| Technical Service Bulletin | GROUP<br>FUEL SYSTEM | NUMBER<br>24-FL-001G |
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| | DATE<br>FEBRUARY 2024 | MODEL(S)<br>MULTIPLE MODELS |

**SUBJECT:** TESTING FUEL QUALITY TO DIAGNOSE ENGINE STARTABILITY / HESITATION / DRIVEABILITY ISSUES

**Description:** This bulletin outlines the basic components of the BG Fuel Test Kit and the procedure to test the quality of the fuel during vehicle diagnosis.

Poor fuel quality may lead to cold engine startability issues, hesitation at idle or during acceleration, and/or poor driveability. In addition, prolonged vehicle operation with poor quality fuel may result in damage to the fuel system and formation of engine deposits.

The BG Fuel Test Kit can be used to determine the following aspects of the fuel:

- Sediment / Water Contamination Inspection
- Specific Gravity
- Alcohol Content

**Applicable Vehicles:** All models equipped with gasoline engines.

**SST Information:**

| Tool Name | Tool # | Figure | Remarks |
|---|---|---|---|
| BG Fuel Test Kit | J-48983 |  | BG Fuel Test Kit (P/N J-48983) is the approved fuel quality testing tool to be used during vehicle diagnosis.<br>SST ordering information:<br>Bosch Automotive Service Solutions<br>Phone: 1.866.539.4248<br>Inquiries: km@service-solutions.com |

**NOTE:** Kit contains the following components.

- TWO (2) Hydrometers (gasoline / diesel*)
  - **Do not use the diesel* hydrometer with specific gravity range from 0.800 to 0.900.**
  - **Use only the gasoline hydrometer with specific gravity range from 0.700 to 0.800** for the correct measurement of the fuel to be tested.
- Graduated cylinder (100ml)
- Graduated cylinder (alcohol test)
- Graduated cylinder small stopper
- Graduated cylinder holding fixtures
- Specific gravity vs. temperature reference chart


Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

**Warranty Information:**

- When necessary, the use of the BG Fuel Test Kit may be a part of the normal diagnostic troubleshooting process that may be covered under warranty.
- However, if the root cause of the vehicle condition is due to poor fuel quality, then some or all of the parts and labor expenses may be subject to Customer Pay.

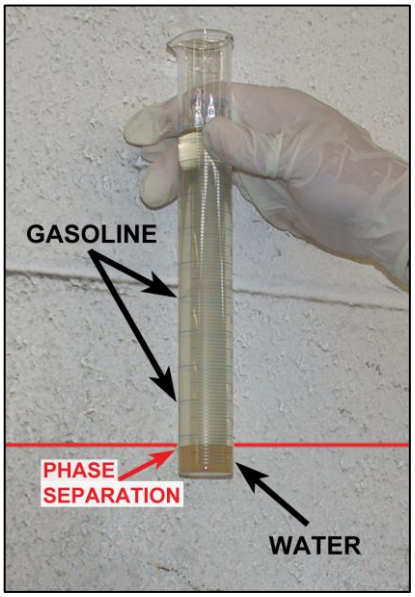
**Service Procedure:**

1. Prepare the tall graduated cylinder attached to the fixture base.
   - ❖ **Be sure that the inside of the cylinder is clean and free of contaminants.**

2. Obtain sample fuel from the incident vehicle and fill the graduated cylinder to the 100ml mark.
   - ❖ **There are several different methods available to gather a small quantity of fuel for testing.**
   - ❖ **Follow the applicable Shop Manual procedures and all precautions (fuel is flammable) as required to perform any ONE of the following methods, as feasible.**

     - ➢ Low Pressure Front Fuel Line Method: Refer to Shop Manual section (Fuel Delivery System > Fuel Line > Low Pressure Fuel Line). Follow the published procedure to temporarily disconnect the quick-connector to capture the sample fuel.

     - ➢ Under Vehicle Method: Lift the vehicle and disconnect the large fuel hose of the fuel filler neck from the fuel tank inlet. Using a long socket extension, lightly push open the inlet check valve at the inlet of the tank and capture the sample fuel.



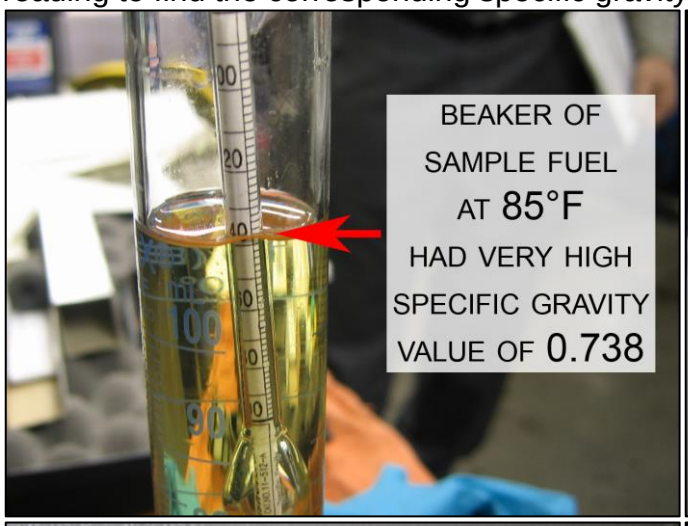

3. Visually inspect the collected fuel sample for presence of sediment, debris, or water contamination. (Example shown at right. Replace fuel if contamination is found.)

