



INSTALLATION GUIDE

**Your guide to
Stromberg BIG 97
carburetor
installation and
adjustment**

READ THIS FIRST

This Guide will help make the installation and adjustment of your new Genuine Stromberg carburetor as safe, satisfying and trouble-free as possible. It contains several warnings, cautions, notes and illustrations, some of which may seem obvious to you. Please read them anyway.

READ THIS FIRST

WARNINGS! AND NOTES

These instructions must be read and fully understood before beginning installation. If these instructions are not fully understood, installation should not be attempted. Failure to follow these instructions, including illustrations, may void your warranty and result in poor performance, vehicle damage, property damage, severe personal injury or death. If you need information or assistance, please contact your Genuine Stromberg dealer or email us direct at tech@stromberg-97.com

WARNING!

Gasoline and gasoline vapors are very flammable. Therefore, make sure that the engine is cool before carburetor installation. Never smoke, use an open flame, or produce any sparks in an area where gasoline or gasoline vapors could be present. Doing so may cause a fire or explosion, resulting in property damage, serious personal injury, or even death.

WARNING!

Always perform any work on the fuel system in a well ventilated area. Failure to do so may result in the build up of dangerous gasoline vapors, causing severe respiratory injury, a fire or explosion, resulting in property damage, serious personal injury or death.

WARNING!

A thorough knowledge of vehicle mechanical and electrical systems is required. Therefore, Stromberg recommends installation and tuning by a professional mechanic only. An improperly installed carburetor may void your warranty and cause poor performance or lead to property damage, personal injury or death.

WARNING!

BIG 97 carburetors are not to be used in MARINE or AIRCRAFT applications, and are not designed for use with transmissions requiring direct carburetor vacuum lines, or computer control. Use in these applications may cause damage.

WARNING!

Before beginning installation of any carburetor, verify that all mechanical and electrical systems are in good working order. These include engine components like the intake manifold and gaskets, electrical components including, but not limited to, the distributor, spark plug wires, battery, battery cables, starter and starter solenoid, and the fuel system including the fuel tank and fuel lines. Any damaged or improperly operating components must be replaced prior to installing the carburetor. Failure to do so may result in property damage, serious personal injury or death.

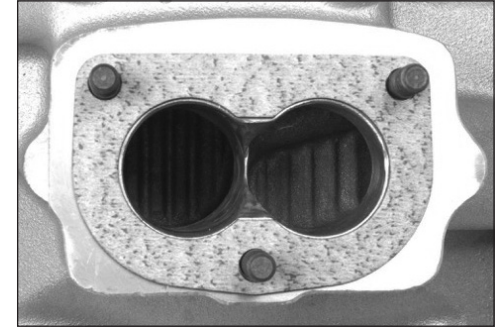
NOTE: BIG 97 carburetors are not designed to pass any emissions laws. They are to be used only for competition/off-road vehicles or vehicles not required to comply with any exhaust emissions standards.

Stromberg BIG 97 What you need to know

The Stromberg BIG 97 is a totally new carburetor, based on the original 97 design, but with significantly more airflow (a minimum 250cfm) and many other improvements. 'Primary' and 'Secondary' models are available for use in a three-carb, 3x2 or 'tri-power' system with a progressive linkage. BIG 97 Primaries can also be used on their own or in multiples (with direct or progressive linkage). Secondaries should ONLY be used in multiple carburetor systems, connected to a Primary model with a progressive linkage. Please check you have the correct carburetors and linkage for your application.

Jetting: BIG 97 supplied jetting (as marked on the box) has been carefully selected to match the carburetor's high cfm capability and is different for Primary and Secondary models. While it is designed to provide a good base point for a range of applications, it should not be regarded as the perfect jetting for every engine. Rejetting may be required to suit differences in altitude, multiple carburetor configurations, forced induction, and special, local and seasonal fuels. Please see Section 9 - Jetting for further information.

Ported Vacuum: BIG 97 Primaries are supplied with a swap-in fitting to provide ported vacuum for a vacuum advance distributor (see page 5). Always check your distributor's requirements before connection. A compatible distributor will only need vacuum from one carburetor.



Modifying your intake manifold: Compared to a regular 97, the BIG 97 has bigger, flared throttle bores which form an oval plenum shape before they meet the intake. To make the most of this improved airflow capability, some intakes may need opening up around the bores and down into the webs between the two bores for each carburetor. You can use the supplied intake gasket as a template.

