# Minuteman International's

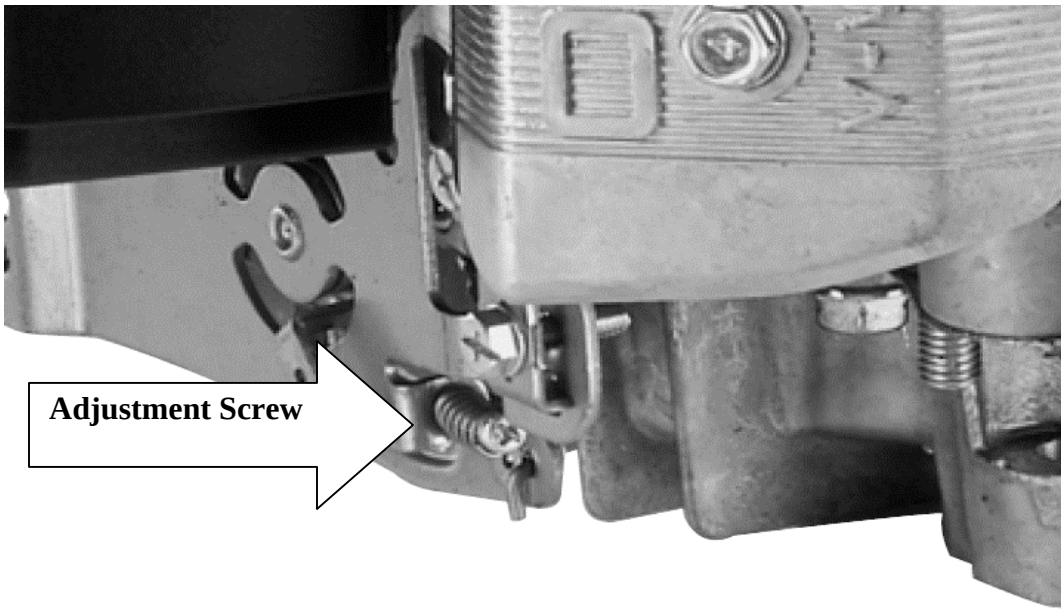
## Trouble Shooting the Kawasaki 17 HP Engine

Instructions: Follow these steps until the problem is resolved

### Engine Will Not Start.

(Battery is good and engine is cranking)

1. **Do not pull the throttle bail handle back while starting. This can cause the engine hard to start. The reason for this, is the vacuum from the engine will not release the vacuum lock off in side the regulator.**
2. **Check to see if the fuel valve is open and hose connector is tight.**
3. **Check the remaining amount of fuel in the propane tank. Fill, if needed.**
4. **Check the oil level. Refill if needed. Try starting the engine again if it was low.**
5. **Check to see if the spark plugs are getting spark. Note: If both spark plugs are <u>not</u> receiving spark from the wires go to "No Spark at Either Spark Plug"**
6. **Inspect the spark plugs. Make sure the plugs are actually firing even though they are receiving spark from wires. If not, replace if needed.**
7. **Check to see if propane tank is <u>over filled</u>. They should be filled by the weight stamped on the tank (Non OPD valve tanks only). (Note: Over filling can cause liquid propane to go to the carburetor instead of vapor.**
8. **Test the oil sensor. Disconnect the two leads on the sensor and join them together with an appropriate connector. Try starting engine. If engine starts, replace the sensor and re-connect wires to new sensor.**
9. **Remove the air filter and try starting the engine. If the engine starts replace the air filter. Note: The air filter must have black rubber seal not blue. Blue is for gasoline and black is for propane.**
10. **Check to see if the butterfly in the carburetor is closed with the engine off. If not adjust the butterfly adjustment screw. See Below.**




11. **With the air filter removed, spray a little Gum Out, carburetor cleaner or starting fluid into carburetor. If engine fires briefly, check further for fuel problems such as the idle adjustment screw set incorrectly or clogged fuel line. If it doesn't check for electrical problems such as incorrect wiring, faulty fuel lock out or incorrect valve clearances.**
12. **Inspect the vacuum and fuel hoses. Check for loose or cracked hoses. Check for obstructions in the fuel line and fittings.**
13. **Test the fuel pressure at the regulator. It should be 2.5 Psi. min. (Note: pressure is normally set at 2.5 psi with engine running at full throttle under load.)**
14. **If strong propane odor occurs while turning over the engine, check the fuel regulator for possible tears in the diaphragms. (Note: Over filling the propane tank can cause the freezing of the regulator, which results in damage to the diaphragms in side.) If the engine does not fire and has good spark at the plugs and good compression, replace the fuel regulator. Try starting the engine.**

## Engine Will Not Start

(The Engine will not crank (turn over)

