Heating with Vegetable Oil

Using Standard Beckett Oil Burners to Run B100 or Straight Vegetable Oil
Overview

- B100
- Vegetable Oil
  - Siphon theory
  - Modifying a burner
  - Troubleshooting Tips
  - Maintenance
  - Safety
B100

- **Advantages**
  1. No modifications to furnace
  2. Usable in vehicles as well as heating

- **Disadvantages**
  1. Constantly making more batches
  2. Potentially dangerous chemicals
B100 - Considerations

- Filtering fuel lines
  - “Varnish” in tank will loosen and clog filters

- Washing
  - Can possibly remove excess Methanol
    - Most harmful compound in biodiesel
    - Clean fuel = less soaps to clog up nozzle
Pre-filters
Gunk
Vegetable Oil

- **Siphon** – uses Venturi Effect
  - Clog less
  - Simpler to manage (clean, maintain, fix …)

- **Pressure** – similar to current oil systems
  - No compressed air needed
  - Less conversion
  - Clogging frequency issues
Pre-Filtering

- 5 Micron Recommended
  - “Better fuel results in better burn”
Siphon Diagram - Venturi Principle

Thermostat

Digital Controller
  “Brain”

Air

Solenoid

Float Tank

Heating Element
Basic Layout
Siphon Systems

- Components
  - Constant Level Reservoir
  - Pre-Heated oil
  - Compressed Air Delivery
  - “Siphon” nozzle
  - Turbine Style Retention Head
Float Tank

Maintains fuel level below nozzle center line
Safety

- **Primary Safety Control**
  - Cuts power blower, ignition, air solenoid when no flame detected

- **Blower Cut-Off switch**
  - Cuts power to system when temperature reaches to high
    - Indicates blower stopped and heat will not dissipating
Troubleshooting

- Fuel
- Atomization Air
- Ignition
- Electronics
- Blast Tube
- Blower Motor
Maintenance

- Fuel quality/ Filters
- Nozzle
- Retention Head
- Electrode wear
- Air compressor oil level
- Water in air line/ compressor
- Ash in heat exchanger
More Information

- www.ckburners.com
  - Craig Kepner – proprietor
- pschmidt@champlainbiofuel.com
- Yahoo List Serve – AltFuelFurnace
- www.mcmaster.com
- www.patriot-supply.com

Questions?