For further advice on all of the above, visit the Stromberg Tech Center at www.stromberg-97.com



Work Safe!

If you are unclear about any part of this Installation Guide, please call your dealer or contact us at tech@stromberg-97.com

Every new Genuine Stromberg 97 is individually numbered. You can register your new Stromberg BIG 97s by completing and mailing the card enclosed with these instructions, or online at www.stromberg-97.com

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I. Pre-installation checklist

- a) Inspect all carburetors for possible shipping damage. Verify that all linkages operate freely by manually opening the throttle plates to Wide Open Throttle and back to closed without any binding.

WARNING!

Do not use any carburetor if the linkage binds in any way. Failure to do so may result in improper functioning of the throttle and uncontrolled speed, which can cause property damage, serious personal injury or death.

- b) Do you have the correct throttle and choke linkage, and fuel supply for your particular application? Use only parts sold specifically for use with Stromberg 97 carburetors on your engine/vehicle. Hand throttle linkage parts are not supplied on BIG 97 models.

- c) To provide ported vacuum to your engine distributor, use a 3/32in Allen wrench to remove the small set screw from the casting boss just behind the throttle kicker linkage (Primary models only) and replace it with the brass fitting, supplied separately in the box, using a small flat blade screwdriver (see above). DO NOT over-tighten the brass fitting. Overtightening can result in damage to the fitting.



2. Remove existing carburetion

When removing existing carburetion, please follow the procedure outlined below.

- a) Disconnect the vehicle's battery and carefully remove the air cleaner.

WARNING!

Always disconnect your vehicle's battery before performing any work on the fuel system. Ensure that your vehicle's ignition switch is off and that the engine is cool. Failure to do so may result in sparks, causing a fire or explosion, resulting in property damage, serious personal injury or death.

- b) Disconnect all linkages (ie. throttle and choke).
- c) Carefully disconnect the fuel line from any existing carburetors.

WARNING!

Because of the inherent danger of gasoline and gasoline vapors, have a helper ready with a fire extinguisher before removal and installation of any carburetor.

CAUTION: Disconnecting fuel lines will usually result in some gasoline being spilled. Use a catch bottle to collect excess fuel. Clean up any spilled gasoline before continuing.

- d) Unbolt and remove the carburetors from the intake manifold.
- e) Remove all traces of old gasket from the manifold and clean the manifold gasket faces.

NOTE: Do not allow gasket or other materials to fall into the manifold.

3. Install BIG 97 carburetors

- a) Verify that the mounting surfaces of the intake manifold (and any spacers or adapters) are completely flat.

WARNING!

Any damaged, warped or heat-checked intake components must be replaced prior to installing carburetors. In addition to poor performance, failure to do so may result in an improperly functioning throttle and uncontrolled speed, or component failure or gas vapor that may ignite – any of which may cause property damage, serious personal injury or death.

- b) Inspect the carburetor mounting studs or bolts to ensure that they are straight. New studs, spring washers and nuts are available from your Genuine Stromberg dealer.
- c) Place each new carburetor manifold gasket – supplied – in the correct position on the intake manifold studs.
- NOTE:** Use the gasket dry. Do not use any cement, glue or RTV sealant.
- d) Place each carburetor on top of the manifold gasket on the studs. When mounting a BIG 97 3x2 or tri-power system, mount the Primary (marked P) carburetor in the center position, with the Secondary (marked S) models on the outside, front and rear. Install the washers, then tighten the nuts in a progressive manner to a recommended 15 ft./lbs. torque.

CAUTION: Do not overtighten the mounting nuts or bolts. Overtightening can result in damage to the manifold, manifold studs or carburetor base that is not covered under warranty.

4. Attach the linkage

- a) Fit the carburetor linkage, following the manufacturer's instructions. We strongly recommend the use of Stromberg TwoStep linkages, which are designed specifically to work with Stromberg 97 carburetors. Before you attach the throttle pedal, check that all carburetors move freely from idle to Wide Open Throttle (WOT) and snap shut when released.

NOTE: Never use BIG 97 Secondary carburetors with a direct (non-progressive) linkage.

- b) Attach the throttle linkage from the pedal to the carburetors. Have a second person operate the throttle linkage from inside the vehicle – opening to WOT and back to idle – while you inspect throttle operation on the carburetor. Check again that all carburetors move freely from idle to WOT and snap shut when released. Check that the pedal does not strain the linkage once WOT is achieved, or cause any over-center condition. Check that the throttle linkage does not interfere with the fuel line and vice versa. And check that the throttle return springs work effectively.