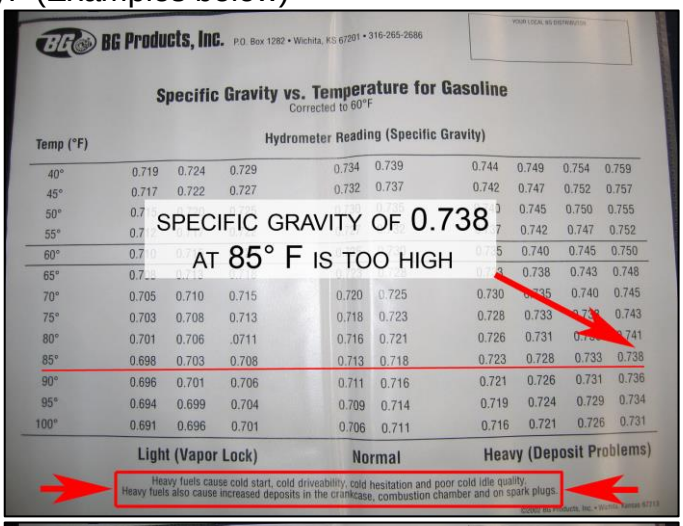
4. Insert the thermometer into the graduated cylinder and attach the clip to the top rim.

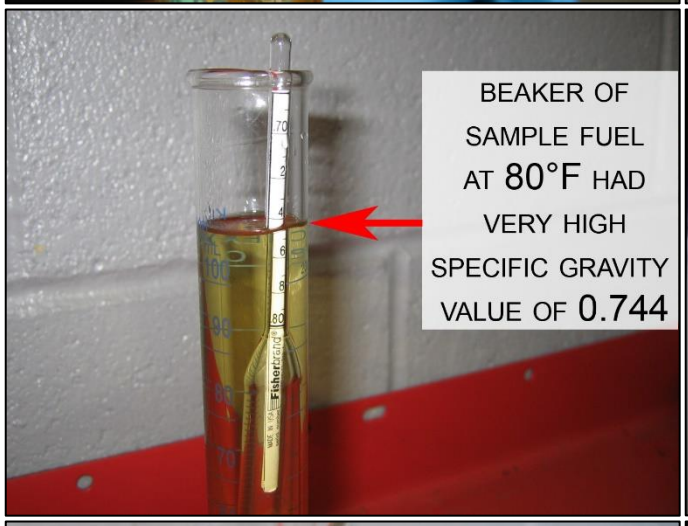
5. Wait a few minutes to allow for the temperature to stabilize, then record the measured temperature of the gasoline sample. Remove the thermometer afterwards.

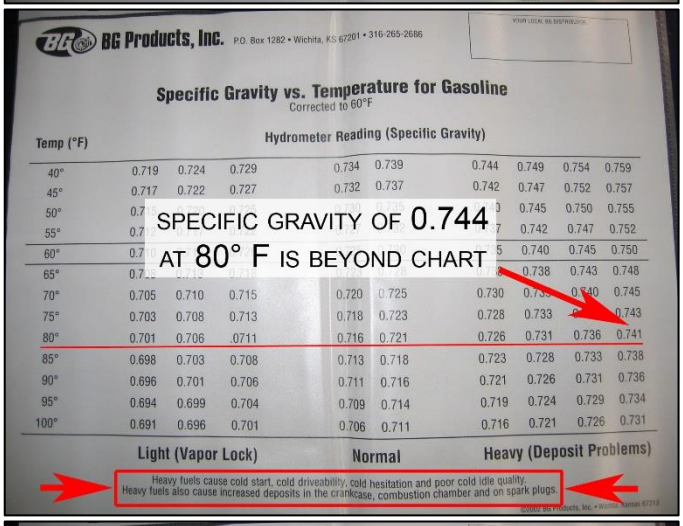
6. Insert the gasoline hydrometer with specific gravity range from 0.700 to 0.800 into the graduated cylinder and wait until it stabilizes while floating in the fuel. **Read the number at the liquid line on the side of the hydrometer for the specific gravity measurement.**

