

EMISSIONS SERVICE BULLETIN

To: All RedMax Distributors and Dealers
Subject: Emission Carburetor: Low Speed/ High Speed Mixture Needle and Altitude Adjustment Procedures
Emissions Carburetor: Walbro-Model: WTEA7A PART # 577992804

| PRODUCT MODEL | ENGINE SERIAL NUMBER |
|---------------------------|-------------------------------------------------------|
| Brush-cutter: BCZ400SW | From: All units listed with above carburetor model |

The carburetors on the listed model have been factory preset to C.A.R.B. Tier III and E.P.A Phase II emissions regulations. The **idle-speed** adjustment is controlled by idle speed throttle valve screw. The High-speed and Low-speed mixture needles have been preset and sealed to insure compliance with emission regulations. The **Low-speed Fuel mixture needle** adjustment controls the Fuel/ Air mixture at idle and mid-range engine speeds. The wide open throttle (WOT) speed operation is controlled by a **High-speed Fuel mixture needle**. Extended operation above 4000 ft, or after carburetor rebuild, requires readjustment of idle screw and mixture needle to insure the engine continues to comply with C.A.R.B, and E.P.A, emission regulations.

1. REQUIRED TOOLS

- Carburetor adjustment screw driver 2.5 mm flat tip
- Carburetor adjustment tool (Part NO. : 530 03 55-60)
- Electronic digital tachometer with sensitivity capable to within 10 RPM increments

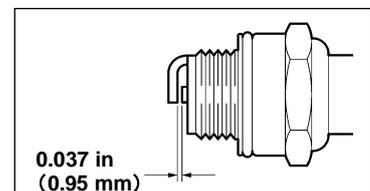
WARNING!!! DANGER!!!

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

2. PRE - ADJUSTMENT CHECK LIST

IMPORTANT: Before performing carburetor adjustment, the following areas must be inspected and in good working order.

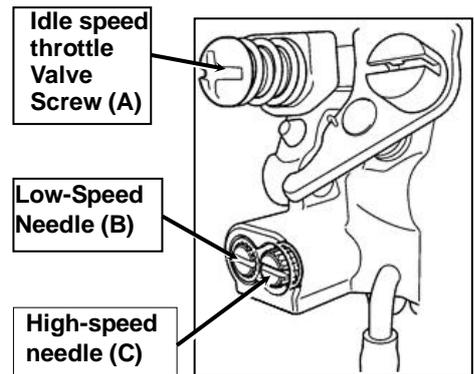
- Correct spark plug set to specified gap must be used.
Spark Plug: NGK CMR7H-10 Gap: 0.037 inch (0.95 mm)
- Standard nylon head must be installed.
- The air filter must be clean and properly installed.
- The carburetor and carburetor insulator block screws must be tight.
- The fuel filter must be clean and properly installed.
- The muffler spark arrestor screen and exhaust port must be clear of carbon.
- The fuel must be fresh (\geq 89 Octane or higher: RON+MON/ 2) and properly mixed at 50:1 ratio with RedMax or (ISO-L-EGD/ JASO FD) registered 2-stroke oil.



3. Carburetor Adjustment WITH limiter cap INSTALLED

1. Start and run engine for 3.5 minutes alternating RPM between, Wide Open Throttle (WOT) for 1 minute and Idle for 10 seconds.
2. Adjust **Idle speed throttle valve screw (A)** to 3000 RPM +/- 200 RPM. Unit should Idle at 2800-3200 RPM. The W.O.T. (Wide Open Throttle) should be at 9500-10500 RPM with standard length of nylon line.

If engine does not run correctly after idle adjustment, follow guidelines for "4.Carburetor Adjustment WITH limiter caps UNLOCK".

