

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

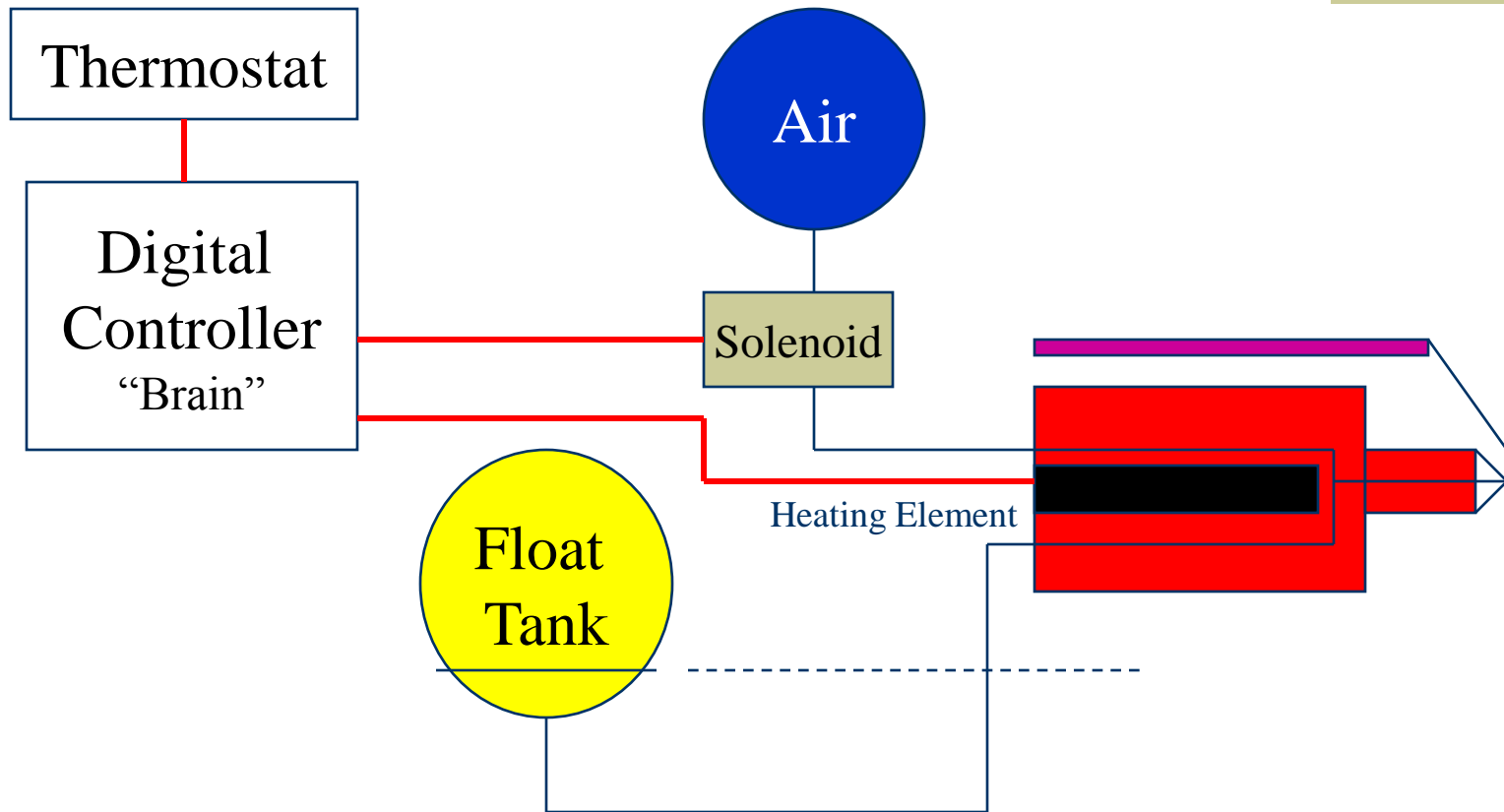
- ◆ **Siphon** – uses Venturi Effect
 - Clog less
 - Simpler to manage (clean, maintain, fix ...)
- ◆ **Pressure** – similar to current oil systems
 - No compressed air needed
 - Less conversion
 - Clogging frequency issues

Pre-Filtering

- ◆ 5 Micron Recommended
 - “Better fuel results in better burn”



Siphon Diagram - Venturi Principle



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?

OOPS!