1. **Test the battery voltage across the battery terminals. It should be about 12 volts D.C. under load while cranking the engine. If the battery voltage drops below 11volts, recharge battery with a 12 volt Gel cell compatible charger. Note: The standard automotive chargers will damage the battery. See "Battery Goes Dead Frequently"**
2. **Test for voltage across the coil terminals of the solenoid while attempting to crank the engine (Key switch in start position). If the solenoid clicks and the voltage is stable at 12 volts on the coil (small terminals). Test for voltage across the two large terminals of the solenoid. If voltage is present across the two large terminals while cranking, replace the solenoid. If voltage is not present across the large terminals, check the starter. If 12 volts is not present across the coil of the solenoid, check the key switch, the wiring and battery voltage.**

## No Spark at Either Spark Plug

(Battery is good and the engine is turning over)

1. **Verify that the wiring of the key switch is correct.**
2. **Test the key switch. Make sure it's working correctly.**
3. **Remove the top hat filter and frame.**
4. **Remove the black plastic housing around the cooling fan of the engine.**
5. **Inspect the black wire connecting the two coils. Make sure that they are not chaffed, grounding out to the manifold or excessive dirt build up around the coils. Clean if needed.**
6. **Remove the black wire connecting both the coils and try starting the engine. If the wires are chaffed or grounding out, replace or repair. Try starting the engine.**
7. **Check the clearance of the coils and the flywheel. See the Kawasaki's Service Manual.**
8. **Replace the coils.**

## Engine Runs Poorly
## The Catalyst/Muffler Gets Extremely Hot
(Glowing red)

1. **Test for spark on each plug while it is running. Do this by carefully by pulling one spark plug wire off the plug at a time with an insulated pair of pliers while it is running. If the engine stops with only one plug wire connected, the problem is on the cylinder that is still connected.**
2. **Test for spark on the problem side. Check the spark before and after spark plug. If there is spark go next step. Replace Spark Plug if needed.**
3. **Check the valve clearances. Set if needed. See "Propane Information Sheet" or your "Kawasaki Service Book" for information (See note at bottom of page).**
4. **If the engine speeds up and slows down continuously check governor for problems. See the Kawasaki Service Manual (See note at the bottom of page).**
5. **Check the compression in each cylinder. See "Propane Information Sheet" or your "Kawasaki Service Manual" for information (See note at bottom of page). If the compression is good go to step 7.**
6. **Check for signs of a blown head gasket. It would normally make a hissing sound while running and or have low compression.**
7. **If compression is low remove the suspect head and check for sticking, dislocated valve guides, burnt valves, bent push rods or scoring on the cylinder walls. Look for evidence of over heating such as burnt tip on the dipstick. See the "Kawasaki Service Book" for instructions (See note at the bottom of page).**
8. **If the compression is good, check the fuel pressure on the test port of the regulator. Adjust if needed.**
9. **Replace the fuel regulator.**

**NOTE: The Kawasaki Service Manual is part # 99924-2045-01 for engine FH500V**
**The Kawasaki Parts Manual is part # 99910-A817-00 for engine FH500V**
**The Service and Parts manuals are available only through your local Kawasaki Dealer.**

## Battery Goes Dead Frequently

1. **Check the wiring of the key switch.**
2. **Check the key switch, make sure it is functioning correctly.**
3. **Charge the battery with a 12-volt charger designed for gel batteries. Most automotive chargers will not work correctly. They will cause damage to the battery, by over charging it. Do not exceed 3 Amperes**
4. **Test the charging system by attaching a DC voltmeter to the battery terminals while it is running. Voltage should reach about 14 volts or better after a few minutes of running if charging system is O.K.**
5. **Test the charging system. See the "Kawasaki Motor Service Manual" for instructions. Available from Kawasaki only.**
6. **Disconnect the negative lead of the battery. With the key switch in the off position. Connect your volt meter between the battery post and the cable that you just removed. Any voltage present on the meter would indicate that there is a constant drain of power in the electrical system. (Note: 100 to 150 mili-volts is acceptable) Check for incorrect wiring, faulty key switch, or wiring. If the starter is continually engaged while the machine is running, test the diode in the blue wire with a white stripe between the terminal "S" on the key switch and the fuel lock out. (Note: The starter will draw more current than what the charging system can generate if it's running all the time and will drain the battery.)**
7. **The diode should only have continuity in one direction. Replace if needed. The silver ring of the diode should be on the side furthest from the key switch. See wiring diagram.**
8. **Test the Oil Pressure Switch on the engine. Shut down the engine and turn off the key switch. Pull the two wires off the Oil Pressure Switch. Test for continuity across the two terminals. If continuity is present replace the Oil Pressure Switch. (Note: This condition would cause the fuel lock out to contually receive power even with the machine turned off.)**