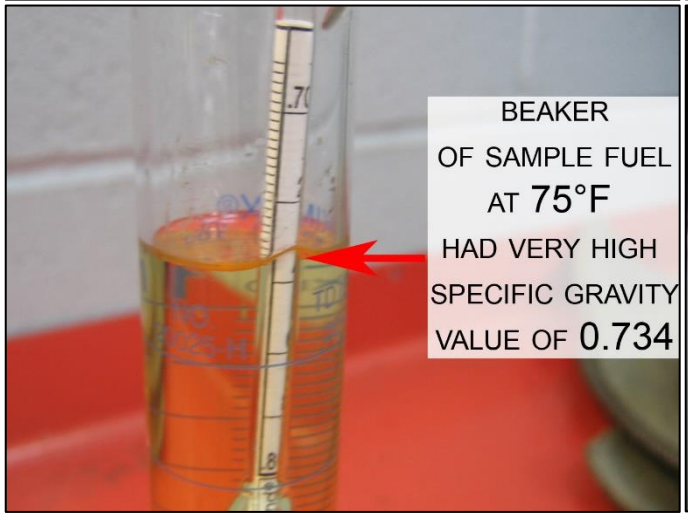
7. Refer to the supplied reference chart to look up the measured temperature and the hydrometer reading to find the corresponding specific gravity. (Examples below)

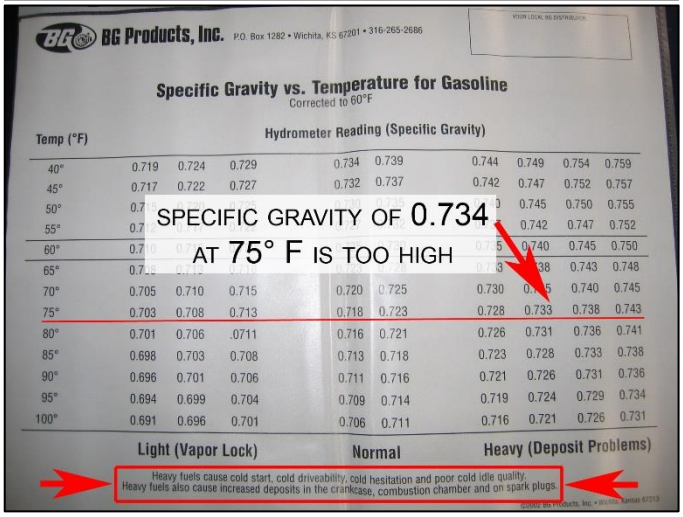



**NOTE:** The fuel tanks of vehicles having contaminated fuel or fuel outside the NORMAL specific gravity range should be drained and refilled.

8. Prepare the small graduated cylinder for fuel alcohol content testing.
   - ❖ **Be sure that the inside of the cylinder is clean and free of contaminants.**

9. With the stopper cap removed, add clean water up to the (A) water fill line.

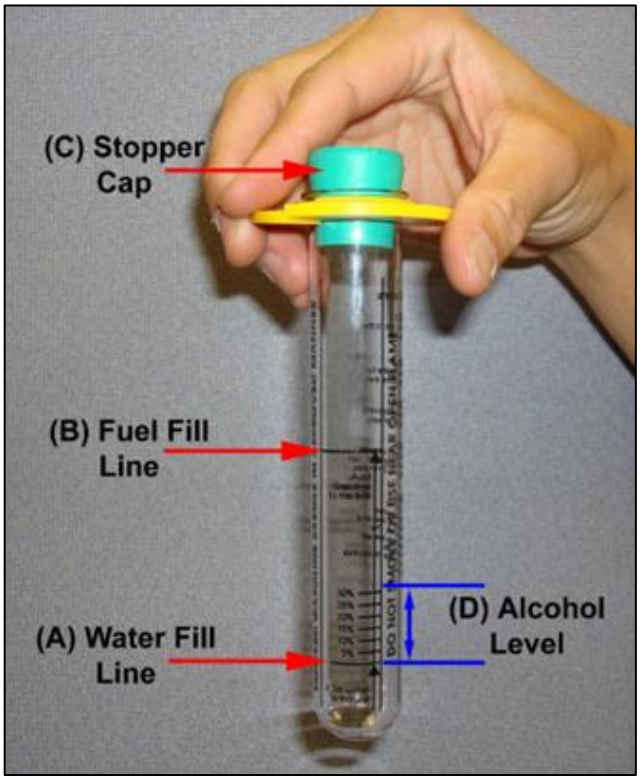
10. Add fuel from the tall graduated cylinder to the (B) fuel fill line.

11. Insert the stopper cap at the top to seal it and vigorously shake the contents for at least 10 seconds or more.

12. Let the mixture settle for approximately 5~10 minutes.
    - ❖ **At this point, any alcohol of the sample will combine with water and begin to separate from the fuel.**

13. Read the line where it separates and find the corresponding (D) alcohol % level of the fuel sample.

    **NOTE:** High alcohol content in the fuel can cause lean codes and other engine startability and driveability conditions.




14. After completing the fuel tests, prepare the Fuel Test Kit for storage.
    - Rinse all pieces with window cleaner and water, then towel dry thoroughly.
    - Store the reference chart behind the protection foam.
    - Arrange all the components so that they are protected by the clamshell storage case.