

Milestone #7 – Completed Vehicle Mechanical Inspection

DUE: 23 March

DESCRIPTION:

Finish up your vehicle this week! **Your vehicle must be ready for the rolling frame inspection on Friday. No excuses will be tolerated – you have been warned about this over a month ahead of time and extra time and resources have been allotted to let you finish. An unfinished vehicle rolling frame will earn you a failed milestone. Individual inspections begin at 7pm sharp on Friday March 23rd and will be a one-on-one format. No work time is allotted on Friday night – all tools must be down at 7PM.**

Your vehicle will be subject to the following inspection rubric, worth 1 point each. The first five are major criteria and are mandatory, the rest gauge how much attention to detail you put into your design execution:

- 1. The frame is assembled and can support weight without unreasonable flexing ____**
- 2. Mechanical subsystems such as steering, braking are mounted rigidly and do not wobble or flex. ____**
- 3. The vehicle can roll freely without mechanical interference in the drivetrain ____**
- 4. The vehicle can stop using the final braking method as-designed or the braking method can prevent drive wheel motion if applicable ____**
- 5. The motor is mounted properly (not necessarily connected to the drivetrain) ____**
6. All provisions for hooking the motor up to the drivetrain are finished (e.g. pulleys are properly bored and mounted, tensioners and retainers mounted) ____
7. Fasteners are properly used and installed, e.g. all screws and bolts tightened, bolts are not used in shear, screws are fully installed and not stripped ____
8. Spacers and standoffs and other location fixing components are properly machined components, not composed of stacks of washers or nuts ____
9. No portions of the frame are bent or forced to fit an assembly – all machined and fabricated components fit true and square, or as-designed ____
10. There are no “impossible screws” or assemblies which cannot be disassembled to service ____

GRADING: 10/9 A, 8/7/6 B, 5/4 C, else F

FORMAT OF DELIVERABLE:

- 2-4 pages in your notebook documenting your progress this week.
- **If your vehicle did not qualify for all of the first five points, you must have a written plan of completion including descriptions of all parts still to be fabricated, assemblies to complete, parts to order, and anticipated dates of completion. Put this in your notebook.**

OTHER ACTIVITY: Start thinking about your vehicle's electrical system! You have a basic diagram of major vehicle electronics from the mini-lecture. For now, you can use simple lumped parameter “assume it exists” diagrams for signal side wiring (e.g. sensors, throttle, other small switches) because these will be addressed separately in a later lecture.

RESOURCES: