NFPA Fluid Power Vehicle Challenge
SCORING RUBRIC

Judge: _____

Team: _____

For teams from returning universities, we expect new and innovative designs from you. You will need to describe changes from the previous year's vehicle.

MIDWAY REVIEW	Poor	Moderate	Good	Very Good	Excellent
Designs from previous years have been investigated, performance analyzed, and design objectives clearly state and reflect improvements over designs analyzed.	1	2	3	4	5
Vehicle design clearly supports the design objectives and is of obvious quality.*	1	2	3	4	5
Hydraulic and pneumatic circuit designs are complete and reflect an understanding of fluid power components and systems.*	1	2	3	4	5
Calculations and analyses have been performed on the presented design, and their results have been incorporated into the vehicle and/or circuit designs.*	1	2	3	4	5
Selection of hardware is complete and is appropriate to the design objectives.	1	2	3	4	5
Prototype vehicle assembly has begun.**	1	2	3	4	5
Presentation is completed on time and presented in a professional manner.	1	2	3	4	5

*In addition to the above description, judges will be evaluating **returning teams** that are leveraging work products from previous years based on how they address these criteria in their Midway Review:
Vehicle Design – Returning team demonstrates original thought.
Hydraulic and Pneumatic circuit designs – Returning team made significant changes and includes a comparison of prior year schematics in the presentation.
Analyses – Returning team demonstrates an understanding of work completed and explains what changes were made to improve vehicle performance.
Criteria: **Prototype vehicle assembly has begun
1= Significant progress has been made in sketches, schematics, and engineering design.
2= Vehicle frame assembly has begun
3= Vehicle frame has been assembled and ready for testing
4= Vehicle frame has been assembled, tested, and the pump, motor, accumulator, and mounting brackets have been made
5= Vehicle frame has been assembled and tested, and components are mounted

Judge's Comments: _____

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FINAL PRESENTATION & DESIGN REVIEW	Poor	Moderate	Good	Very Good	Excellent
Vehicle construction was completed on time, performed mostly by the team members.	1	2	3	4	5
Vehicle testing was performed, and improvements were made based on the results.	1	2	3	4	5
Final vehicle brought to competition appears reliable, safe, and of quality craftsmanship.	1	2	3	4	5
Presentation includes a **regenerative braking circuit** and demonstrates an understanding of **regenerative braking.**	1	2	3	4	5
Lessons learned are clearly stated and appropriate to the design/build experience described.	1	2	3	4	5
Presentation clearly demonstrates an **understanding of how design choices contribute** to vehicle performance.	1	2	3	4	5
Quality of vehicle design is associated with **operator safety and comfort.** The vehicle is ergonomic and easy to use.	1	2	3	4	5
Quality of vehicle design is associated with **innovative concepts** compared to previous entries and displays **uniqueness and original thought**	1	2	3	4	5
Returning teams must include prior year's hydraulic and pneumatic circuit design schematic and show how the current year's schematic is different. Teams are given a maximum of 7 minutes to present on the first 6 criteria. 8 minutes will be allotted for judges to ask questions, assess the last two criteria, and perform the safety inspection.					

Judge's Comments: _____

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FPVC Mentorship	**Summary Submitted (Y/N)**	**Points**
Introduction and initial discussion about **vehicle** design.		1
Discussion about **component** design.		1
Discussion about **assembly** and **testing**		1
Final discussion on **adjustments**		1
	Total Points	4

Comments: _____

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