

# Butane Fuel -- What's in the tank

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# Objectives

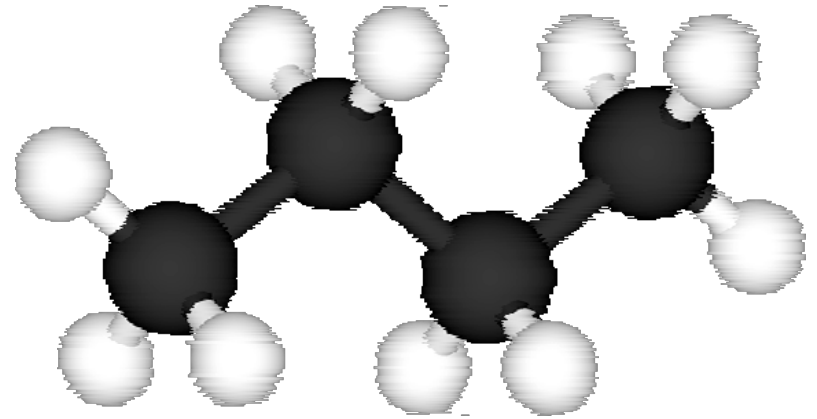
- What fuel do we actually use?
- Poker burners
- Gas jets
- Fuel tank construction
- Gas valves

# Butane???



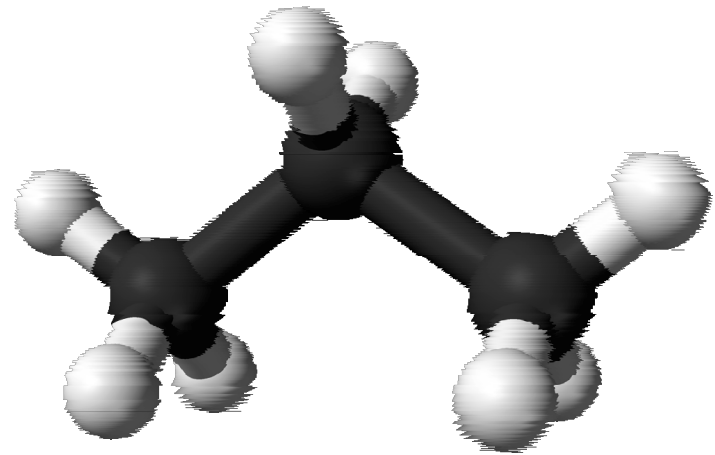
# What is “Butane”

