"Enhancing our youths’ competitive edge through merit badges"
Requirements

Always check www.scouting.org for the latest requirements.

1. Do the following:
   a. Discuss with your counselor the safety equipment, tools, and clothing used while checking or repairing farm equipment. Use this equipment, tools, and/or clothing (when needed or called for) in meeting the requirements for this merit badge.
   b. Draw a plan showing a well-equipped farm shop. Point out the shop’s mandatory safety devices and features.
   c. Find all the universal warning and safety symbols on a piece of equipment and explain what they mean.
   d. Describe what a safety data sheet (SDS) is and tell why it is used. Obtain the SDS for any engine coolant, oil, grease, fuel, hydraulic or transmission fluid, or other flammable or hazardous materials you use in meeting the requirements for this merit badge.

2. Explain how power is produced or transferred in a:
   a. Diesel engine
   b. Hydraulic system
   c. Transmission or any other power system

3. Do TWO of the following:
   a. Replace the handle of any tool found on the farm.
   b. Organize a tool rack or a storage system for nails, bolts, nuts, and washers.
   c. Using a hand file, properly dress the mushroomed head of a chisel or punch.
   d. Using a hand file, correctly dress a screwdriver tip.
4. Do ONE of the following:
   a. On an engine-powered machine: Grease all fittings, change the oil and oil filter, clean the air filter, clean the radiator fins, and replace the fuel filters.
   b. For any engine-powered machine, create a preoperational checklist; include checking the engine coolant, engine oil, hydraulic and/or transmission fluid, and battery voltage (using a voltmeter). Using your checklist, conduct a preoperational check of that machinery or equipment.
   c. Prepare any farm machine for winter storage.

5. Visit an implement dealer. Interview the dealer technician or service manager for hints on good preventive maintenance. Ask why it is important, the costs, and what causes wear or damage. Report what you learn.

6. Explain each step in ONE of the following maintenance procedures:
   a. Tightening hydraulic fittings
   b. Checking the air filter
   c. Cleaning a work piece with a wire-brush wheel

7. Find out about three career opportunities in farm mechanics. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.
**Farm Mechanics Resources**

**Scouting Literature**

*Automotive Maintenance, Composite Materials, Electricity, Electronics, Energy, Engineering, Environmental Science, Fire Safety, First Aid, Forestry, Plant Science, Soil and Water Conservation, and Woodwork* merit badge pamphlets

With your parent’s permission, visit the Boy Scouts of America’s official retail website, [www.scoutshop.org](http://www.scoutshop.org), for a complete listing of all merit badge pamphlets and other helpful Scouting materials and supplies.

**Books**


**Multimedia**


**Organizations and Websites**

**American Society of Agricultural and Biological Engineers**
2950 Niles Road
St. Joseph, MI 49085
Telephone: 269-429-0300
Website: http://www.asabe.org

**Associated Equipment Distributors**
600 22nd St., Suite 220
Oak Brook, IL 60523
Telephone: 630-574-0650
Website: http://www.aedcareers.com

**Association of Diesel Specialists**
400 Admiral Blvd.
Kansas City, MO 64106
Telephone: 816-285-0810
Website: http://www.diesel.org

**Case IH**
621 State St.
Racine, WI 53404
Telephone: 877-422-7344
Website: http://www.caseih.com

**Deere & Company World Headquarters**
One John Deere Place
Moline, IL 61265
Telephone: 309-765-8000
Website: http://www.deere.com

**Discover Biological and Agricultural Engineering**
Website: https://www.asabe.org/media/96141/discoverbaerev.ppt

**National Farm Machinery Show**
P.O. Box 37130
Louisville, KY 40233-7130
Telephone: 502-367-5200
Website: http://www.farmmachineryshow.org

**National FFA Organization**
6060 FFA Drive
P.O. Box 68960
Indianapolis, IN 46268-0960
Telephone: 317-802-6060
Website: http://wwwffa.org

**National Institute for Automotive Service Excellence**
101 Blue Seal Drive SE, Suite 101
Leesburg, VA 20175
Telephone: 703-669-6600
Toll-free information line: 888-ASE-TEST
Website: http://www.asecert.org

**National Safety Council**
Agricultural Safety
1121 Spring Lake Drive
Itasca, IL 60143-3201
Telephone: 800-621-7615
Fact sheets: http://www.nsc.org/news_resources/Resources/Pages/SafetyHealthFactSheets.aspx

**Planning Farm Shops for Work and Energy Efficiency**
Purdue University Cooperative Extension Service
Website: http://www.extension.purdue.edu/extmedia/ae/ae-104.html

**Proper Use and Care of Hand Tools**
Website: http://www.kleintools.com/content/handbooks-booklets