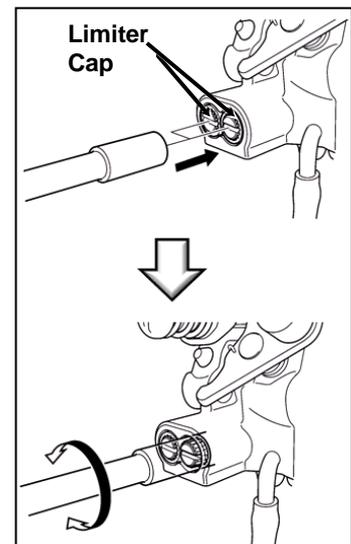
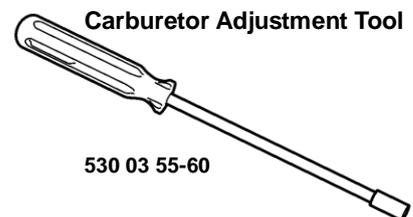


4. Carburetor Adjustment WITH limiter caps UNLOCK

■ Low and High Speed Limiter Caps Unlock

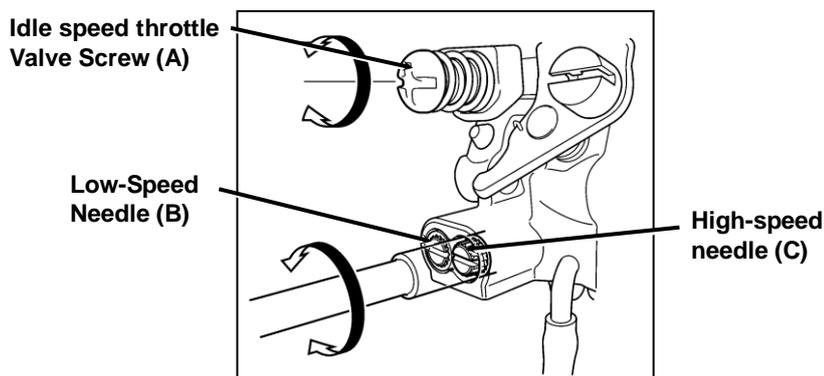
NOTE: Limiter caps are installed on Low and High fuel mixture needles in order to limit needle adjustment within a half turns. This is to prevent end-users from incorrect adjustment.

1. Push the **Limiter Cap** with the Carburetor Adjustment Tool and slide it to the bottom position.
2. Low and High fuel mixture needles can be **adjusted freely** while the Limiter Caps are at the bottom position.



■ Initial Start Settings

1. Turn **Idle speed throttle valve screw (A)** counterclockwise (CCW) until its tip just touches throttle plate stop. Then turn the screw in clockwise (CW) 2 turns.
2. Turn **High speed mixture needle (C)** clockwise (CW) until **very gently seated**, then come out counterclockwise (CCW) 2-1/4 Turns.
3. Turn **Low speed mixture needle (B)** clockwise (CW) until **very gently seated**, then come out counterclockwise (CCW) 3-1/4 turns.



4. **START ENGINE USING WIDE OPEN THROTTLE** to prevent spark plug fouling.
5. If engine idles and **does not** die out at idle, continue to “5. Carburetor Adjustments”.
6. If engine **Does Not Idle and Dies Out at idle**, turn Low speed mixture needle (B) in clockwise (CW) 1/8 turn.

Again **START ENGINE USING WIDE OPEN THROTTLE** and confirm idle condition.

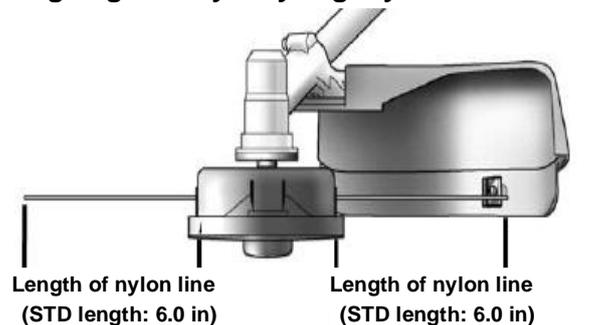
Repeat step 6 until steady idle is obtained before moving to “Carburetor Adjustments” procedure.

NOTE: The initial carburetor settings for Idle speed throttle valve screw, Low speed mixture, and High speed mixture needles are intended to start and run the engine before final carburetor adjustments are made. Actual turns required for starting engine may vary slightly.

5. Carburetor Adjustments

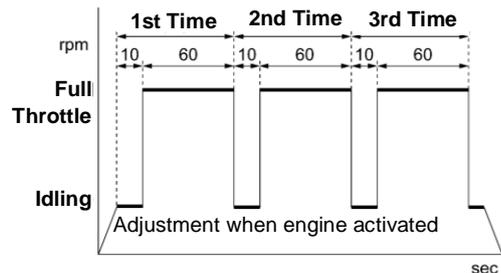
■ Setting Maximum RPM

1. Accelerate engine to Wide Open Throttle (WOT).
2. Set the maximum RPM (WOT) at **8500 RPM** by adjusting the length of nylon line.