- $C_4H_{10}$
- Melting -215F
- Boiling 32F
- Vapor Pressure 25 PSI @ 50F



# Is it Propane???

- $C_3H_8$
- Melting  $-306F$
- Boiling  $-44F$
- Vapor Pressure 125 PSI @ 70F



# It's a mixture



70% Butane  
30% Propane

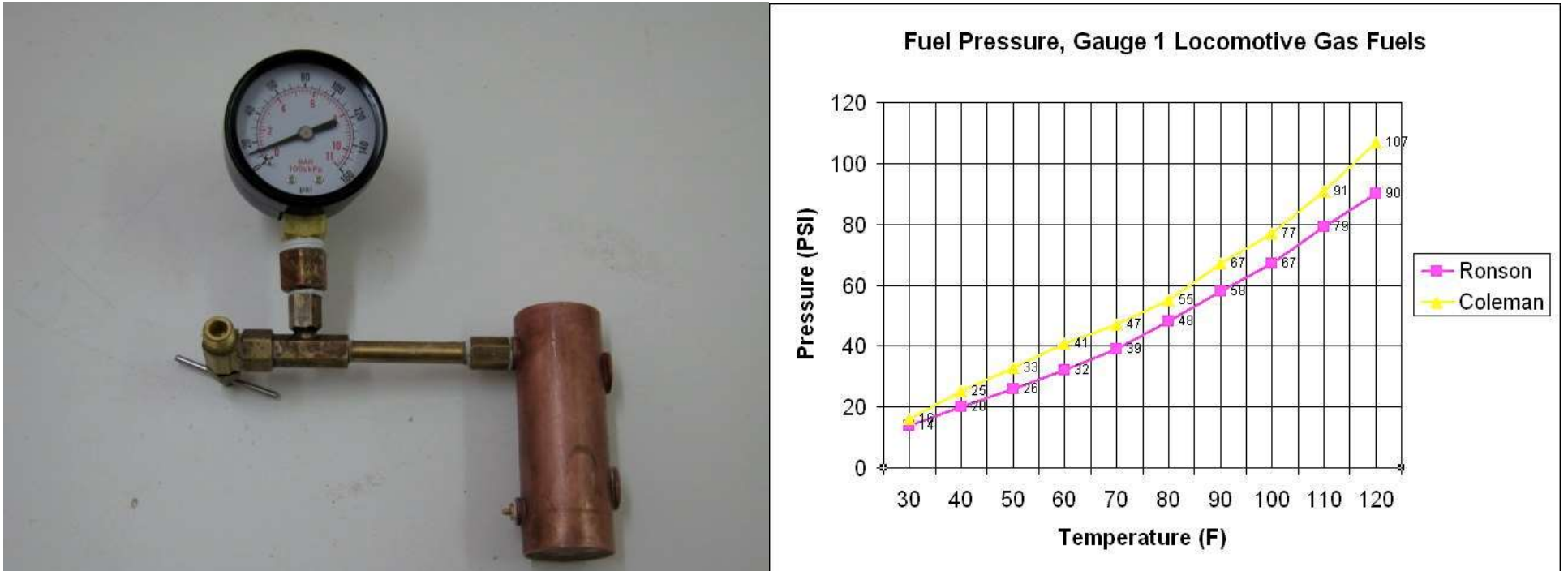


Unknown  
mixture



80% Butane  
20% Propane

# Experiment

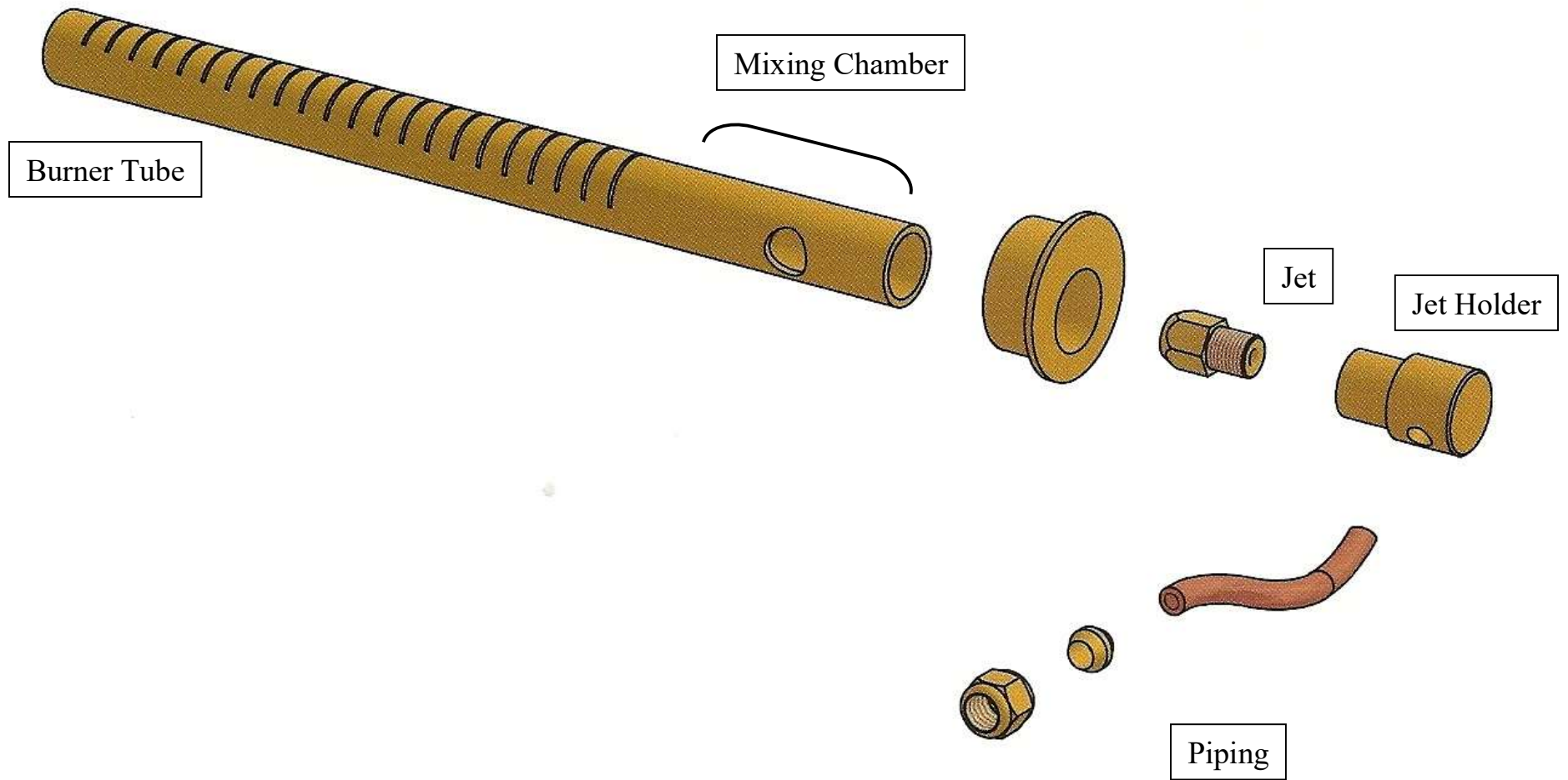


Coleman & Ronson fuels consistent with 70/30 & 80/20 mixes\*\*

