

Milestone #5 – Continuing Vehicle Construction

DUE: 13 March

DESCRIPTION:

You should have many of your parts and materials now, so the peak of the build season is from now until the **mandatory rolling frame inspection on Wednesday, 3 April**. Avoid thinking “Oh, I will have time after Spring Break to build” – you will not, because you will have other classes which will also consume your time!

Again: Your vehicle must be ready for a Rolling Frame inspection on Wednesday, 3 April, as stipulated in the syllabus. That’s 4 weeks from now.

The vehicle should be mechanically together at the inspection – motors and drivetrain should turn (not necessarily under its own power) and the brakes and steering should work. After Spring Break, you will concentrate more on electrical wiring, debugging, refining, and powered testing.

It is important to keep working now and preparing for fabrication time as your parts ship so you have an idea of what parts need to be made, how they should be made, and in what sequence you should build them. You should be aware of your design well enough to pace yourself through the next few milestones, which will focus exclusively on fabrication. Your Solidworks model should be nearing total completion – while some parts may still be “datasheet dimensions”, you should still update them once you have the part in-hand.

Parts Ordering:

Parts order will continue to be aggregated and sent every Wednesday. To request a purchase, send to the instructor and master of parts purchasing (charlesg@mit.edu) a **TEXT FILE**, with the following information for each item requested:

- **Vendor, [Part number], Quantity, or**
- **[Direct link to product (e.g. Amazon or eBay)], Quantity**

Please name your file something easily identifiable with your team members’ names. For example, *SmithWilliams-20feb2013.txt* is acceptable, *stuff.txt* is not.

McMaster is encouraged if possible – the delivery turnaround is one to two days only. You are encouraged to organize with your classmates for bulk material orders to reduce cost per team.

Waterjet Queue:

Pursuant to the class focus on rapid prototyping and construction, waterjet access will be available. To submit files for waterjet cutting, email the instructor a **2D DXF** file and **Dimensioned technical drawing of each type of part** (there can be multiple copies of one part) exported from a Solidworks drawing of R2000-2002 format (do not use “Export to DXF/DWG” on a part face – this uses the latest version by default). Your parts may be individual or pre-tiled. Tiled parts and specific placement instructions must be approved by the instructor first.

The instructor will take your file and your plates of material and use the Building 35 (LMP) waterjet or the Hobby Shop waterjet to machine the parts. Files submitted by **End of lab Wednesday** will be turned around by **the following Tuesday by 1PM**, unless special arrangements are made.

FORMAT OF DELIVERABLE: 2-4 pages in your notebook documenting your progress this week. Pictures of construction, CAD models, assembly sketches, fabrication drawings, etc. with commentary are encouraged.

Two dimensioned Technical Drawings that represent parts on your vehicle that you have to fabricate using any available tool. These can be frame members, drivetrain parts, hubs, adapters, mounting plates, etc. Insert these into your notebook for your record.

OTHER ACTIVITY: Shop and machine familiarization will occur on a rolling and as-needed basis this week.

RESOURCES:

Refer to the Waterjet / Machining rules document on the STELLAR site for WJ file submission details and design advice to make yourself not sad when you receive your parts!