

## Series 1000 and 1500

- When the solenoid does not have power, it closes, stopping the flow of fuel.
- The solenoid usually emits an audible “click” when power is applied or discontinued.
- If the solenoid does not click, it is not working. If it does click, it cannot be assumed to be working properly.

### 8. FUEL RELATED NO-START ISSUES

- 8.1. The leading industry cause of no-start and engine performance problems is stale or out-dated fuel.
- In temperate regions of the country, fuel purchased during the summer may not be volatile enough to ignite during the winter months.
  - Similarly, “Winter” fuel may be cause performance issues if used into the summer months. The gasoline companies tailor the contents of their fuel blends to optimize performance, taking climate and geography into account.
  - As fuel goes stale, the lighter end hydrocarbons (more volatile elements) tend to evaporate, leaving the fuel less volatile.
  - In extreme cases, semi-solid residue will accumulate, damaging the fuel system.
  - If a piece of equipment will sit unused during the dormant season, the fuel system should be drained completely, or preservative should be added to the fuel according to the preservative manufacturer’s instructions.
- 8.2. Alcohol content of the fuel should not exceed 10%.
- Small amounts of ethanol are fairly common in fuel.
  - Methanol is more destructive than ethanol, and should be avoided.
  - Alcohol absorbs water. Fuel that contains alcohol will also contain a certain amount of water. The water will corrode any metallic parts of the fuel system, and may cause freezing damage in low temperatures.
  - Products that purport to “dry” the fuel system are generally isopropyl alcohol. The object is to re-suspend the water that has settled out of the alcohol the fuel already contains.

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- Ether-based starting fluids should not be used, and may void engine warranties if their use is detected.

### 9. MUFFLER REMOVAL

**NOTE:** There are a variety of mufflers on this series of tractor depending on the year and engine of the unit. this chapter will cover a few different mufflers to give you the basics of muffler removal on this series.

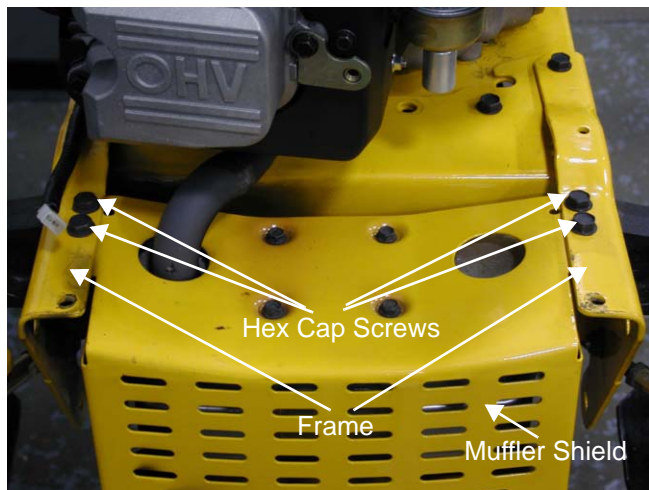
**NOTE:** For all tractors, remove the bumper first.

- **On units with side panels:**

9.1. Remove the hood, side panels and grill.

**NOTE:** Make sure to disconnect the headlight harness when you remove the grill and side panels.

9.2. Remove the self tapping hex cap screws securing the front frame assembly to the muffler shield and muffler using a 1/2" socket. See Figure 9.2.



**Figure 9.2**

9.3. Remove the muffler and guard.

**NOTE:** Muffler slides off of the exhaust pipe. It is NOT fastened to the pipe.

9.4. Remove the four screws in the top of the muffler guard. the muffler and muffler guard will now separate.

9.5. Reassemble in reverse order.

- **1000 Series with one piece hood.**

9.6. Remove hood as shown in section 2.

9.7. Remove both hinge brackets. See Figure 9.7.



**Figure 9.7**

9.8. Remove the four screws in the sides of the muffler guard. Slide the muffler and muffler guard off of the exhaust pipe(s). See Figure 9.8.



**Figure 9.8**

**NOTE:** You may have the tail pipe sticking out of the left side. If so slide the guard off of it first.