**Conclusion: Most are 70/30 mix**

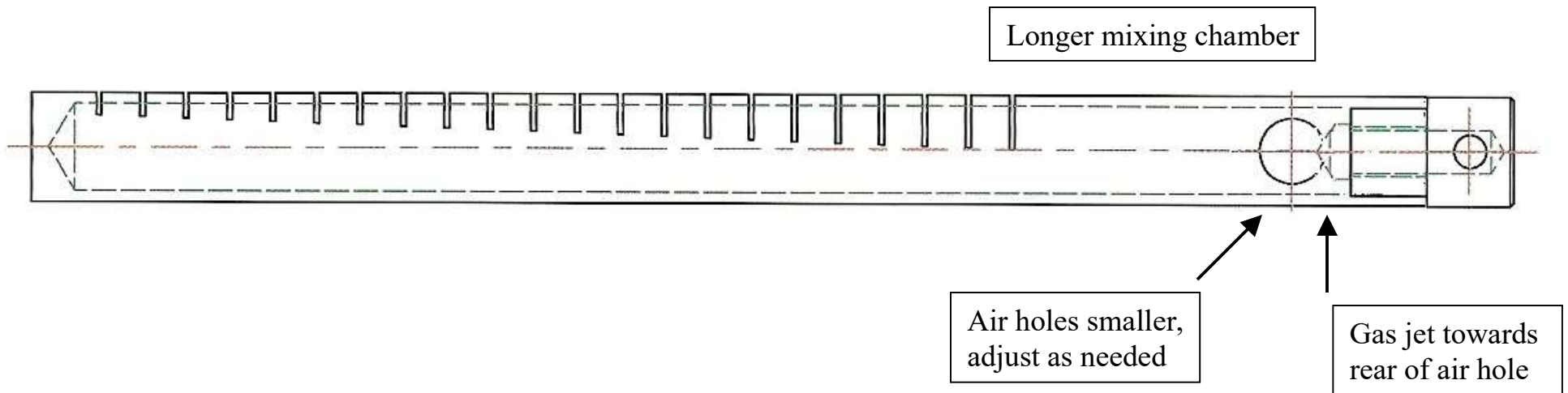
\*\*[http://www.engineeringtoolbox.com/propane-butane-mix-d\\_1043.html](http://www.engineeringtoolbox.com/propane-butane-mix-d_1043.html)

# Poker Burners





# General Observations



- Too little air: Difficult to light
- Too much air: Loud whistle
- Air just right: Lights quickly down the stack
- Air tight collar around flue opening
- Add a choke

