Engineering Evaluation – Judge's Evaluation Sheet

School/Team: _____ Ranger or Explorer (circle one)
Judge: _____

Judges: Please note and record each bullet as 3, 2, 1, or 0 points. Record your score in the space provided (a perfect score is 80).
+3 = exceptional **+2** = good **+1** = average **0** = poor or lacking

OVERALL DESIGN & WORKMANSHIP	**+3**	**+2**	**+1**	**0**
• Is the vehicle complete – is it ready for the water or does it still need work? Has testing been done prior to the event?				
• Is the vehicle built within the imposed design and safety constraints?				
• Are warning labels and/or guards on potentially hazardous components? Is it made of non-corrosive materials? Is there a danger of hazardous materials being released into pool?				
• Is the vehicle built to accomplish the missions without requiring excessive tools or special skills?				
• Are the vehicle and its systems well laid-out, secure, and robust? Are components easy to access for maintenance and troubleshooting?				
• Does the vehicle look aesthetically pleasing yet have practical functionality?				

SYSTEMS DESIGN & OPERATION

Control/Electrical system:	**+3**	**+2**	**+1**	**0**
• Is the control system scheme well-thought out and designed logically and functionally? Are all components logically and neatly incorporated?				
• Are the electrical systems neatly run, wired, secured, and waterproofed?				
• Are fuse(s) in place? (Note: MATE will also place a fuse in-line between the positive battery terminal and the vehicle.)				

Propulsion:	**+3**	**+2**	**+1**	**0**
• Are the thrusters the appropriate size and number to allow the vehicle to accomplish the missions?				
• Are the thrusters securely attached, no obstructions to water flow, waterproofed, and shrouded?				

Buoyancy/Ballast:	**+3**	**+2**	**+1**	**0**
• Does the vehicle have a buoyancy/ballast system? Does the system take stability and the mission tasks into account?				

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Sensors:	+3	+2	+1	0
• Is a camera present, waterproofed, and no obstructions to view?				
• Are other sensors present? Are these sensors commercial, off-the-shelf units or home-built?				

Payload:	+3	+2	+1	0
• Is the payload tool(s) appropriate for accomplishing the mission tasks?				
• Are there unique features incorporated into the payload tools?				

Tether:	+3	+2	+1	0
• Is the tether securely attached, neatly bundled, and protected?				
• Tether management – is the tether easy to handle? Has the team developed a tether management protocol?				

ORIGINALITY	+3	+2	+1	0
• Are there innovations or modifications that result in higher functionality and lower costs?				
• Are there innovations that increase safety?				
• Are there unique and/or original concepts in the vehicle's design and systems? Were everyday items used in creative ways?				

TEAMWORK/PRESENTATION	+3	+2	+1	0
• Overall, was the presentation professional and the team well-prepared?				
• Was the presentation well-thought out, organized, and articulate?				
• Did the team demonstrate superior understanding of ROV systems and operation?				
• Did each team member demonstrate an understanding of the vehicle and its systems and operation?				
• Did the team demonstrate cooperation and spirit?				

DISCRETIONARY POINTS	+2	+1	0
• Opportunity to award the team "bonus" points for a job well done.			

ENGINEERING EVALUATION SCORE (80 points max):_____