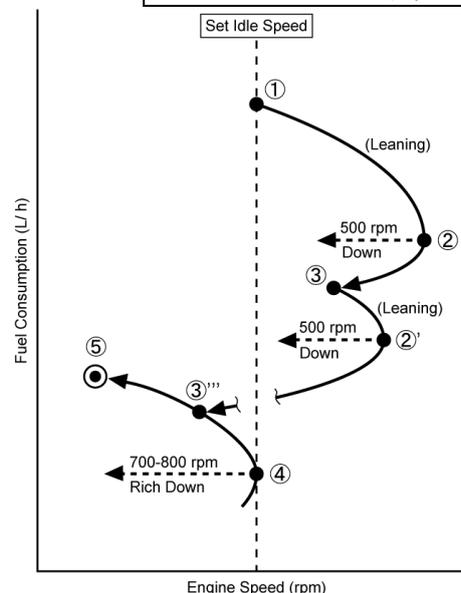
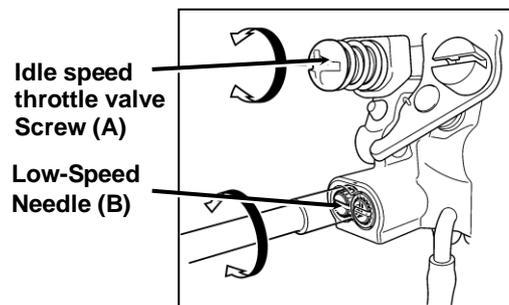
■ Warm up Engine

Start and run the unit to warm up the engine. Engine must be at operating temperature before completing Low speed mixture and High speed mixture needle adjustments. Warm up engine for minimum of 3.5 minutes by alternating between Wide Open Throttle (WOT) for 1 minute, then idle for 10 seconds.



■ Low Speed Mixture Needle (B) Adjustment

- 1) Set engine Idle Speed at 3800 +/- 10 RPM ① by turning Idle speed throttle valve screw (A). The engine RPM should be stable in the 3800 RPM range.
- 2) Now adjust Low speed mixture needle (B) Clockwise (CW) **Leaning** or Counterclockwise (CCW) **Richening** to reach Maximum engine speed AT IDLE just before lean drop off, ② where RPM just begins to drop.
- 3) If the idle speed at lean drop off is **HIGHER** than 3800 rpm, adjust Idle speed throttle valve screw (A) Counterclockwise (CCW) down 500 RPM ③.
- 4) **Repeat** step 2) and 3) as needed using 500 RPM step reduction, until maximum lean drop off speed is reached and speed AT IDLE is stable at 3800 +/- 10 RPM ④.
- 5) **Rich Down** the mixture 800 RPM by turning Low speed mixture needle (B) counterclockwise (CCW) to reduce engine speed AT IDLE, down to **3000 RPM** ⑤.



NOTE: Engine speed must be allowed to stabilize a minimum of 20 seconds after adjustment of Low speed mixture needle to assure accurate tachometer readings.

Verifying Engine RPM Using Tachometer

High Speed Mixture Needle (C) Adjustment

- 1) Accelerate engine to Wide Open Throttle (WOT).
- 2) Check the acceleration state of the engine speed, and make sure that the engine speed is around **8500** rpm.
- 3) Turn **High speed mixture needle (C)** clockwise (CW) in 1/8 turns increments.

Then accelerate engine to Wide Open Throttle (WOT) and verify the engine can accelerate smoothly.

Repeat step 3) until the engine just begins to reveal **hesitation, at Peak Lean Drop Off point.**

- 4) Turn **High speed mixture needle (C)** counterclockwise (CCW) in 1/8 turns increments (**Rich down**).

