

TO: ALL ECHO DISTRIBUTORS AND DEALERS
 FROM: ECHO PRODUCT SERVICE
 DATE: April 16, 2015
 SUBJECT: **Emission Carburetor Adjustment, Walbro WT-1009**

Page 1 of 2

The carburetor on the above listed model has been factory preset to meet EPA and C.A.R.B. emissions regulations. Limiter caps have been installed on the Hi and Lo fuel adjustment needles to insure compliance with these regulations. Should the limiter caps have to be removed to service the Hi and Lo adjustment needles, or a new carburetor installed, the following service procedures and carburetor needle adjustments must be performed to properly keep the unit within regulation.

<u>MODEL</u>	<u>SERIAL NUMBER</u>
CS-490	C34312001001 - C34312999999
CS-490	C34413001001 - C34413999999
CS-500P	C19312001001 - C19312999999
CS-500P	C19413001001 - C19413999999




TOOLS REQUIRED: *Small screwdriver with 2 mm blade, electronic tachometer P/N G310000050, limiter cap removal tool with 2.5 mm left-hand thread P/N 91075 and 3 mm left-hand thread P/N 91076.*

GENERAL ADJUSTMENT RULES:

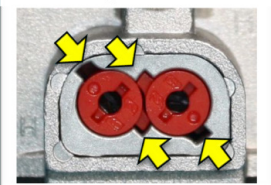
A. Before starting the unit for adjustment, check the following items:

- The air filter must be clean and properly installed. The filter cover must be on and the knob tightened.
- Check for the correct spark plug type & heat range: (U.S. – BPM8Y) (CAN – BPMR8Y)
Gap: .026" (0.65mm)
- There must be no exhaust restrictions: Check the spark screen and exhaust port for blockage.
- The fuel lines, tank vent and fuel filter are in good condition and clear of debris.
- The engine must have fresh fuel mixed at 50:1. (> 89 octane : RON+MON/2 gas) (ISO L-EGD or JASO M345/FD oil)

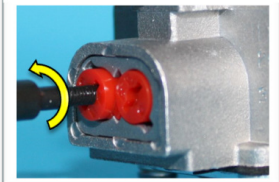
LIMITER CAP REMOVAL:

1. Rotate Low and Hi mixture needles counter clockwise  to line up limiter cap tabs with carburetor locating slots. If tabs are not lined up with slots limiter caps cannot be removed.
2. Screw left hand thread 2.5mm limiter cap tool (#91075) into either limiter cap and turn counter clockwise.  Back the cap out until it just clears the carb slots. NOTE: You can use the 3.0mm oversize limiter cap tool (#91076) if the cap strips out. Remove tool from limiter cap by turning tool clockwise,  leaving limiter cap in place.
3. Screw the 2.5mm limiter cap tool (#91075) (CCW) into the remaining limiter cap until tab of limiter cap just comes out of locating slot. Remove tool from limiter cap.
4. Use a screwdriver with 2 mm wide blade to reach through center of limiter caps to adjust L and H mixture needles prior to seating limiter caps on needles in extended housing of carburetor.

1. Line up tabs & slots



2. Back cap out & stop





WARNING

Always operate unit in a clear work area. Keep hands clear of moving cutting attachment during adjustment, otherwise serious bodily injury may occur.

CARBURETOR ADJUSTMENT ENGINE LOAD:

18" BAR & CHAIN

An 18 inch bar and chain should be installed to achieve proper carburetor adjustment.

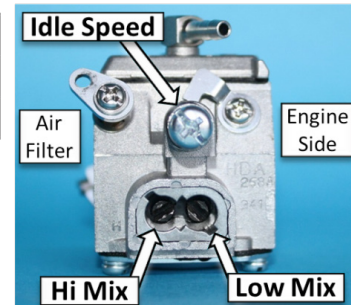
AVOID ENGINE DAMAGE FROM OVERSPEED:

DO NOT RUN LONGER THAN 10-SECONDS AT WOT

To prevent serious engine damage, do not run this saw longer than 10-seconds at Wide Open Throttle (WOT).

Initial Carburetor Needle Settings

<i>Lightly seat needles & turn CCW</i>		<i>Turn CW from 1st contact with idle plate</i>
L ow Mix 1-1/2 turns	H i Mix 3-1/8 turns	I dle Speed 2 turns



ENGINE WARM UP: WARM UP 2-MINUTES

Run engine for a total of 2-minutes alternating engine speed between WOT and idle every 5-seconds. If WOT speed exceeds 11,400 RPM, turn the Hi mix needle counter clockwise until engine speed drops to approx. 11,400 RPM to prevent over-revving.

FINAL CARBURETOR ADJUSTMENTS

LOW MIXTURE ADJUSTMENT: Allow engine to stabilize 20 seconds between low mix adjustments.

- ADJ. LOW MIX TO MAX IDLE SPEED:** Adjust the Low Mix Screw clockwise or counter clockwise until the engine idles as fast as possible.
- SET IDLE @ 3,400 RPM:** Adjust the Idle Speed Screw until the engine idles at 3,400 RPM.
- DROP IDLE TO 2,800 RPM WITH LOW MIX NEEDLE:** Turn the Low Mix Needle counter clockwise until the engine idle speed drops to 2,800 RPM.

HIGH MIXTURE ADJUSTMENT:

ADJUST WOT TO 11,400 RPM

Adjust final high mixture needle clockwise or counter clockwise until WOT engine speed is 11,400 RPM. Make mixture needle adjustments in 1/8 turn increments with the engine at idle. Check WOT engine RPM after each adjustment. Shut engine off when final adjustment is complete.

VERIFY CARBURETOR ADJUSTMENTS:

IDLE: 2,600 – 3,600 RPM (Chain must stop) WOT: 11,000 – 12,500 RPM

Restart the engine and verify the engine idles between 2,600 and 3,600 RPM. Check to make sure the engine quickly and smoothly revs to 11,000 to 12,500 WOT RPM. **IMPORTANT! THE CHAIN MUST NOT TURN AT IDLE.** Check for clutch or clutch drum problems if the chain is turning at idle.

INSTALL LIMITER CAPS: PUSH CAPS STRAIGHT ONTO MIXTURE NEEDLES

Gently push each cap straight onto the mixture needles using the #91075 tool. Do not rock the limiter cap tool back and forth when installing the caps. Remove the tool after the caps are flush with the carburetor housing.



ATTENTION!

The dealer must supply the unit to the customer in the original configuration. Knowingly removing or rendering inoperative a device, element or design installed on or in a non-road engine that is in compliance with E.P.A. regulation is classified as tampering. Tampering is a violation of FEDERAL LAW, resulting in significant civil penalties (fines) of up to \$37,500 for each violation.