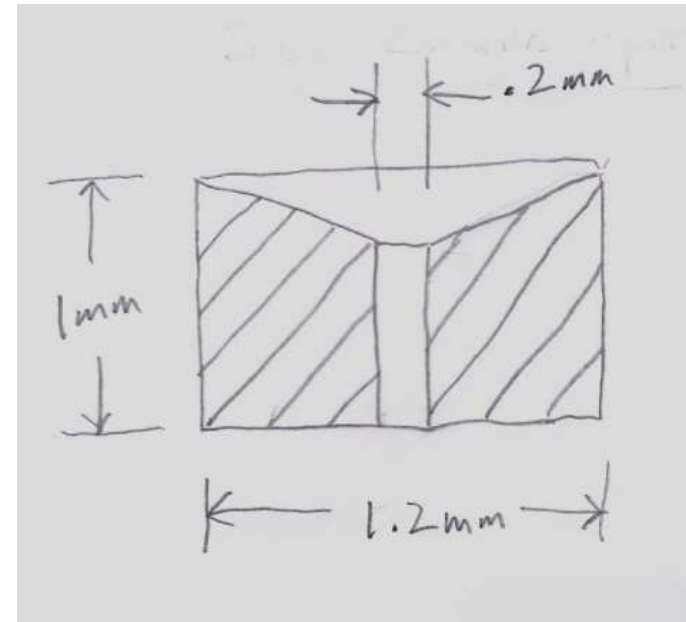
# Gas Jets

## Making your own



2 x 56 Brass  
hex bolt

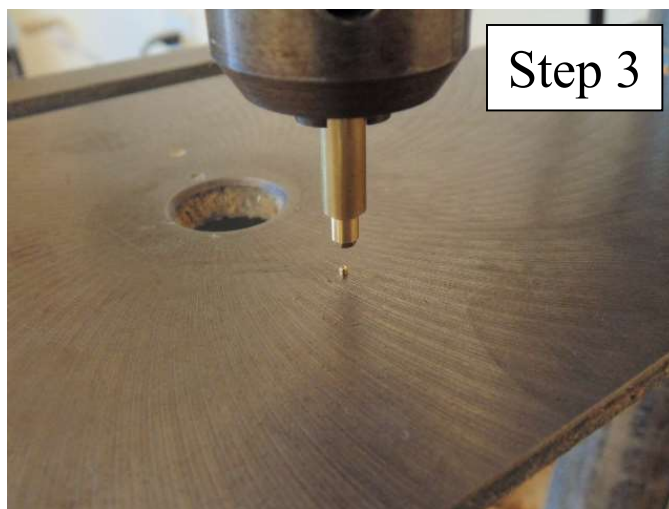
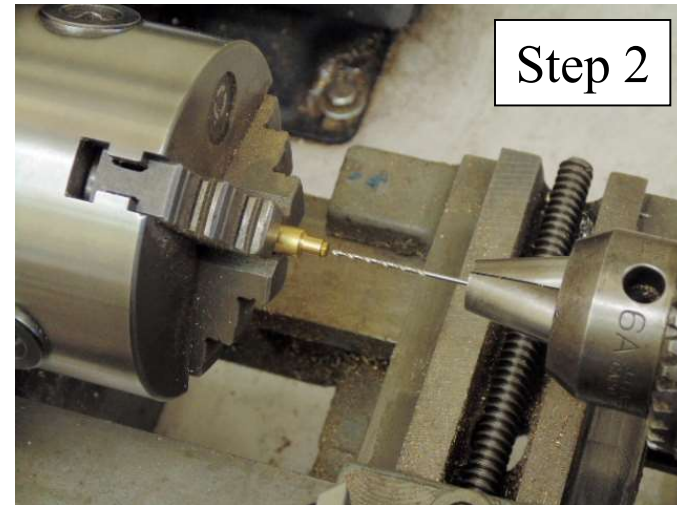
Wrist watch  
bearing



