GENUINE STROMBERG 97

TwoStep 4x2 & 6x2 Linkage & Back-bar kits

Installation guide

HOT ROD CARBURETION • CLOTHING & COLLECTIBLES • SERVICE PARTS • LINKAGE & FUEL DELIVERY

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

or email us direct at **tech@stromberg-97.com**

or log on to our Tech Center at **www.stromberg-97.com**

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WARNING!
These instructions, including the diagrams, and Warnings, must be read and fully understood before installation, otherwise installation should not be attempted. Failure to follow these instructions may result in poor performance, vehicle damage, personal injury or death.

If you have any questions, contact your Genuine Stromberg dealer or email us at **tech@stromberg-97.com**

1. Read this first

Have you got the right linkage?
Stromberg TwoStep 4x2 and 6x2 Linkage and Back-bar kits are designed to fit Stromberg 97, 81 and 48 style carburetors on specific intake manifolds. Extended throttle shafts are not required. Carburetor spacing differs between intake makes and models. Please check that you have the right linkage for your application before you attempt installation.

Most 4x2 and 6x2 intake manifolds set one bank of carburetors behind the other. Kits designed for a specific intake manifold account for this offset and no modification is required. For less common applications, we offer Trim-to-Fit kits, which may require modification. Trim-to-Fit linkages must be modified before installation. Full instructions are included below.

Balance your carburetors
For optimum performance from multiple carburetors, always fit the linkage after balancing the carburetors. Adjust each carburetor individually to set the idle speed and idle mixture control screws to ensure equal work from each carburetor.

For further advice, visit our Tech Center at **www.stromberg-97.com**

WARNING!
Never smoke, use an open flame, or produce any sparks where gasoline or gasoline vapors could be present. 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 or other combustible vapors that may cause severe respiratory injury, or a fire or explosion, resulting in property damage, serious personal injury or death.

WARNING!
Stromberg recommends that installation be performed only by a professional auto mechanic. An improperly fitted linkage may cause poor performance or lead to property damage, personal injury or death.

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

2. Tools required for installation

> Small protractor or angle finder
> Small flat blade screwdriver
> 3/8in and 1/2in open-end wrenches
> 3/32in hex key (Allen key)
> 5/64in hex key (Allen key)

3. TwoStep installation

Step 1. Fit linkages to each bank of carburetors

a) All carburetors should be firmly fixed to the intake manifold before installing any linkage. You may find it easier to fit the right hand bank (US passenger side) of carburetors and linkage first, starting at the front. Set the Back-bar linkage to one side for now, and connect the carburetors on each bank together first.

4x2
With reference to the main pictures, connect the two assembled linkages (with short levers and rods ends) to each pair of carburetors. Follow the instructions for 'Premium direct linkage with rod ends (2x2)', in the TwoStep Linkage Installation Guide (supplied), placing the dual swivel/rod end connection on the front carburetor of each bank. (see **Picture 1**)

6x2
For progressive systems, follow the instructions for 'Premium progressive linkage (3x2)' in the TwoStep Linkage Installation Guide (supplied with your 3x2 linkages). For 6x2 direct linkages, follow the instructions for 'Direct linkage with swivels (3x2)', placing the dual swivel/rod end connection on the center carburetor of each bank. (see **Picture 2**)

NOTE!
To avoid interference with the Back-bar, 6x2 progressive linkages are typically configured with the progressive sliding rods pointing forward, pulling the front carburetors open. (see **main pictures**)
If you are using traditional fuel hoses, the sliding rod must be attached to the lowest of the three adjustment holes on each center carburetor lever (see **Picture 3**) to avoid interference underneath the center carburetor fuel hose. With solid fuel lines (eg. Stromberg TwoStep Fuel Lines), the sliding rod can be used on the top or bottom adjustment. (see **main pictures**)
Please see Step 4. Tuning the linkage – for further details.