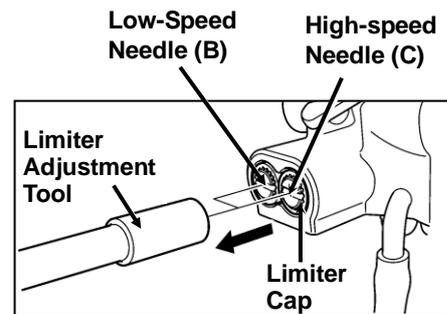
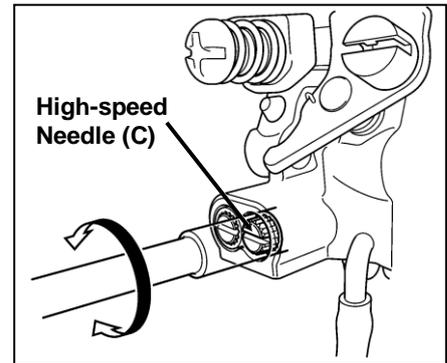
Then accelerate engine to Wide Open Throttle (WOT) and check the engine **can accelerate smoothly.**

- 5) The final WOT RPM with standard line length of 6.0 inches should be **10000 +/- 500 RPM.**

- 6) After checking the acceleration state, **stop** the engine. Then verify the Limiter caps on the Low and High speed mixture needles are its **Original Position (LOCKED)**. This is to prevent end-users from incorrect adjustment.

- 7) Re-Start engine and verify engine Idle speed range from 2800 to 3200 RPM.

NOTE: If problem persists, check carburetor for dirt, varnish, gum, moisture and corrosion contamination.



ATTENTION !!! IMPORTANT !!!

Carburetor adjustments with caps removed must be conducted by Authorized Emission Certified Servicing Dealers ONLY. The dealer must supply the unit to the customer in the original configuration, using manufacturer's carburetor adjustment procedure, which includes having the limiter caps in place before the unit is put into service . Knowingly removing or rendering inoperative a device, element, or design installed on or in a non-road engine which is in compliance with E.P.A. or C.A.R.B. regulations is classified as **TAMPERING**.

TAMPERING is a violation of **FEDERAL LAW**, resulting in significant civil penalties (fines) of up to \$25,000 for each violation.



2 Stroke Oil Requirements

Attention:

Use only RedMax “Max Life”, Synthetic blend Premium Air-Cooled two-stroke engine oil or oil certified to ISO-L-**EGD** (ISO/ CD1378) standard AND one that is JASO-**FD** registered.

RedMax Air-Cooled “Max Life”, Synthetic blend Premium two-stroke engine oil and ISO-L-**EGD** (ISO/ CD1378) AND JASO-**FD** oils are **fully compatible** with gasoline’s containing 10 % Ethanol.

RedMax Air-Cooled “Max Life”, Synthetic blend Premium two-stroke engine oil and ISO-L-**EGD** (ISO/ CD1378) AND JASO-**FD** oils are **Universal** and should be mixed at 50:1 ratio for all 2 stroke air cooled engines sold in the past regardless of mixing ratios specified in those manuals.

If the oil is registered with JASO, the JASO Logo with **FD** and **registration number** will be displayed on the container. The highest quality JASO rating is “**FD**”, which equals the ISO-L-**EGD** rating. Lower ratings are “**FC**”, “**FB**”, and “**FA**”.



Attention: Engine problems due to inadequate lubrication caused by failure to use ISO-L-**EGD** certified and JASO **FD** registered oil such as “Max Life”, RedMax Synthetic blend Premium 2-stroke oil **WILL VOID THE RedMax TWO-STROKE ENGINE WARRANTY.**

WARNING: Do not use NMMA (National Marine Manufacturers Association), BIA (Boating Industry Association), and TCW (two cycle water cooled) oils designed for MoPeds or Outboard, water cooled Marine Engines. Do not use API (American Petroleum Institute), TC (Two Cycle) labeled oils. The API-TC test standard has been discontinued by API in 1995 and it no longer exists.

IMPORTANT: Gasoline/Oil mixture Storage Recommendations

Store your gasoline or gasoline/oil mixture in a cool dry area in a tightly sealed approved container to limit the entry of moisture and additional air (oxygen). Moisture and air cause the development of varnish and gum, making the fuel stale. Stored gasoline and gasoline/ oil mixture ages and loses its octane rating and volatility. Do not mix more gasoline/ oil than you intend to use in 30 days, and 60 days when fuel stabilizer is added. RedMax Air-Cooled “Max Life” Synthetic blend Premium two-stroke engine oil “**Contains fuel stabilizer**” and will automatically extend your gasoline/ oil mixture life up to 60 days.

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