WARNING!

Check and correct the assembled linkage for interference, sticking or binding action. Any sticking, binding, or over-center movement could result in uncontrolled engine speed, property damage, serious personal injury or death.

WARNING!

NEVER run a carburetor without an effective throttle return spring. Always use a throttle return spring with sufficient tension to return the carburetor to idle when the throttle is not depressed. Do NOT rely on the carburetor accelerator pump lever return spring to act as your throttle return spring. Failure to run an effective throttle return spring, or any sticking, binding, or over-center movement in any part of the linkage could result in uncontrolled engine speed, causing property damage, serious personal injury or death.

- c) Attach the choke linkage, ensuring no interference, binding or sticking when operated from inside the vehicle. Ensure that the choke plate is vertical when the choke control is in the 'off' position.

5. Connect the fuel line

NOTE: Stromberg BIG 97 carburetors are designed to take 5/16in Outside Diameter (OD) hard line using Stromberg 9081K-BIG Ford Nut style compression fittings. Regular 97's take 1/4in line. Do not use 1/4in line into a BIG 97. To connect a fuel hose, use a Genuine Stromberg hose end or banjo fitting.

WARNING!

Use only rubber and steel fuel lines approved for automotive fuel applications. If you are using fuel hose, ensure that the hose clamps are secure and check the condition of the hose. If there are any signs of cracking or fatigue in the hose, replace it immediately. Failure to do any of the above may result in fuel leaks, which may cause a fire or explosion, resulting in property damage, serious personal injury or death.

WARNING!

Teflon tape and other thread sealants are not to be used on fuel fittings and have been known to migrate into the carburetor, which may cause fuel leaks causing a fire, resulting in property damage, serious personal injury or death.

CAUTION: Before proceeding, make sure that the fuel line does not touch the intake manifold, carburetor linkage or any other engine part. Thoroughly flush the fuel lines before connecting them to the carburetor. Do not allow any dirt or other particles to enter the carburetor fuel system as it could cause damage to the S-jet fuel inlet valve.



a) Install your fuel line into the BIG 97 S-jet inlet valve.

CAUTION: When connecting the fuel line, hold the S-jet inlet valve with an 11/16in open-end wrench (see picture). The S-jet must not be allowed to turn in the carburetor. If the fitting is allowed to turn, it could overtighten, damaging the bowl casting threads and upset the pre-set float level adjustment, which can cause carburetor malfunction and flooding.

CAUTION: Running without a fuel filter voids the carburetor warranty. It is essential that a quality inline fuel filter is installed between the fuel tank and carburetor. This is mandatory as a safeguard against possible flooding which could result from unfiltered foreign particles becoming lodged inside the fuel inlet valve. Filter elements should be cleaned or replaced regularly to ensure maximum protection. Always use new, clean fuel.

b) Check and retighten ALL the fuel line fittings on the carburetors, fuel pump and any fuel distribution block. Do not over-tighten the fittings.

6. Install the air cleaners and 'ported vacuum' line

- Install your air cleaners, checking for adequate clearance between the air cleaner and carburetor linkages and fuel lines.
- Check for adequate clearance between the air cleaners and hood before closing the hood completely.

WARNING!

Check and correct for any interference between the carburetors, air cleaners and hood that may cause the carburetor linkage to stick or bind. Any sticking, binding or over-center movement could result in uncontrolled engine speed, property damage, serious personal injury or death.

CAUTION: Running without an air cleaner is strongly discouraged. Dirt and varnish will accumulate and upset the carburetor air/fuel metering balance. Dirt and debris can also enter the fuel bowl causing further problems.

NOTE: Any air filter element must be clean and of sufficient capacity to match the BIG 97 airflow capability. Check with your air cleaner supplier as lower capacities can cause rich running conditions.

- If you have installed the supplied ported vacuum fitting to your BIG 97 Primary carburetor, connect a vacuum line from the carburetor to the distributor using 5/32in ID automotive compatible hose. Hose clamps should not be required.

WARNING!

Ensure that the vacuum line does not come into contact with the exhaust or other sources of heat that might damage or burn the hose. And check that it does not interfere with the carburetor linkage, causing it to stick or bind. Any sticking, binding or over-center movement in any part of the linkage could result in uncontrolled engine speed, causing property damage, serious personal injury or death.

