



## Mechanic's Detailed Instructions

### Insight on Modern Fuel:

Modern fuel today contains up to 10% Ethanol (E-10). Most modern power equipment is designed to handle E-10, but problems arise when fuel is left to stand for prolonged periods of time, especially with older equipment not designed to handle any ethanol.

The high amount of oxygen present in ethanol naturally decays gasoline, which is organic. Imagine if you left a jug of milk in the fridge and another outside in the middle of summer, both OPEN. Of course the milk outside will decay much faster. This is what happens to the fuel in your fuel system. Even under good conditions ethanol blended fuel can deteriorate causing hard starting and the formation of gum or varnish in your fuel system in as little as 60 - 90 days.

Ethanol also attracts water (hygroscopic) causing the already corrosive nature of this blended fuel to become more corrosive. If enough water is absorbed, phase separation will occur. This is more prone to happen over the winter months when the temperature drops below freezing. Phase separation looks like water at the bottom of a fuel tank, but in reality, this is mostly ethanol with a little bit of water.



**Gum And Varnish Deposits**



**Seized Engine Due To Phase Separated Failure**

This mixture is now extremely corrosive and is what destroys carburetors and fuel system components. In 2-cycle equipment, this will destroy the engine if it is run on this almost pure ethanol at the bottom of the fuel system. E-85 and E-15 may be good for automobiles, but are not approved by the EPA for use in power equipment and can cause serious damage to the engine or fuel system.



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Mechanic In A Bottle (MIB) is designed to clean the fuel system without removing the carburetor. By not disturbing the original factory seals or introducing other contaminants inadvertently, this will not only speed up repair time, it will also reduce further technical complications. If there is physical damage to fuel system components such as torn / rotted rubber components or scale (white rust) from phase separated fuel, the fuel system will have to be serviced further.

**UP TO 80% OF ENGINE REPAIRS START WITH BAD GAS**  
**FIX** these problems with Mechanic In A Bottle &  
**PREVENT** future problems with Ethanol Shield!

**USE MIB THE FIRST TIME YOU START YOUR EQUIPMENT EVERY SEASON FOR EASY STARTING AND TOP PERFORMANCE!**

**FIRST Step is SAFETY:** Disconnect the spark plug lead from the spark plug until you are ready to start the engine!

**IMPORTANT:** You must get the MIB into the carburetor for it to clean the fuel system components and rejuvenate the plastic and rubber components from the adverse effects of the ethanol blended gasoline.

**Step 1:** Determine if the fuel is fresh, stale or marginal with a *Mechanic In a Bottle Gasoline Quality Test Swab*. If you do not have one, then try to determine if the fuel is marginal or bad (stale) by smelling the fuel briefly for a sour scent. Keep in mind ethanol has an overpowering scent and will mask the sour decaying fuel. If the test results indicate or you assume it is marginal, then proceed to Step 2. If the fuel is stale or you have 2 Cycle Equipment proceed to Step 3.

### Step 2:

**A:** Add at a rate of 2oz MIB to 1 gallon of fuel. Add MIB directly to the tank with marginal fuel. Agitate the equipment a few times to ensure the MIB is distributed throughout the fuel. Top off with fresh gasoline if desired.

**Choke Style Starting:** Place the choke in the ON position and rotate the engine 6-8 times.

**Primer Style Starting:** Depress the primer bulb 6-8 times.

**B:** Now let stand overnight or for at least 6-8 Hours (results have been seen in as little as 15 minutes).

**C:** Reattach the spark plug boot and attempt to start the engine.

**D:** If engine starts and runs properly, continue to run an additional gallon of fuel with MIB added at the rate of 2oz to 1 gallon of fuel to deep clean the system.

**E:** Use Ethanol Shield with future gasoline purchases and follow the directions on the label to protect your fuel system and preserve the fuel.



Example of Primer Style  
4 Cycle Engine



Example of Choke Style  
4 Cycle Engine



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### Step 3:

**2 Cycle Equipment:** Drain the fuel from the tank and dispose of in accordance with local and state regulations. Add 1oz of Mechanic In A Bottle to the empty gas tank and then depress primer bulb 8-10 times to get the MIB into the carburetor. Be sure the spark plug boot is removed and place the choke in the ON position then pull the engine over 2 times and let stand for 1 hour. If you suspect a severely contaminated fuel system then let it stand longer or even overnight. Proceed to Step 4.

### 4 Cycle Equipment:

**A)** Drain the fuel from the tank and dispose of in accordance with local and state regulations. Add a minimum of 2oz of Mechanic In A Bottle to the empty gas tank.

**Primer Style Starting:** Depress the primer bulb 6-8 times on machines equipped with primers and prime the MIB into the carburetor.

**Choke Style Starting:** On machines with chokes you will need to loosen the bowl drain on the bottom of the carburetor (if equipped) to allow the MIB to enter the carburetor bowl, use shallow container under the carburetor to catch excess MIB and tighten the bowl nut once you see MIB coming out.

**B)** Be sure the spark plug boot is removed. Place the choke (if equipped) in the ON position, then pull the engine over 2 times and let stand for 1 hour. If you suspect a severely contaminated fuel system then let it stand longer or even overnight. Proceed to Step 4.

### Step 4:

**A, 2 Cycle Equipment:** Leave the MIB in the fuel system and add fresh gasoline mixed with 2-cycle oil to the fuel tank and cycle the primer bulb 8-10 times to flush the carburetor and mix the MIB thoroughly.

**A, 4 Cycle Equipment:** Leave the MIB in the fuel system and add fresh gasoline to the fuel tank and prime it into the carburetor. Note, on some machines you may need to loosen the bowl drain on the bottom of the carburetor to allow the gas to enter the carburetor bowl. Use shallow container to catch the MIB / gas coming out. Once you see gasoline coming out tighten the bowl drain nut.

**CAUTION: Check for fuel leaks and clean up any spilled gasoline allowing sufficient time to let dry before attempting to start the engine.**

**B:** Reattach the spark plug boot and attempt to start the engine.

**C:** If engine starts and runs properly continue to run an additional gallon of fuel with MIB added at the rate of 2oz to 1 gallon of fuel to deep clean the system.

**D:** Use Ethanol Shield with future gasoline purchases and follow the directions on the label to protect your fuel system and preserve the fuel.



**Example of Primer Bulb  
4 Cycle Engine**



**Example of Bowl Drain  
4 Cycle Engine**