrap or twin bead hair fastener to secure the bag to the nozzle spout and, if desired, to the nozzle/hose connection. See Figure 2 for nozzle component identification.

- 4.4 Approved Gas Can.** Use an approved gas can to hold any gasoline that can be drained from the nozzle/hose assembly prior to connecting the bag.

FIGURE 1
Bag and Nozzle

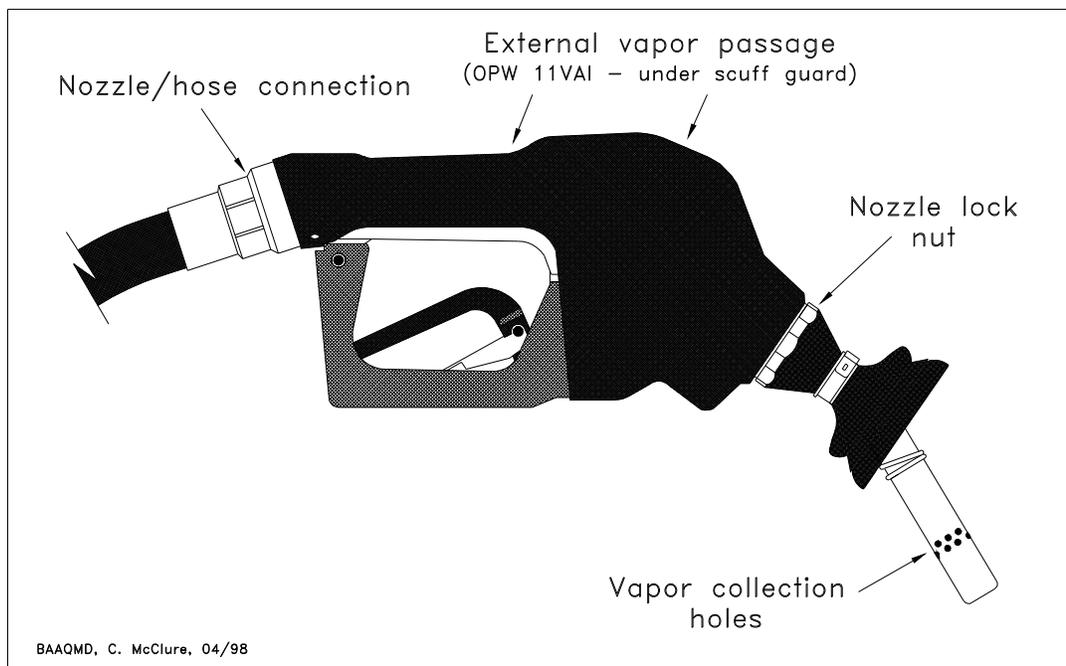


5. INSPECTION PROCEDURE

- 5.1** Remove the nozzle to be tested from the dispenser holster. Carefully drain any liquid retained from the nozzle/hose assembly into the approved gas can. Slip the bag over the nozzle, inserting the spout through the small hole in the end of the bag. Use a flexible connector to secure the bag to the nozzle spout, ensuring that at least three (3.0) inches of spout length is exposed. Insert the spout into the vehicle tank and begin dispensing. Ensure that some air is in the bag and use your hand, or a flexible connector, to provide a tight seal between the bag and the nozzle/hose connection. See Figure 1. Watch the bag for any signs of collapse. If the bag does not show a definite collapse due to air being removed after 2.5 gallons, the nozzle is probably vapor tight and the test is over.
- 5.2** If the bag collapses, it verifies that there is air leaking into the nozzle and the nozzle must be repaired or replaced.

- 5.3** Record the presence or absence of leaks on the data sheet. Retain this data sheet as a record of which nozzles have been tested for leaks, corrective actions taken and re-tests performed.
- 5.4** Replace the nozzle component that caused the leak, or replace the nozzle. After replacing defective components or the nozzle, retest the new or repaired nozzle as outlined in this procedure.

FIGURE 2
Typical Nozzle Components



6. RECORDING DATA

- 6.1** Results of the bag test should be tabulated on a data sheet to provide a record of nozzles checked and a reminder to take corrective action to fix leaks found.
- 6.2** Routine bag testing will help minimize the emissions of gasoline vapors and reduce evaporation of liquid gasoline.

This Inspection Procedure developed by the Source Test Section of the
Bay Area Air Quality Management District

