Garden Equipment 101: Maintenance and Safety

Have more time for the good stuff by taking care of the small stuff now.

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Outline

• Basics
• Fuel concerns
• Getting started
• If it doesn’t start don’t panic
• Blades
• Belts & Pulleys
• Wheels & Tires
• Service Intervals
• End of the season
• Bits & Pieces
2-cycle, 4-cycle, or Electric

• 2- Cycle pros
  • Light weight
  • Run in any position
  • Fewer moving parts
  • Less expensive

• 4-Cycle Pros
  • More Powerful
  • Lower RPM range
  • Cleaner burning
  • Longer life span
What the Engine Needs to Run

- **Fuel**
  - Is there fuel in the tank
  - Is it getting to the carburetor
  - Is it getting to the cylinder

- **Air**
  - Is the filter clean

- **Spark**
  - Is the switch on
  - Is there spark at the plug
  - Is the plug any good

- **Compression**
  - Internal engine damage
  - Head gasket leaking
Wines & bourbons get better with age. Gasoline Doesn’t

• Gasoline has a shelf life.
  • Most modern gas powered equipment specifies high test fuel.
  • Gas only lasts about 3-6 months loses pop.
    • VOC’ evaporate and lower power output
    • Air tight containers extend shelf life
    • Old fuel smells like wood varnish & effect carb the same way.
    • Water in fuel is worse now then in the past
Ethanol's effects on equipment

- Ethanol absorbs water
  - Phase separation: Ethanol will absorb enough water and settle to bottom of the tank
  - Water & Ethanol will damage metal in carb
    - Ethanol will carry water into carb
    - Damage can happen in a few months
    - Fuel must be treated to reduce problems
- Ethanol will also effect plastics & hoses
- Don’t store equipment with fuel in carb.
Picture of old & new gas
2-Cycle Fuel Mix

• Why are oil type & fuel-oil ratio so critical?

• Most modern equipment is 50:1 mix

• Don’t go cheap on oil quality

<table>
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<th>Gallons of Gas</th>
<th>16:1</th>
<th>24:1</th>
<th>32:1</th>
<th>50:1</th>
<th>100:1</th>
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<tbody>
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<td>Ounces of Oil to be Added</td>
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<td>1</td>
<td>8</td>
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16:1 = 16 oz. of gas to 1 oz. oil

Divide 128 oz. by the desired ratio to get oz. of oil

128/16 = 8
Time to wake up sleeping equipment

- On Warm day in march.
  - Check and charge battery
  - Check wheels & tires
  - Turn on fuel valve or fill tank
  - Remove spark plug and replace
  - Add teaspoon oil to cylinder and crank a few times with plug wires off
  - Replace wires and try to start.

Best to try before you need it!
Getting Started

• Tools & materials
• Service the engine
  • change the oil
  • change the air filter
  • change the spark plug
• Clean & paint the deck
• Sharpen the blade or replace it
Getting Started continued

• Check belts & pulleys
• Inspect the controls
• Inspect the wheels & tires
• Inspect starter cord or electric start system
• Start & run engine to burn off protective oil in cylinder
If it Doesn’t Start Don’t Panic

• Four basic checks
  • Are the controls all in the start position
  • Is there fuel
  • Is there spark
  • Is there compression

• Start looking at the simple things first
Blades

• Blade types
• Removing (SAFETY, SAFETY, SAFETY)
• Sharpening
• Balancing
• When to replace
Belts & Pulleys

• When to replace belts
• How to check pulleys
  • alignment
  • bearings
• Proper tension on belts
• Checking spindles
Wheels & Tires

• Don’t work harder than you have to
• Check and repair them now
• Are they set for the correct height
Service intervals

• Owners manual is a good guideline
• If conditions are severe, decrease how long you go before servicing equipment
• How to easily figure hours
Hand Tools

• Apply a light coating of oil to all metal parts
• Wooden handle tools
  • inspect for cracks
  • sand & refinish
• Sharpen your pruning tool
Basic on sharpening

• “Prune when the cutters are sharp” Dr. B. Hamilton
• Honing & Sharpening aren’t the same
• Hone often between sharpening.
• Clean cut for a healthier plant
Bits & Pieces

• Many great books for most machine
• Many places sell after market parts (watch quality, you get what you pay for.)
• Many parts are “off the shelf”, and can be found in hardware stores
The Wrap Up

• Save time & money down the road
• Take time now to service your equipment
• Many problems are easy to prevent
• If maintained well it should last a long time