MSD Team P17453
Weekly Update
Week 7
3/2/17 - 3/9/17

Weekly Accomplishments:

- Nearly finalized construction of the 8020 frame
- Determined that back leakage through the poppets was very small and insignificant
- Performed initial pressure cycle test
- Discovered that back pressure tank relief valve was not working as expected
    - Prepared order for the correct valve
- Fixed wiring for second pressure transducer
- Created “slowed down” converted version of compressor data to show the compressor pressure curve if it was running at 1 Hz.
- Updated Problem Tracking
- Updated Bill of Materials with electrical connectors

To do by next week:

- Set up SignalExpress to accept second pressure reading
- Set up date and time for our integrated system demonstration
- Install back pressure valve if arrived
- Begin tweaking system timing to match the real compressor pressure curve better
- Begin working on poster and technical paper
- Continue to update Edge website and YouTube channel

MSD Team P17453
Meeting Notes
3/7/17

Meeting Accomplishments:

- Received MSC Direct order minus the wire connectors
    - Wire connectors coming in separate shipment
- Nearly Completed assembly of 8020 frame with valves and plexiglass insert to hold the relays
- Performed exhaust test from 40 psi in each tank to 0 psi in each tank with the only outlet through the outlet solenoid valve (includes poppet leak)
- Looked at previous poppet leak test data and saw that poppet leak was actually only on the magnitude of 1 PSI per second
- Performed first all encompassing pressure cycle test

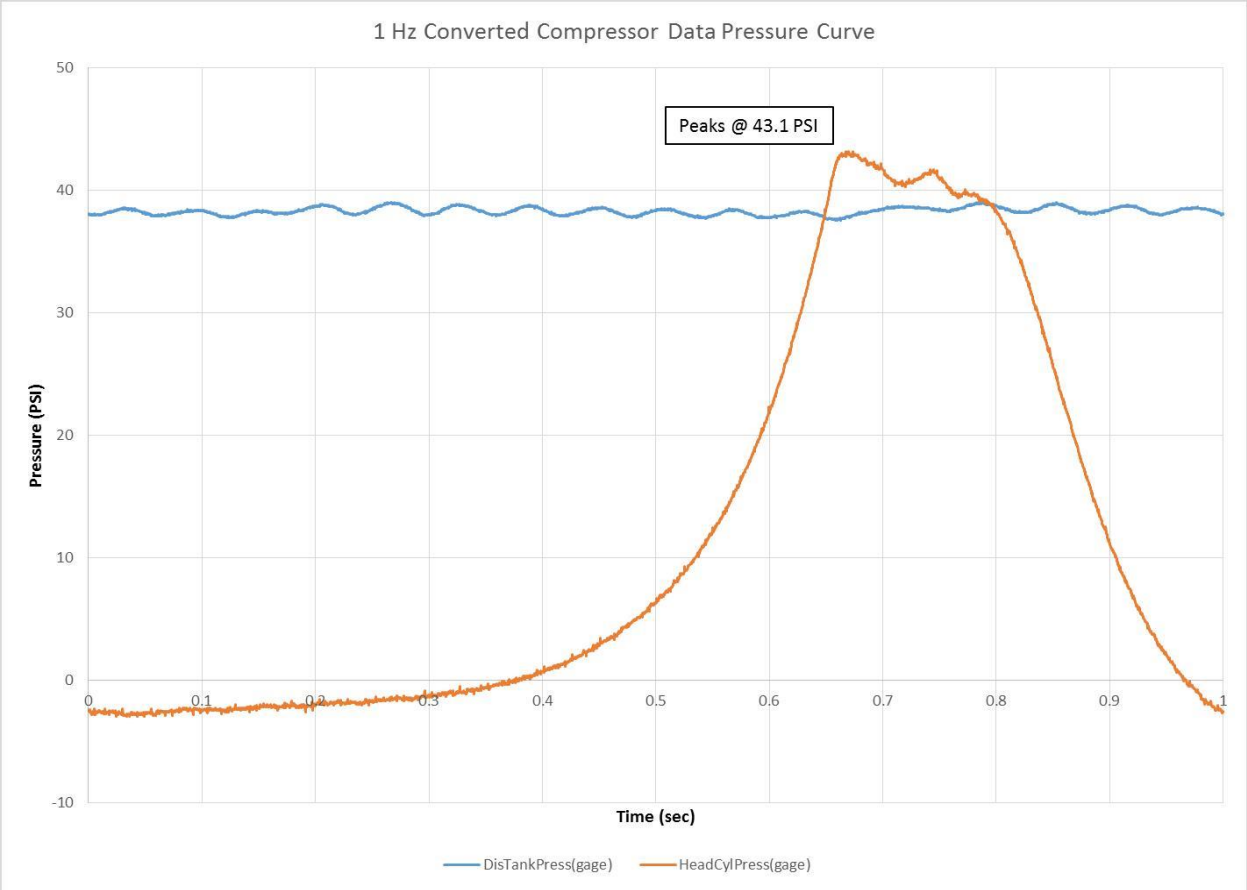
MSD Team P17453
Meeting Notes
3/9/17

Meeting Accomplishments:

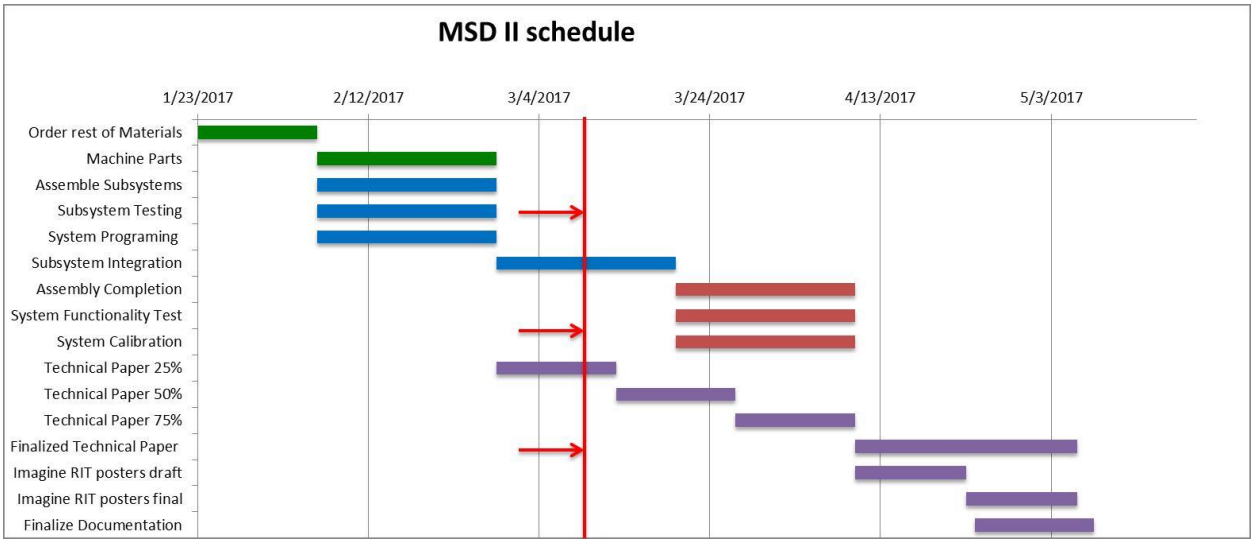
- Did research about valves because the pressure relief valve for the back pressure tank was not working as expected.
    - Was meant for water, not air
    - Was also not the correct type of pressure valve
    - Need a “back pressure” relief valve
- Prepared an order for the correct valve from McMaster-Carr with the necessary attachments
    - Will be placed after back pressure tank and outlet will be plugged to keep the system at 40 PSI
- Attached second pressure transducer onto back pressure tank in order to read both pressures
    - Similar to how pressure is measured on the actual compressor

	Identifying & Selecting Problem PSP 1	Analyzing Problem PSP 2	Generating Potential Solutions PSP 3	Selecting & Planning Solution PSP 4	Implementing Solution PSP 5	Evaluating Solution PSP 6
Rating	R1	R2	R3	Y4	Y5	G6
CRITICAL	Solenoid valve coils don't fit on new solenoid valves	The previous team's solenoid coils don't fit onto our valves	Drill out hole to make them fit, buy new solenoid coils	Dr. Kolodziej suggested buying new solenoid coils	Added correct coils to BOM and placed order	New coils received and successfully tested on valves.
MAJOR	Valve control loop not producing even signals	DAQ Signal Express has processing delay between loops	Find alternative control system or compensate for the delay	Consume the delay in one of the necessary hold delays during valve actuation	Recorded LED indicators and measured time delay, subtracted that from a valve actuation delay	Signal express now gives even signal to valve drivers.
	3/8 Hose Barb fitting does not thread into hole in collector	Tapered NPT thread on collector was tapped in wrong direction	Increase hole size, retap and purchase larger fitting. Retap in correct direction if possible	Rob advised that retapping the hole in the correct direction would work just fine.	Hole was retapped and the fitting threaded in succesfully	No leaks were observed at the joint in question.
	Pressure regulator does not hold a constant pressure in the back pressure tank	Terminology research indicates the difference between pressure and backpressure regulators	Determine the correct regulator and place an order for it	Correct style and fit backpressure regulator has been found	Order placed 3/9/2017	
ORDINARY	How to mount solenoid valves on 8020 frame	There are no mounting threads or surfaces on the valves	Zip-ties, Velcro ties, hose-clamps, L-bracket between valve and hose	L-bracket would look and work the best, relatively easy to implement	L-bracket design completed with parts on order	L-Brackets machined and assembled with success
	Relief valve not rated for our pressures	The previous existing team's relief valve is not rated high enough	Order new pressure relief valve	We will get part ____ from ____	Part has been added to BOM and will be ordered	Correct part received, installed, tested, and confirmed as correct
	Frame wobles on the table top	8020 cannot be assembled completely square and level	Create feet for the frame with some adjustability to level.	Rubber strips can be bonded to the bottom of the 8020 frame as feet	Rubber strips cut to size were attached using epoxy to the bottom of the frame	The frame no longer wobles

Updated Problem Tracking: Revision G



1 Hz Converted Compressor Data



Gantt Chart: Team progress through week 7.