

CRC E-91: Evaporative Emissions Durability

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E91:Evap Durability on Mid-level Ethanol

- **Test Vehicle Pairs:**



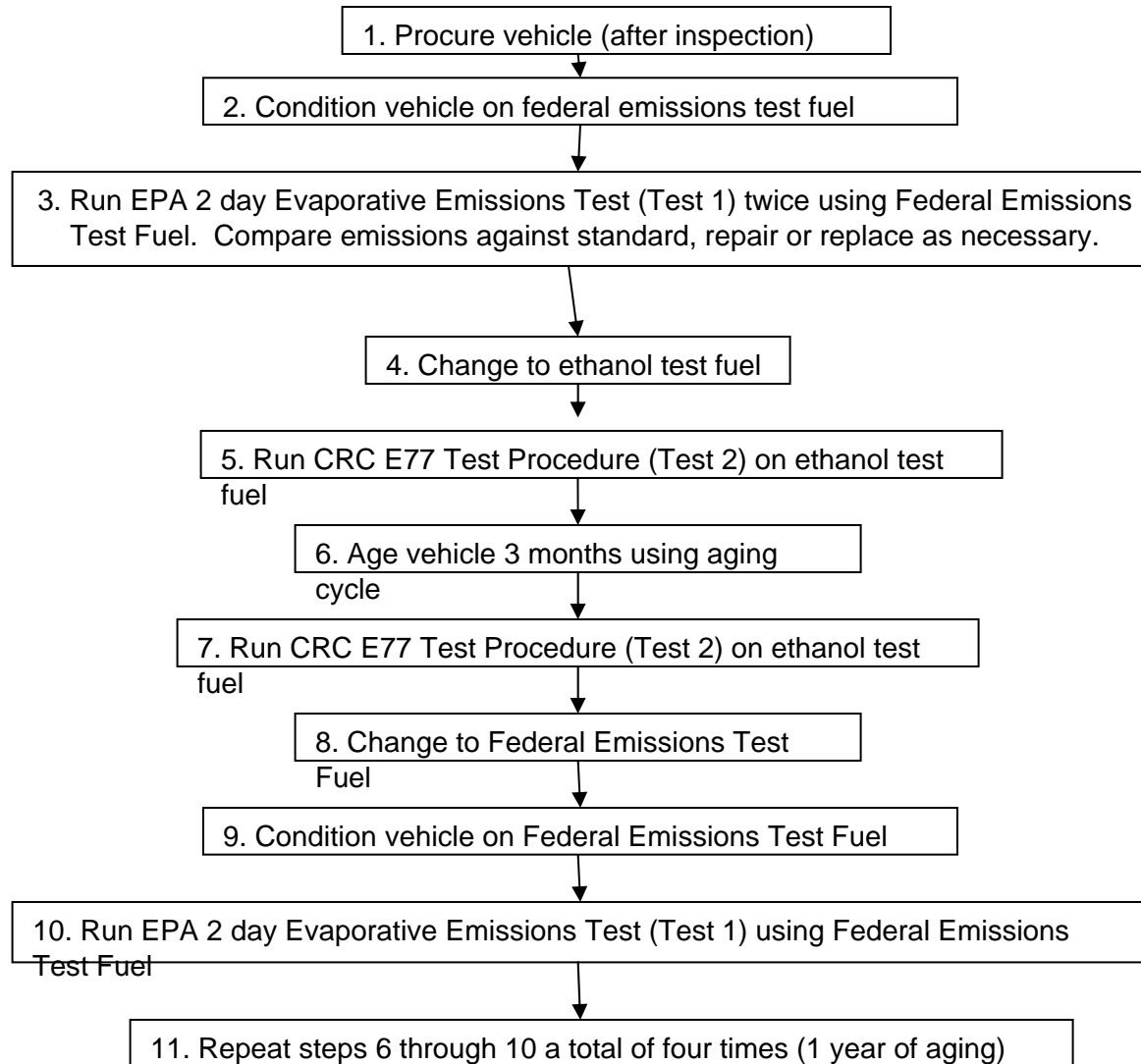
- 2003 Buick Lesabre
- 2004 Dodge Neon
- 2004 Chrysler PT Cruiser
- 2002 VW Jetta
- 2008 Ford Taurus
- 2010 Toyota Prius
- 2009 Toyota Corolla
- 2008 Honda CRV
- 2008 Nissan Pathfinder
- 2004 Pontiac GrandAm

- Evaporative emissions durability is extremely important to the evaporative emissions inventory and real world air quality.
 - Evap durability cannot be accelerated; it takes time and miles
 - Real world exposure is necessary: rain, heat, cold, snow, sun, clouds.
- Determine the effects on evaporative emissions using production vehicles with fuel that contains higher levels of Ethanol.
- The results may also be used to obtain model inputs, predict the effect of ethanol on in-use emissions, and estimate real world air quality.

Procedure

- Each vehicle is driven twice a day, for approx 25 miles on the EPA Standard Road Cycle (SRC) with at least 12 hours between drives.
- The vehicles are driven 180 cycles in approx 90 days.
- Testing
 - CRC E77 evap testing procedure
 - 2 day diurnal on the aging fuel (E0 car gets E0, E20 car gets E20).
 - Modified 2 day Evap test with E0 is performed on both vehicles in the pair.

Figure 1. Vehicle Test Sequence



June 2011 Progress

- Nearly all the vehicles are finished with 3 of 5 testing cycles
 - Most vehicles will complete their current aging interval by Mid-August 2011
 - Most vehicles will complete the program by the end of 2011.
- Vehicle repairs have slowed down the aging processes, the last vehicle will finish with the program in April 2012.
 - Canisters on one vehicle pair were replaced and then completely restarted from 0 mile baseline, so they lag by one whole aging cycle.

Analysis

- We are beginning to see trends on both E20 and E0 vehicles.
 - These trends will be analyzed using a statistical approach at the completion of the study.
 - Certain vehicle repairs that have the potential to affect the results of the study (e.g. canister, windshield and tire replacement) will also need to be considered with the results.