



SKILLS INVENTORY

February 2017

Do I learn these skills? Or do I pay someone to do it for me?

Design skills

- Sketching

Project management skills

Project Definition

- State the project
- Develop objectives
- Develop work breakdown structure
- Identify resource requirements

Project Planning

- Sequence deliverables
- Schedule deliverables
- Schedule resources
- Plan the project

Project Implementation

- Start to implement
- Monitor project
- Modify project
- Closeout and evaluate

Research skills

- Google machine
- Library

Technical drawing skills

- Technical drawing/3D modelling

Workshop Equipment

- Basic woodworking (build benches and work platforms)
- Basic welding (build benches and work platforms - develop skills to use later on your bike)

Mechanical skills

- Safe use of hand tools
- Clean parts
- Inspect parts for reuse
- Reassemble complex assemblies

- Correctly install seals, bearings and gaskets
- Correctly assemble bolted joints

Electrical skills

- Use of a multimeter
- Circuit analysis and troubleshooting
 - Understanding voltage
 - Series circuits
 - Parallel circuits
 - Resistance
- Building electrical connectors
- Soldering and de-soldering
- Harness protection

Metallurgy

- Understand metal properties
- Select the correct metal for the application

Metalworking and Fabrication skills

- Use hand tools for marking out
- Execute the four operations for metalworking:
 - Cut stock
 - Bend
 - Stretch
 - Shrink
- Drill holes
- Tap holes
- Restore threads (“heli-coil”)
- Remove broken screws and bolts

Welding skills (advanced)

- Select the best welding procedure

- Select consumables
- Configure the welding machine
- Running welds

Machining skills (advanced)

- Determine geometry of the part
- Make a sketch of the part features
- Determine the steps to make a part
- Select tooling
- Determine speeds and feeds
- Determine workholding
- Configure the machine tool
- Cut the part

Painting/Polishing skills

- Determine faults with surface
- Determine desired surface finish
- Determine process to restore/finish the surface
- Acquire the equipment and consumables to restore the surface
- Clean and prepare the surface
- Execute the surface improvements
- Apply any surface finishes (eg paint or powder coat)