Picture 1

Picture 2

Picture 3

Picture 4

WARNING!
All lock nuts and screws must be fully tightened before use. The complete throttle linkage must operate freely at all times and not interfere with the fuel pump or distributor or fuel lines or hoses. Do not use the linkage in any configuration that will cause sticking and/or binding, which could result in uncontrolled engine speed, property damage, serious personal injury or death.

Step 2. Connect the Back-bar

a) Position the Back-bar brackets onto the back carburetor mounting studs, on top of the carburetor base flanges. (see **Picture 4**)

b) Add the spring washers and nuts onto the mounting studs and tighten the nuts progressively to 15 ft.lb. torque. As you tighten the nuts, constantly check that the cross-shaft spins freely in the self-lubricating bushes. Genuine Stromberg bases are cast iron, so the flange heights may vary slightly. If necessary, place a small washer (supplied) under one bracket (on the stud) to ensure perfect alignment of the Back-bar across the manifold.

c) Loosen the set screws on the two Back-bar end stops. Now fit the linkage rods between the Back-bar and each bank of carburetors. On 6x2 progressive systems, connect the front end of each rod to the long lever on the center carburetor (see **Picture 3**) leaving about 3/16in of rod visible past the swivel. On 6x2 direct systems, connect them to the center carburetor levers. (see **Picture 2**) On 4x2 systems, connect them to the front carburetor levers. (see **Picture 1**) Now slide the back end of each rod into the swivel at each Back-bar lever and tighten the swivel set screws. The Back-bar levers should be set at the same angle as those on the carburetors (aim for 40 degrees before the vertical).

d) Linkage alignment is critical to keeping the system bind-free and operating efficiently. Looking from above, check that all rods are in alignment up and down the manifold and at right angles to the Back-bar. Adjust the Back-bar cross-shaft left or right to ensure there is no bind or mis-alignment, then tighten the set screws to fix the end stops in place.

4. Tuning the linkage

All Stromberg TwoStep linkages are versatile in operation and our Back-bar systems are no exception. While our 4x2 linkages are fixed in operation, our 6x2 progressive systems can be configured in many ways. For a full discussion of the options available, check out the Stromberg Tech Center at www.stromberg-97.com

5. Connecting the throttle pedal

We recommend that 4x2 and 6x2 linkages use a direct, mechanical link to the throttle pedal. You can connect the pedal system to one of the two Back-bar levers, or add a third lever (Part number 9096K), to the Back-bar cross-shaft to suit your pedal alignment. We always recommend you drill and pin each Back-bar lever to the cross-shaft. Our long Back-bar levers have three holes so you can adjust pedal leverage and throttle response.

6. Check for interference

Before and after you attach the throttle pedal, check that all carburetors move freely from idle to Wide Open Throttle (WOT) and snap shut when released. Have someone operate the pedal inside the car while you check it works safely. Adjust your pedal stop to ensure the pedal does not strain the linkage once WOT is achieved, or cause any 'over-center' condition. Check the throttle linkage does not interfere with the fuel line and vice versa. And check that the throttle return springs work effectively.

WARNING!
Stromberg TwoStep linkages are supplied with torsion-type throttle return springs. NEVER run a carburetor without effective throttle return springs. The Stromberg 97 accelerator pump lever spring is NOT a throttle return spring. Failure to run effective throttle return springs, and/or any sticking, binding, or 'over-center' movement in any part of the linkage could result in uncontrolled engine speed, property damage, serious personal injury or death.

7. Security and maintenance

a) Engine vibration can cause fasteners to become loose over time. Once you have established your preferred linkage setting, we recommend the use of thread locker (eg. Loctite® or similar) on the linkage screws.

b) After an initial running period, and at regular intervals throughout the life of the linkage, check and retighten all fittings as required.

Trim-to-Fit Linkage kits

WARNING!
The following instructions are for general guidance only and Stromberg recommends that any modifications must be performed only by a professional auto mechanic or fabricator, taking the appropriate safety measures. An improperly built linkage may cause poor performance or lead to property damage, personal injury or death.

