

# Team Meeting 2/26/20 - 1.5 Wks to CDR: Mar 6

## Meeting Agenda

- Timeline for build & test / Spring quarter
  - Igniter systems
- Deliverables for Friday & Monday
  - PDR feedback
  - Refinements & modifications

## Timeline

- Work from test schedule - what dependencies must be fulfilled for each test?

Sun	Mon	Tue	Wed	Thu	Fri	Sat
2/23	PDR		TODAY		Chamber O-ring swap	
3/1	Bolt notch machining?		Feed Sys Assembly updated		CDR?	
3/8	CDR?	Order all parts for igniter test	Start Ox cleaning parts from lab			
3/15	Winter Finals - continue Ox cleaning parts from lab, notched bolt pull testing					
3/22	Spring Break					
3/29	Machine igniter body, build test stand					
4/5	Assemble igniter feed system & test config					
4/12						
4/19	Receive machined graphite nozzles					
4/26						
5/3						

5/10		
5/17		
5/24		
5/31		
6/7	Spring Finals	

- Igniter Testing
  - ~2 weeks for machining
    - Test stand
    - Igniter body
  - ~2 weeks for electronics & controls
    - Simultaneous with machining
  - ~3-4 weeks for purchased parts
    - Metering valves
    - Solenoid valves?
  - ~2 weeks for ox cleaning lab hardware
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## Deliverables for Friday & Monday / CDR Prep

### Main Injector

- Decide element type & work on printability
- Move propellant inlets to give space for igniter fittings
- Update wall thk for FS > 2 all around, ensure no weak links for nozzle ejection
- CFD

### Igniter

- CFD
- Redo FEA with 316 stainless and inconel 718

### Controls & electronics

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### Nozzle

- Integrate BOM into main
- Quote for nozzle(s)
  - Multiple identical, varied throat diameters

- Alternative throat diameters (chamber pressures) (Jeff)

## Combustion Chamber

- Integrate BOM into main
  - Explore cheaper options for raw materials
- Switch O-ring gland from flange to chamber
- Bolt notch machining & test

## Test Stand

- Switch welded joints to bolted
- Find cart/stand to support engine at tank level
- Aluminum nozzle replacement plug for hydrostatic testing
- Back plate

## Propellant Feed System

- Update full assembly CAD (make everything more compact, figure out elevation of chamber)
  - Move all tubing to tank end if possible, have fittings back to back into engine
- Look for new pressure reg. CAD model w/ 90 deg turn
- **Add burst disk for LOx run pressure relief - how much \$\$\$?**
- Look into helium price & nitrogen solubility (Rishav)
  - Maybe Argon? - NO, saturation curve too similar to oxygen, will dissolve easily
  - Get quotes on Gox, nitrogen, helium
  - Make sure ox dewar is low-pressure for low boiling temp
- Look for ultrasonic cleaner on campus
  - PRL?