



Farm Mechanics

Merit Badge Workbook

This workbook can help you but you still need to read the merit badge pamphlet (book). No one can add or subtract from the Boy Scout Requirements #33215. Merit Badge Workbooks and much more are below: [Online Resources](#).

Workbook developer: craig@craiglincoln.com. Requirements revised: 1998, Workbook updated: April 2008.

Scout's Name: _____ Unit: _____

Counselor's Name: _____ Counselor's Ph #: _____

1. List 10 common tools found in a well-equipped farm shop and explain how to safely use each one.

2. Do the following:

a. List ten safety devices in a well-equipped farm shop and explain the function of each.

b. *Demonstrate* proper safety apparel and equipment to be worn and used when operating a grinder, wire-brush wheel, welder, or drill.

c. Draw a plan showing a well-equipped farm shop. Point out mandatory safety devices and features in the shop.

3. Explain how power is produced or transferred in a:

a. Diesel engine _____

b. Hydraulic system _____

c. Transmission or any other power system. _____

4. Do TWO of the following:

- a. Replace the handle on any tool found on the farm.
- b. Build a tool rack with storage for nails, bolts, nuts, and washers.
- c. Properly grind the mushroom head off of a chisel or punch.
- d. Correctly grind or file a screwdriver tip.

5. Do ONE of the following:

- a. Make the necessary adjustments to ready a piece of farm equipment or machinery for field operation.
- b. Choose a piece of farm machinery or equipment. Check all nuts, bolts, and screws. Tighten any that are loose. Replace those that are missing, worn, or damaged.
- c. Repair broken or worn farm machinery or equipment.

6. Make a list of safety precautions for adjustments or repairs you make for requirement 5.

7. Do ONE of the following:

- a. On an engine-powered machine:
 - grease all fittings,
 - change oil and oil filter,
 - clean air cleaner,
 - flush cooling system,
 - clean radiator fins,
 - and replace diesel fuel filters.
- b. With any farm machine, do a daily service check for field use. (Do things needed for best field performance.)
- c. Prepare any farm machine for winter storage.

8. Visit an implement dealer. _____

Interview the dealer, technician, or service manager _____

for hints on good preventive maintenance. _____

Ask why it is important. _____

What are the costs? _____

What happens that causes wear or damage? Report what you discovered. _____

9. Explain each step in ONE of the following maintenance procedures:

- a. Tightening hydraulic fittings
- b. Servicing spark plugs
- c. Lubricating a clutch-release bearing
- d. Cleaning a work piece with a wire-brush wheel.

Online Resources (Use any Internet resource with caution and only with your parent's or guardian's permission.)

Boy Scouts of America: ► scouting.org ► [Guide to Safe Scouting](#) ► [Age-Appropriate Guidelines](#) ► [Safe Swim Defense](#)
► [Scout](#) ► [Tenderfoot](#) ► [Second Class](#) ► [First Class](#) ► [Rank Videos](#) ► [Safety Afloat](#)

Boy Scout Merit Badge Workbooks: usscouts.org -or- meritbadge.org **Merit Badge Books:** www.scoutstuff.org

Agrinet: <http://agrinet.tamu.edu/>

Agriculture.com: <http://www.agriculture.com/>

US Department of Agriculture: <http://www.usda.gov/>