

Customer: _____ Model # _____ Serial # _____

Equipment Complaint: _____

Check boxes if no problem is found "X" in boxes where there is a problem Write description (if necessary)

PRELIMINARY CHECKS-----

1. Is the machine safe to operate?
*Fuel leaks, missing or damaged guards/shields.
Inoperative chain brake/throttle lock out, loose chain, etc.*
2. Check for engine/equip. maintenance problems:
 - Dirt in the air filter housing
 - Signs of engine cooling blockage
 - Damaged shrouds & missing hardware
 - Carb rotor moves freely (*Rotary carburetor*)
 - Is carb throttle shaft loose? (*Cube carburetor*)
 - Operation of choke and throttle linkage
 - Excessive engine loads
Missing string shield, dull chain, missing blower tubes, etc.

Possible Engine Failure? *Always perform compression test.
Perform crankcase pressure/vacuum test before disassembly.*

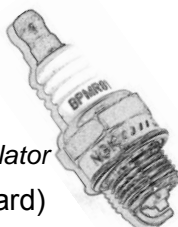
3. Drain fuel tank & check sample of the fuel mix:
 - Fuel mixed correctly?
 - Stale fuel smell?
 - Water or debris in fuel?
 - Test the ethanol content _____ %
Concentrations above 10% will cause problems.
4. Is fuel filter dirty or restricted?

IGNITION CHECKS-----

5. Install Spark Tester in series with spark plug:
 - Engine fires a 6mm gap at cranking speed*
If no spark – Disconnect stop switch lead & retest

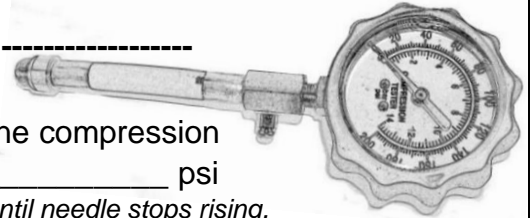
* **WARNING!** *Stay clear of cutting attachment. Engine may start.*

6. Pull spark plug & check condition:
 - Correct type and heat range?
 - Inspect firing end
black soot, heavy carbon, cracked insulator
 - Inspect plug gap (.026" is standard)



COMPRESSION-----

7. Test cold engine compression
_____ psi
Pull starter rope until needle stops rising.
Compression specs _____ min _____ max
 Compression is within specifications

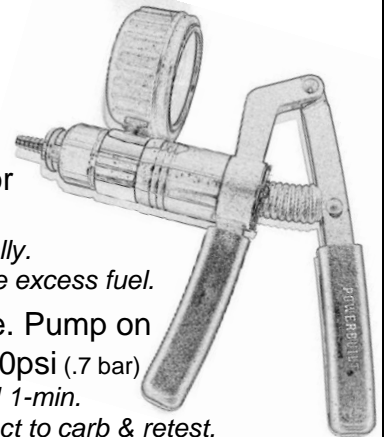


8. Mix Lubricated 4-Stroke – Check valve clearance:
 - _____ intake _____ exhaust _____ spec
 - Leak down test: _____ % of leakage
Perform only if engine has low compression
 - If leakage is over 10%, give leak location:

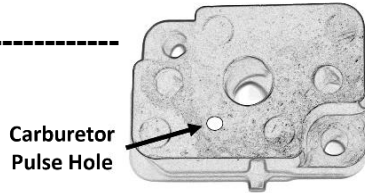
Crankcase, intake valve or exhaust valve