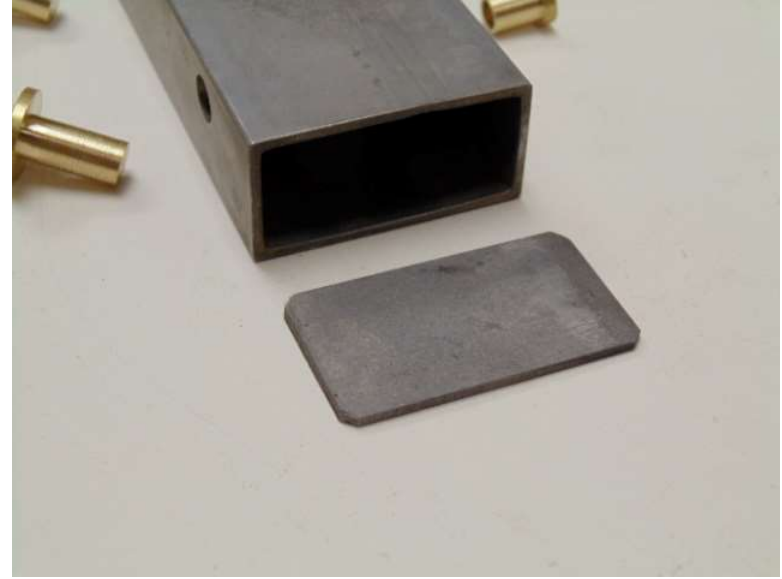
1.2 mm = #56 drill

# Gas Jets

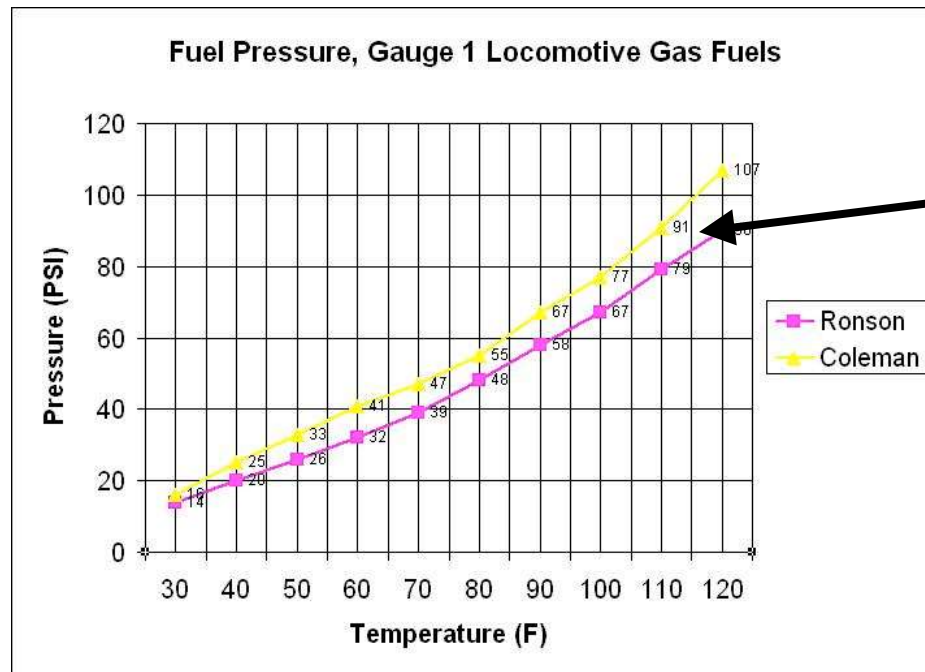
## Making your own



# Fuel Tank Fabrication



# Fuel Tank Testing



70/30 vapor pressure  
91 PSI at 110 F

2x pressure test



# Fuel Valves



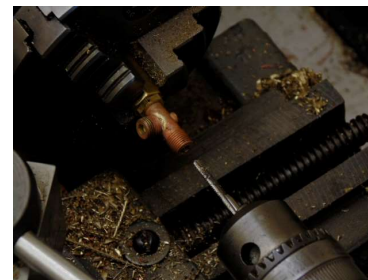
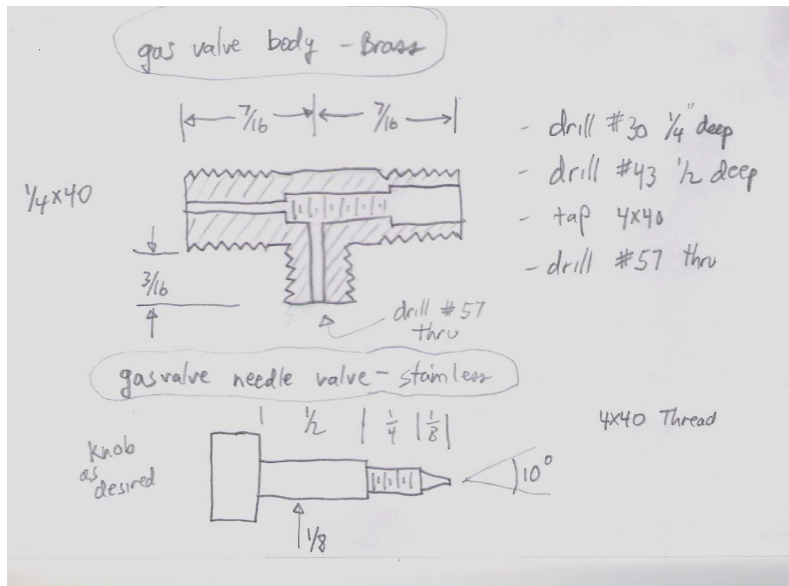
Inlet Valve



Outlet Valve



# Fabricated Outlet Valve



Questions -- ??