7. Start the engine

WARNING!

If your vehicle is equipped with an automatic transmission, confirm that the transmission is in park before starting. If your vehicle is equipped with a manual transmission, verify that the vehicle is in neutral with the parking brake on before starting. Failure to do so may result in unintended vehicle movement causing property damage, serious personal injury or death.

- Stromberg BIG 97's are factory set to run, in most applications, straight out of the box, with minimum tuning required. Regulate the fuel pressure to 2.5psi, connect the battery and crank the engine over to prime the carburetors.

WARNING!

If you crank the engine over to prime the carburetors, ensure that the ignition is disabled by removing the coil wire from the distributor. Failure to do so may cause a fire or explosion, resulting in property damage, serious personal injury or death.

WARNING!

The Stromberg BIG 97 carburetor is designed for fuel pressure between 2.5psi and 3.0psi **MAXIMUM** measured at the carburetor. Excess pressure can cause flooding, which may cause a fire or explosion resulting in property damage, serious personal injury or death. Many modern electric fuel pumps are designed to provide higher pressures and are not suitable for Stromberg carburetor applications without a fuel regulator of the correct range. Always check the manufacturer's specification.

WARNING!

Protective eyewear must be worn before a fuel pump is first turned on. Failure to do so may result in injury to the eyes or blindness.

WARNING!

Watch closely for signs of fuel flooding when the fuel pump is first turned on or when the engine is first started. If flooding is apparent, stop the engine immediately. Disconnect the fuel line, remove the fuel inlet fitting and check for blockage or dirt. Clean as required, reinstall the fitting and reconnect the fuel system. Clean up any raw fuel. Flooding does not necessarily indicate a faulty carburetor.

NOTE: If the fuel inlet valve is replaced for any reason, the float level may need checking and possible readjustment. Instructions can be found on the Stromberg Tech Center at www.stromberg-97.com

- b) Check for leaks at the fuel line and inlet fittings.
- c) Start the engine and recheck for leaks at the fuel line and inlet fittings, heeding the warnings above.
- d) Check your fuel pressure with the engine running. Set your fuel pressure regulator to 2.5-3.0psi.

8. Tuning

CAUTION: Carburetor tuning should always be carried out by a specialist since improper tuning could result in poor performance and invalidate your warranty.

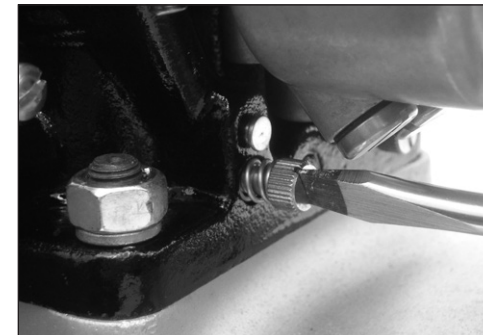
- a) Set the idle speed and mixture outdoors with the engine running at normal operating temperature, the air cleaners in place, all throttle plates closed and the chokes fully open. Temporarily disconnect the carburetor linkage so each carburetor can be adjusted separately.
- b) BIG 97 carburetors are factory-set to be very close to your idle requirements straight out of the box. To fine tune the idle speed (rpm), turn the throttle stop screw clockwise for faster idle speed – counter-clockwise for slower idle speed.

To ensure better balance between multiple Primary carburetors, aim to keep the throttle stop screw in the same position on each carburetor. For a BIG 97 tri-power, please see the separate instructions on page 12.



- c) Now set the ignition timing, in the usual way, to the engine's recommended specification. If you are using the BIG 97 ported vacuum line, total ignition advance should always be set with the vacuum port disconnected from the distributor and the vacuum hose clamped. Once the timing is set, reconnect the vacuum hose and recheck the ignition advance at idle. If the advance has increased, the throttle plate is set too high (open), exposing the vacuum port, and it may be necessary to increase the initial (static) ignition timing. This will increase manifold vacuum, and should allow the throttle plates to be closed down below the vacuum port at idle.