Step 1. Mark & trim the long Back-bar bracket

a) To accommodate the typical front/rear offset between the two banks of carburetors on 4x2 and 6x2 intake manifolds, Trim-to-Fit kits are supplied with one long and one short Back-bar bracket. Leave the short one alone! And trim the long one to accommodate the offset between banks. First, you must measure it. The brackets can accommodate offsets of up to one inch. Measure twice. Cut once!

b) On your intake manifold, put a long straight-edge across the two front mounting studs for one carburetor on

the bank that is set forward of the other. Measure back to the corresponding studs on the other bank. (see **Picture 5**) Offset A will be the difference between the two Back-bar brackets.

c) Take the longer Back-bar bracket and (on the centerline) mark a point 3/8th inch PLUS Offset A, from the inside edge of the folded bracket flange. (see **Picture 6**) Drill an 11/32in diameter hole at that point. Then, using the shorter bracket as a pattern, align the holes, mark out the forward edge and trim the bracket to match. (see **Picture 7**)

Step 2. Trim, drill & pin the cross-shaft

a) Using a straight edge against the centre mounting studs on one bank, measure the distance (Offset B) across to the other bank. (see **Picture 8**) Now, starting from up against the pinned left hand lever, mark a point along the cross-shaft equal to your Offset B LESS 0.41in (the lever thickness). Slide your lever onto the shaft (swivels pointing left, except on 6x2 direct systems) up to your mark. (see **Picture 9**) Lie the two levers down onto a flat surface to keep them indexed in the same orientation on the shaft, then tighten the clamp screw to fix the lever onto the shaft.

b) You may want to assemble the Back-bar linkage onto the intake and carburetors at this point to double check the location. (see **main pictures**) Both levers should be the same distance from their nearest brackets.

c) When you have confirmed the position, drill the lever and shaft (use the pinned lever as a guide) to accept the roll pin (supplied). Use the hardest 3/32in drill you can find. Take it slowly and use plenty of lubrication. Do not insert the pin. Remove the lever from the shaft.

d) Now cut the cross-shaft to length. The overall length is typically 4 7/8in PLUS your Offset B, but again, you may prefer to assemble it onto the carburetors (remembering the end stop) and check it visually.

e) Now re-assemble the whole Back-bar kit (see **main pictures**) and fix the lever to the cross-shaft with the roll pin.

Step 3. Tune the linkage rod lengths

a) Trim-to-Fit linkages are supplied over-length to suit most known intake applications so may need shortening to fit. First, measure the spacing (Offset C) between carburetors on each bank. (see **Picture 10**)

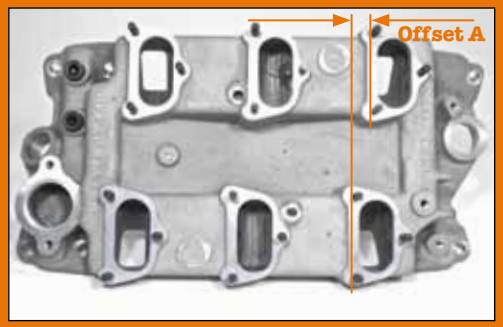
b) On 6x2 direct linkages, slide the long plain rod through the swivels on all three levers on each bank and trim it with around 3/16 to 1/4in showing clear past the swivels at each end. On 4x2 systems, remove the two threaded rods from the rod ends and lock nuts on the front and rear carburetor levers. Starting at the left-hand-threaded end of the rod, measure a length equal to your carburetor spacing (Offset C, but each bank will have just two carburetors, of course) MINUS 1.5in. Trim the rod to length then rethread the end of the rod using a 3/32in right-hand-thread UNF die. Ensure you have at least 1/2in of thread at each end of each rod. You may find it easier to mark your points first, then extend the current thread further down the rod (which helps with die alignment) before trimming each rod to length. Replace the rods into the lock nuts and rod ends and fit the linkage as per the instructions above.

c) Now shorten the linkage rods from the carburetors to the Back-bar levers. Fit them as described overleaf, then trim the excess length, allowing around 1/4in showing clear past the end swivels. Remember that on intakes with an offset between banks, one link will be longer than the other (by your measured Offset A).

