The Future of Avgas (Aviation Gasoline) discussion summary:

(This discussion is based on the current technology level and subject to further verification; final unleaded avgas for implementation may have further improvements)

A. Background:

1. In physical year 2014 and again in 2015, congress approved annual funding for FAA to support the removal of lead from avgas through 2018. The 100LL avgas is the only gasoline that has lead in it. FAA and Industry, under the Piston Aviation Fuel Initiative, (PAFI), are working together to solve lead pollution in anticipation of an endangerment finding from the EPA. The goal is to identify, evaluate, and deploy the most promising unleaded replacements for 100LL.

2. 17 fuel formulas from 6 offerors were submitted into the program in July, 2014, The FAA selected 4 fuels from 3 offerors to enter Phase 1 in September, 2014. Phase 2 will begin in January, 2016.
   Phase 1 – Lab & Rig Tests, Emissions and Toxicology Assessments.
   Phase 2 - Full Scale Engine and Aircraft testing.

3. FAA is not “picking” a fuel but rather “qualifying” the best fuels for use.

B. Q and A

4. The unleaded gas will be as much as 10% to 12% heavier per gallon than 100LL. Avgas sale is based on volume in the airport; therefore, the weight from fuel will be heavier for the same volume. However, the performance of the unleaded gas is within 2% when compared to 100LL gasoline.
5. There is no certificate issued to any company. Once an unleaded avgas is qualified, the data from the Piston Aviation Fuel Initiative (PAFI) will be used so that the offeror can get the production specification from the ASTM and the FAA can authorize the use of the unleaded fuels into the fleet.

6. Keeping the unleaded avgas the same cost as the 100LL is a goal for all.

7. The ideal outcome is that no additional hardware requirement is needed.

8. Threshold maybe required between 100LL and unleaded avgas refill. There is no test data to show performance for mixed unleaded avgas, comingling at this time. Testing is currently ongoing for the unleaded fuel to 100LL. Therefore, from regulatory point of view, both airport storage tank and aircraft fuel tank, before switch from one kind of fuel to the other, a certain percentage threshold requirement may be established. For example: The airport storage tank fuel needs to be dispensed to a certain level before adding new kind of fuel, the same way for the aircraft fuel tank. For international travel, USA and Canada will try to implement the unleaded avgas the same time. The amount of fuel mixing has yet to be determined. This will be looked at during the deployment.

9. The fuel under testing, some are clear, some are amber. The color of the final fuel has not been determined.

10. No unleaded avgas shelf life is mentioned from researchers yet.