- d) Set the idle mixture (air/fuel ratio) using the needle screws (see above) which are factory-set in a matching position. Adjusting the screws one at a time, turn them IN (clockwise) to make the idle mixture leaner (less fuel) and OUT



- (counter-clockwise) to make the idle mixture richer (more fuel). Turn each idle screw in slowly (1/4 turn at a time) until the engine begins to lag or run irregularly. Then turn the same screw out slowly until the engine begins to roll or gallop, then back in slightly to provide the smoothest idle. Repeat this same procedure to adjust the other screws. Be prepared to go around all of the screws again if required.

e) Winter and Summer Settings: Stromberg BIG 97 carburetors are supplied with the accelerator pump rod in the W (Winter) position on the throttle linkage. The S (Summer) and W settings partially determine the volume of enrichment fuel discharged when the accelerator pump is rapidly depressed. The linkage will discharge greater enrichment in the W position. The correct setting should be determined by the driver to suit local operating conditions. If the vehicle tends to stumble on acceleration, try changing the rod to the other position, then try the acceleration test again. Note that there is no accelerator pump in BIG 97 Secondary carburetors – just a false pump to retain the 97 look – so the S and W position makes no difference to performance.

f) After tuning and balancing the carburetors, Refit the linkage without altering the carburetor settings.

NOTE: Since available fuel formulations vary with the seasons, tuning settings may require further adjustment throughout the year.

Tuning the BIG 97 tri-power

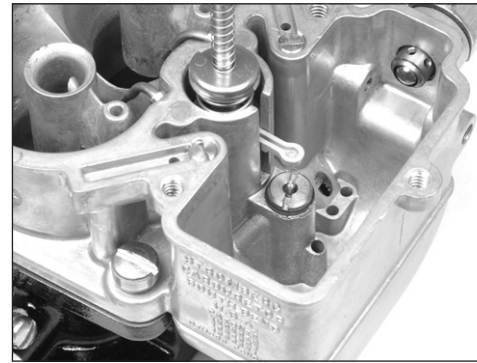
BIG 97 idle circuits – Primary and Secondary – should always be kept operational, even in multiple carburetor applications. All BIG 97 carburetors are shipped with the top edge of the throttle plates set at the bottom edge of the transition ports (the ‘upper’ idle ports) to ensure smooth transition throughout the rev range. On a BIG 97 tri-power, with a Primary in the center between two Secondaries, and a progressive linkage, we recommend that the factory-set Secondary carburetor idle speed (throttle stop) screws are not adjusted. Set the idle speed using just the Primary (center) carburetor throttle stop screw (see page 11). The idle mixture is set in the usual way. Aim for matching idle mixture screw positions on both Secondary carburetors and minimum difference between Secondary and Primary screw positions.

NOTE: Traditional carburetor balancing can help in multiple BIG 97 Primary carburetor applications on a direct linkage. However, on a BIG 97 tri-power with a progressive linkage, secondary throttle plate position (see above) is more critical than absolute balance to ensure smooth running.

For more advanced tri-power tuning advice, please visit our Tech Center at www.stromberg-97.com

9. Jetting

While BIG 97 main jets are in the usual 97 position under the float bowl, the power valve (in Primary models only) is located in the float bowl (see below), feeding direct into the emulsion tube circuit for improved fuel conditioning. The valve under the accelerator pump is of a different design (with a flush valve pin) used only to meter the pump charge through the discharge jets. BIG 97 Secondaries have no power valve, accelerator pump valve or accelerator pump (just a false pump to retain the traditional 97 look). On all models, idle air bleeds and high speed air bleeds are fixed. A wide range of main jet, idle jet, accelerator pump valve and power valve sizes are available from your Stromberg Carburetor dealer. For further advice, visit our Tech Center at www.stromberg-97.com



10. Troubleshooting

a) Carburetors can be frustratingly difficult to troubleshoot and are often blamed for every possible engine-related difficulty. Please check and verify the condition of the complete engine system before proceeding with any carburetor work.

NOTE: Correct engine compression, timing, spark plug gap and heat range, distributor point condition and wiring, valve lash and other factors are very important to optimum engine efficiency and performance. There should be no vacuum leaks. A new carburetor will not cure bad valves, incorrect timing or poor compression.

11. Maintenance

a) After an initial running period, check and retighten all nuts and screws as required. The presence of liquid fuel demands further checks.

WARNING!

Fuel system components operating under severe conditions, such as high under-hood temperatures, should be periodically inspected to ensure that the fasteners are tight, the hoses are sound and there are no fuel leaks. High temperatures promote faster ageing of non-metallic materials. Metallic materials can age with engine vibration and may warp or fatigue if not properly assembled and maintained.



If you need further information
or assistance, please contact your
Genuine Stromberg dealer,

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or log on to our Tech Center at

www.stromberg-97.com