

Maintaining your Diesel for Biodiesel

SEI Biodiesel workshop

June 29, 2005

Boulder, Co.

Fuel System

- Material compatibility!
- From the fuel sending unit in tank to injectors
 - primary & secondary fuel filters
 - Fuel lines (sending & return)
 - o-rings
 - transfer & injection pumps

Lubrication System

- Change oil regularly
- Use OEM recommended engine oil
- API, CI rating
- Oil analysis

Air Filtration

- Air filter
- Mass Air Flow (MAF) sensor
- TDI EGR/ Intake design
- Diesels thrive on air, lots of it, any air restriction will cause performance problems

Starting & Charging System

- Properly charged battery
- Operating Starter or Alternator
- Bad glow plugs = hard starting

Vacuum System

- Inoperative vacuum system can affect:
Brakes, Fuel shutoff, & transmissions

Cooling System

- Cooling system helps your engine warm up & cool down
- Operating at optimum temperature helps fuel economy & engine life

Exhaust & Emissions Controls

- EGR- exhaust gas recirculation
- Catalytic converters
- Particulate filters
- Stricter emission regulations are coming in 2007 & 2010

Smokin'

- Black smoke: injectors, air inlet restriction, engine timing, internal engine timing, injection pump failure
- **Blue smoke:** insufficient fuel, contaminated fuel, High or low oil consumption, air in the fuel
- White smoke: bad glow plugs, plugged return fuel line, insufficient fuel supply, low compression, air in fuel, injector or pump problem, engine timing
- White smoke can be normal in cold weather before engine warms

Miscellaneous

- NO_x

NREL's "NO_x solutions for Biodiesel"

- Cold weather Operation
- Educate your mechanic
- Lubricity
- Bosch & Standadyne & FIE/OEM statement