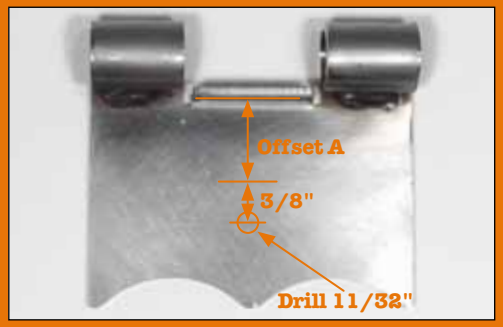
d) Return to '1. Read this first' at the start of this Guide and check you have installed your linkage according to the instructions, diagrams and Warnings provided.

For further information and assistance, please contact your Genuine Stromberg dealer or email us direct at **tech@stromberg-97.com**

You'll also find more information and pictures at the Stromberg Tech Center at **www.stromberg-97.com**



Picture 5



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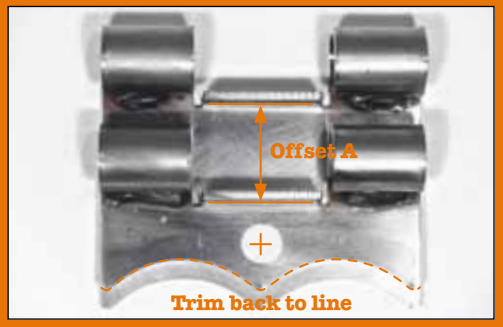

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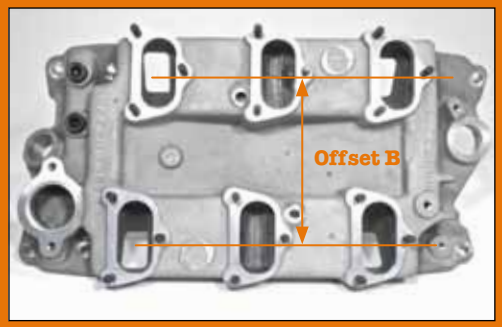

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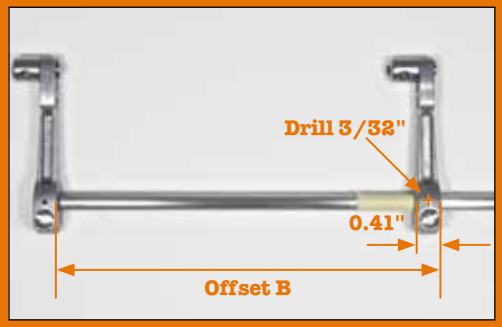
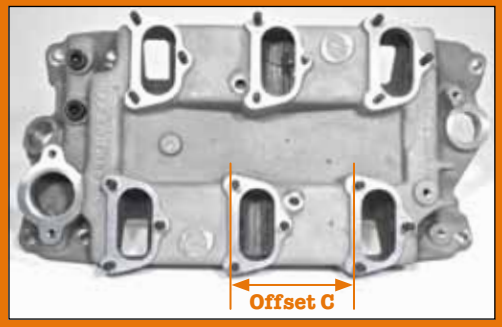


Picture 9



Picture 10

Stromberg TwoStep 4x2 and 6x2 Linkage and Back-bar kits

TwoStep 4x2 linkage

TwoStep 4x2 linkage

TwoStep 6x2 direct linkage

TwoStep 6x2 Back-bar kit

TwoStep 6x2 Back-bar kit with 3x2 progressive linkages

TwoStep 6x2 Back-bar kit adjusted for parallel link rods at rest