



Ohio University NFPA  
Vehicle Challenge



## JOIN NFPA

### MEETING TIMES

Tuesday & Thursday

6:00 pm

Stocker 106

### CONTACT

**Dr. You**

Club Advisor

[you@ohio.edu](mailto:you@ohio.edu)

**Grant Schroeder**

President

[Gs292317@ohio.edu](mailto:Gs292317@ohio.edu)

## OVERVIEW

Compete in the National Fluid and Power Association Bike Challenge! Meeting on a weekly/ bi-weekly basis where we discuss and collaborate with our other team members on how to create the fastest, most efficient bike possible. See 'Contact' section for how to join this prestigious club and help the team win!

## COMPETITION

### Want To Travel and Potentially Win Cash Prizes?

For the National Fluid and Power Association Bike Challenge, teams will go through all of the motions of starting and completing a project. From the early stages of designing the parts and pieces of the bike to the actual building and manufacturing of the bike. It doesn't stop there! Teams will then get to travel to one of the competition sites in either Iowa or Colorado and compete with their bike against other university teams in an Efficiency test, Endurance test, Speed test, and Design test. Winners will also receive cash prizes directly to team members for winning the NFPA Bike Challenge!

### Acquired Skills

Joining this club will give you hands on experience while working in a team atmosphere. You will be faced with many challenges forcing you and your team to think outside the box. This gives you and your teammates an opportunity to use your experiences and knowledge from the classroom and apply them to a fun competition. You will walk away from this competition with real world situational experience as well as new gained friendships.

## ETM 4900

Receive class credit for being actively involved in helping your team achieve milestones and goals with the creation of a hydraulic bike. With your aid and participation, you will earn 1.5 credit hours and gain valuable knowledge that will be applicable to the workplace.

Start Recruiting Hard  
Working Team  
Members to Represent  
Ohio University!

# Form a Team!

- **President:** Grant Schroeder
- **Vice President:** Matt Brown
- **Treasurer:** Garrett Royal
- **Secretaries:** Kris Aponte & Katie Kutschbach
- **Events Coordinator:** Drew Snyder
- **Team Members:** David Douglas & Eric Buckner
- **Faculty:** Dr. You & Chase Saylor

# Create a Schedule!

(And try our best to stick to it)

## NFPA Schedule:

CP1: (End of October) Start program, attend meetings, brainstorm beginning ideas

CP2: (Middle of November) Check in with industry mentor and reach out to OU faculty

CP3: (End of November) Complete rough designs of bike

CP4: (Middle of December) Purchase parts and materials that we need

Winter Break

CP5: (End of January) Build the bike with all components

CP6: (Middle of February) Test the bike out

Testing and Modifying the bike

CP7: (End of March) Complete final Bike

March 31<sup>st</sup> – Complete bike

Middle of April – Competition Iowa/ Colorado!

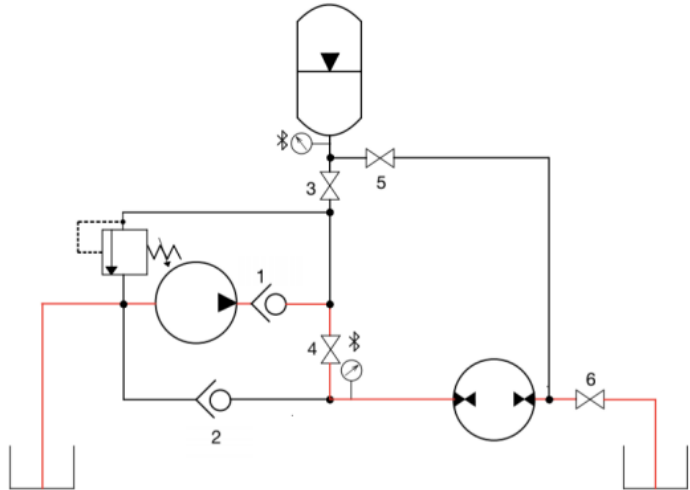
# Purchase the Bicycle Frame!



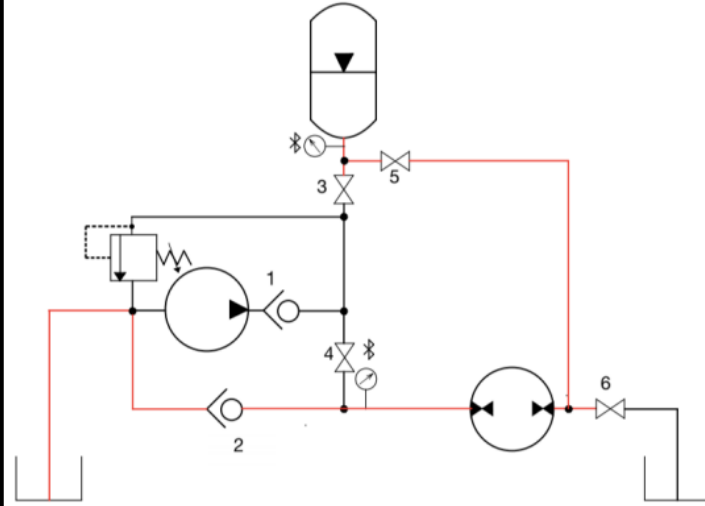
# Work on the Bicycle in Lab!



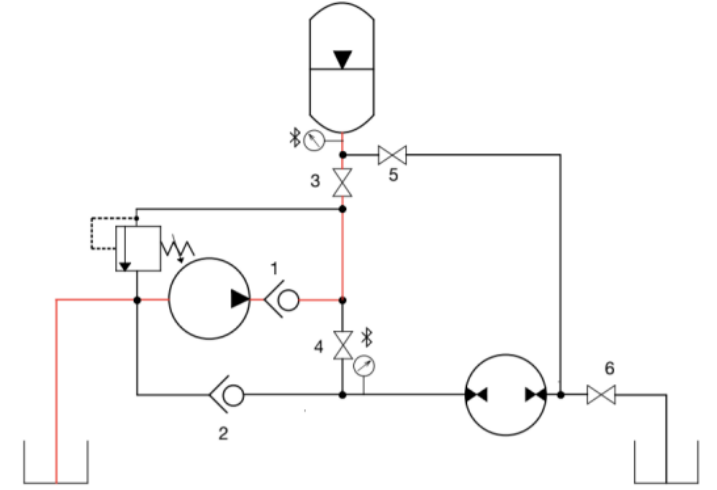
## Pedaling



## Regenerative Braking



## Charging Accumulator



Determine Schematics!

# Complete Calculations and Finally Order the Parts!

## NFPA ORDER CALCULATIONS

$$P = (T * 2\pi) / DIS$$

$$P = 245.22 * 6.28 / 0.513$$

$$P = 1540 / 0.513$$

$$P = 3000 \text{ psi}$$

$$DEL = (DIS * SP) / 231$$

$$DEL = 0.513 * 30 / 231$$

$$DEL = 0.067 \text{ gal/min}$$

Order Date	12/28/2021
Name	Garrett Royal
Department	ETM
email Address	<a href="mailto:gr735817@ohio.edu">gr735817@ohio.edu</a>
Phone Number	5134448778

University	Ohio University
Ship to Address	Stocker Center Lab #106
City	Athens
State	Ohio
Zip	45701
Ship to the attention of:	Dr. You

Eaton Value:	\$466.00	\$3000 max combined value
Danfoss Value:	\$632.00	
SunSource/Other Value:	\$839.00	\$1000 max
Total Value:	\$1,937.00	\$4000 max total value



# Getting prepared to go back to Ohio University and work on the bicycle!





Thank You for Listening!

Any Questions?