DARPA Grand Challenge 2005

Sample Inspection Checklists

August 29, 2005

DARPA will conduct static and dynamic inspections at NQE and a static inspection at GCE to verify safe operation and conformance with the Grand Challenge Rules. The checklists are subject to change without notice.

Please direct questions or comments to grandchallenge@darpa.mil

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Sample NQE Static Inspection Checklist

Team Name	**Team Number**		
Team Leader			
Date and Time	**Re-inspection**	**Y**	**N**
Inspectors			

Item	Pass	Fail	N/A	Comments
1.0 Ground contact devices (tires, treads, etc) do not damage pavement.				
2.0 Height is less than 120 inches and width less than 108 inches.				
3.0 Identification number (nominally 12 inches) is displayed on vehicle sides and top and is easily visible.				
4.0 Emitters in any actively emitting optical device on vehicle are eye-safe and pose no hazard to nearby humans when vehicle is in operation.				
5.0 Vehicle has no sharp protrusions or other features that could harm nearby personnel.				
6.0 RF emitters pose no hazard to nearby humans when vehicle is in operation.				
7.0 Acoustic emitters pose no hazard to nearby humans when vehicle is in operation.				

8.0 E-stop installation affords easy access to serial port and allows displays and LEDs to be read.				
9.0 E-stop and tracking system installation is properly shock-mounted with no potential for damage to hardware including antenna, cables or connectors.				
10.0 E-stop data and power connections are secure and will not loosen in a high-vibration environment.				
11.0 E-stop and tracking GPS antennas are mounted at least 12 inches from any other antenna and have a clear view of the sky.				
12.0 Wireless control systems are easily inspected and can be readily and verifiably disabled before autonomous operation.				
13.0 Logos, decals, advertising, and other written material on the vehicle fall within DARPA guidelines.				
14.0 Vehicle has no visible fluid leaks or drips.				
15.0 At least one manual E-stop button is accessible from either side of the vehicle. Actuators are properly labeled.				
16.0 Vehicle has front and rear tow points.				
17.0 No aspect of vehicle including fuel, emissions, or operation is likely to cause harm to the environment, other vehicles, or nearby humans.				

Sample NQE Dynamic Inspection Checklist

Team Name		**Team Number**		
Team Leader				
Date and Time		**Re-inspection**	**Y**	**N**
Inspectors				

Item	Pass	Fail	N/A	Comments
Vehicle is brought from the inspection queue and waits in one of the inspection start chutes. Officials verify MT is communicating with the E-stop receiver. Inspector gives RDDF CD to team launch crew and observes the loading process, measuring the time from the insertion of the CD to the time the vehicle is ready for autonomous operations. MT is in PAUSE. Teams leave the start area.				
1.0 RDDF is loaded and vehicle is ready for autonomous operations in less than 5 minutes. Vehicle does not move with e-stop in PAUSE mode.				
2.0 Flashing amber light with 360 degree coverage displays (only) in autonomous mode with vehicle paused. Audible alarm is off and vehicle does not move.				
Officials operate manual E-stop actuator on one side of vehicle and observe vehicle shutdown. E-stop remains in PAUSE throughout this process.				
3.0 Manual e-stop actuators quickly and effectively stop vehicle propulsion system.				
Teams re-enter start area to restart vehicle and place it back in autonomous mode. Practice area RDDF is re-loaded. E-stop is in PAUSE. Launch team leaves the start area.				

4.0 Brake light(s) in rear of vehicle is on and clearly visible.				
Officials put E-stop in RUN mode and observe time for nose of vehicle to reach the 100 foot line. At this line, MT PAUSE is asserted and officials measure the distance it takes the vehicle to come to a complete stop.				
4.0 When e-stop is put in RUN mode, vehicle is stationary for 5 seconds with alarm sounding and light flashing.				
5.0 After delay, vehicle moves forward with alarm sounding and light flashing. Brake light is off.				
6.0 Nose of vehicle reaches the 100 foot line in 25 seconds or less after vehicle begins motion.				Time to reach line:
7.0 Vehicle comes to a complete, controlled stop within 100 feet without skidding or excessive veering.				Stopping distance:
Officials assert an e-stop DISABLE. Teams are allowed into test area to recover vehicle.				
8.0 Propulsion systems shut down and vehicle applies and maintains the brakes.				