FUEL SYSTEM-----

9. Use Pressure/Vacuum Tester to test carburetor & fuel lines for leaks:
*Carb should be wet internally.
Pump purge bulb to remove excess fuel.*
 - Connect to inlet line. Pump on pressure mode to 10psi (.7 bar)
*Carb & line should hold 1-min.
If pressure leaks connect to carb & retest.*
 - Push the purge bulb 1-time
The needle should drop slightly & hold 1-min.
 - Switch tester to vacuum mode & push bulb
The carb should hold 5"(.3 bar) vacuum for 5-sec.
 - Connect to carb purge outlet (Pressure Mode)
Use bulb to pump up gauge to 10psi (.7 bar) (hold 1-min)
10. Pressure/Vacuum test remote tank vent:
 - Pump the tester on pressure mode
Excess pressure should blow off & hold 1½ - 5psi (.1-.3 bar)
 - Switch to the vacuum mode and test
The vent should hold NO Vacuum.
11. Pressure test fuel tank for leaks:
Hook up to 1 tank line & block others – 7psi (.5 bar) 1-min

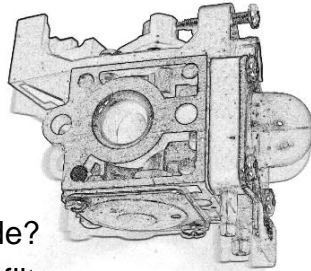


IMPULSE TEST-----



12. Pull carburetor – Is the pulse passage clear?
Oil should blow out of hole when starter rope is pulled
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13. 2-Stroke – Check intake side of piston
Look through carb insulator & intake port
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14. Reed Valve Eng. – Check valve for debris
Look through carb insulator
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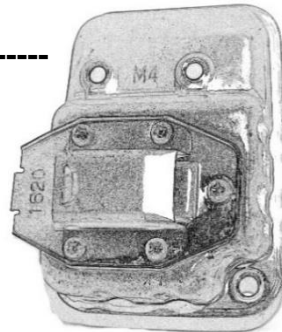
CARBURETOR-----



15. Remove carb metering & pump diaphragms:
- Are there signs of corrosion or rust inside?
 - Debris inside carb or filter screen
 - Pliable metering diaphragm – *With no wrinkles*
 - Fuel pump diaphragm in good condition
Flapper valves must be flat – Not curled or slanted up
 - Check metering lever height
Adjust with Walbro “W” or Zama “Z” gauge if needed
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NOTE: Most carb problems are caused by fuel issues or maintenance problems, not defects.

EXHAUST RESTRICTION-----



16. Pull the muffler:
- Spark screen is clear
 - Exhaust port is clear
Catalyst muffler can have clean screen & plugged port
 - Check for muffler restrictions
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17. 2-Stroke – Check piston condition
Look through exhaust port
- Piston rings free – *Excessive side clearance?*
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RUNNING TEST-----



18. Start engine and warm up:
- Engine starts easy
 - Engine idles smoothly
 - Adjust idle rpm to: _____
Cutting attachment must not move on idle
 - Engine accelerates quickly
 - Verify WOT engine rpm with correct load
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ENGINE FAILED RUN TEST-----

Problem has not been found – Continued tests & checks

19. *Adjust carburetor per emissions bulletin:
- If new carburetor is installed
 - If eng. runs poorly after making repairs

**Carb adjustments must only be made by trained technicians per factory service bulletins. Failure to do so could result in fines by EPA & CARB up to \$37,500.00*

20. If engine misfires or runs poorly retest spark:
Connect spark tester in series with plug (6mm gap) & run engine
- Spark is smooth with no interruptions
 - If spark is intermittent, disconnect stop switch leads & retest*
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21. Check for eng. crankcase pressure/vac leaks*:
***Always do this test for engine failures (Before Disassembly)**
Block off ports, install plug adaptor & pressure/vac tester
- Engine should hold 7psi (.5 bar) (1-min.)
Spray soapy solution to look for leaks
 - Engine should hold 14” (.5 bar) vac (1-min.)
Engine holds pressure but no vacuum = Crank seals leak
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22. Inspect for sheared flywheel key or keyway
23. Verify ignition module air gap
Set at .014” using #91004 Gap Gauge
24. Check ignition module ground (*0 ~.10 ohms limit*)
25. Ignition module timing failure (*Component Failure*)
Module produces spark but fires out of time. Replace module & test run.
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NOTES: _____
