

# zMAX Service Bulletin

**Date:** July 1, 2010

**Subject:** How zMAX Helps Engines Equipped With Carburetors.

**Vehicles/Equipment:** All 2 or 4 Cycle Gasoline Piston Engines Equipped With Carburetors.

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## General Description

- The function of a carburetor is to mix the proper amount of fuel and air for the engine to utilize, as designed by the engine manufacturer. (optimum fuel use)
- The carburetor has to perform its function with transient and steady conditions.
- Fuel can only be combusted in a vapor state.
- A proper functioning carburetor produces optimum power, engine response, smooth operation and efficient fuel consumption.
- There are conditions created with the development of varnish, carbon and gum deposits that have a negative effect on carburetor operation and engine performance.
- zMAX's ability to "soak into metal" and clean deposits helps the carburetor and engine operate at peak performance.

## Proper Atomization of Fuel

- Atomization is the creation of fine fuel drops. Proper atomization creates conditions to vaporize the fuel correctly.
- Altering the surface finish of the carburetor by the accumulation of varnish, carbon and gum residue effects fuel and air flow.
- zMAX's ability to clean deposits/residues and keep surfaces lubricated reduces the build-up of these harmful deposits.
- A cleaner carburetor internally allows optimum engine performance which improves fuel mileage.

### **Rust and Corrosion**

- Rust develops with water vapor and air which react on iron surfaces. Rust can also develop from fuel.
- Corrosion develops from an atmospheric and chemical reaction.
- Rust and corrosion affect the carburetor and engine internally. Carburetors have metering circuits which are very sensitive to deposit build-up that will reduce the quantity and quality of fuel /air mixture.
- zMAX's ability to "soak into" and lubricate metal surfaces helps protect against the build-up of damaging rust and corrosion.

### **Varnish Build-Up**

- Varnish develops on surfaces from fuel and motor oil vapors.
- Varnish build-up affects the intake valves, throttle plate and metering jets.
- This effects throttle/engine response and fuel/air mixture which causes a decrease in engine performance and fuel mileage.
- zMAX's ability to "Soak into Metal" and lubricate metal surfaces reduces the build-up of varnish and its effect on engine operation and efficiency.

### **Fuel Pump Benefits**

- zMAX's ability to lubricate the surfaces allows more consistent fuel flow to the carburetor.
- zMAX also keeps seals pliable and in working condition.
- zMAX helps fuel pumps last longer.

### **Better Thermal Efficiency**

- Thermal efficiency is the amount of work out-put (hp) compared to the heat value of the fuel input.
- zMAX in the engine and fuel system allows the engine to use more of the fuel as heat. This conversion to mechanical energy requires proper fuel/air mixture and cylinder sealing.