

GENUINE
STROMBERG

97

TwoStep linkage

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, 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 linkages are designed to fit Stromberg 97, 81, 48 and 40 carburetors on specific intake manifolds. Carburetor spacing differs between intake makes and models. Please check that you have the right linkage for your application before you attempt installation.

All carburetors should be firmly fixed to the intake manifold before installing the linkage. Your linkage comes pre-assembled, but installation is easier if you remove the sliding linkage rod from progressive linkages first. Leave any rod ends fixed in place. All linkage lock nuts, screws and grub screws must be fully tightened before use.

WARNING!

Do not over-extend the threaded rod to fit an application that your linkage was not designed for. Keep no more than six threads visible past the lock nuts at all times.

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 open-end wrench
- > 3/32in hex key (Allen key)
- > 5/64in hex key (Allen key)



Stromberg TwoStep linkages



Direct linkage with swivels (2x2 shown)



Premium direct linkage with rod ends (2x2)



Premium progressive linkage (3x2) pushing rear carburetor



Premium progressive linkage (3x2) pulling front carburetor

3. TwoStep installation

Direct linkage with swivels (2x2 and 3x2)

Step 1 - Fit the SuperLink arms

- a) Hook one of the supplied torsion-type carburetor return springs over a SuperLink lever arm and slide it over the front carburetor throttle shaft, pointing upwards with the clamping screw head to the right. (**See Picture 1**) They are designed for a tight fit. Ensure the spring is located correctly on the base casting as shown.
- b) Use a small school protractor or angle finder to set the lever to 40 degrees before the vertical. (**See Picture 2**) Tighten the countersunk lever clamping screw with a long, flat blade screwdriver. Do not over-tighten. The spring should now keep the carburetor 'snap shut' against the throttle stop screw on the other side of the carburetor. (**See Picture 3**)
- c) Now work backwards, fitting the other return spring and SuperLink arms to the other carburetors. Set them all at the same angle and the same distance onto the throttle shaft (use the hole in the shaft as a guide). Three-carburetor systems only need two springs - fit one to the carburetor which is linked to the throttle pedal.

Step 2 - Fit the linkage rod

- a) Slide the linkage rod through the swivels to connect the carburetors together. Eye the rod through from above to ensure the rod is parallel to the carburetors and does not bind in operation. (**See Picture 4**) If not, go back to Step 1 and readjust the levers as required.
- b) Check that each carburetor is still firmly shut against its throttle stop screw. (**See Picture 3**) Center the linkage rod between the swivels and tighten the grub screws on the front of the swivels with the 3/32inch hex key. Go to Part 5, overleaf.

Premium direct linkage with rod ends (2x2)

Step 1 - Fit the SuperLink arms

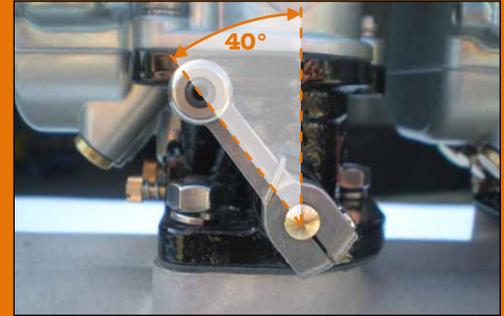
- a) Install the SuperLink lever arms and torsion-type return springs as described above (Premium direct linkage with swivels), but install the linkage fully assembled. (**See Picture 5** overleaf)
- b) Set the front carburetor lever arm at 40 degrees before the vertical (**See Picture 2**) and tighten the countersunk lever clamping screw. Do not over-tighten. The rear carburetor lever arm should now fall into approximate alignment.
- c) Eye the linkage through from above to ensure correct alignment, adjusting the rear lever arm on the throttle shaft to correct any misalignment.

Step 2 - Adjust the linkage rod

- a) Before you clamp the lever arm to the rear carburetor, check that it is at the same angle as the front lever **with both carburetors shut against their throttle stops**. (**See Picture 3**)
- b) If the rear carburetor lever arm is not at the same angle, or if it is binding, or if one of the carburetors is not shut against its throttle stop, you must adjust the length of the linkage rod between the two rod ends. **The linkage must fit your pre-set 'balanced' carburetor idle settings - not dictate them.**
- c) To adjust the linkage rod length, loosen the rod end lock nuts, which are right and left-hand threaded at opposite ends. Then adjust the rod length by turning the rod to pull the rod ends closer together or further apart. (**See Picture 5** overleaf) When both levers are at the same angle and both carburetors are shut against their throttle stops, tighten the lock nuts onto the rod ends using the 3/8in open-end wrench, taking care not to alter the rod length. Do not over-extend the threaded rod. Then tighten the rear carburetor lever clamping screw. Do not over-tighten. Go to Part 5, overleaf.



Picture 1



Picture 2



Picture 3



Picture 4

Premium progressive linkage (3x2)

The Stromberg 3x2 progressive linkage is delivered with the sliding rod from center (primary) to outer (secondary) carburetors set to push the rear carburetor open. It can also be configured to pull the front carburetor open.

Push linkage (on rear carburetor):

Configure the linkage this way if you are using fuel hoses to a firewall-mounted fuel block. (See **Picture 6**) DO NOT configure it this way if you are using a stock Ford flathead fuel pump. The linkage will hit the fuel pump.

Pull linkage (on front carburetor):

Configure the linkage this way if you are using a Stromberg TwoStep 3x2 fuel line with the stock Ford flathead fuel pump. (See **Picture 7**) DO NOT configure it this way if you are using fuel hoses to a firewall-mounted fuel block. The sliding rod will rub on the center carburetor fuel hose.

If you are using a Stromberg TwoStep 3x2 fuel line for a remote fuel pump, you can configure the linkage either way for additional flexibility. (See **'Tuning the linkage'**, below.)

WARNING!

The throttle linkage must operate freely at all times and not interfere with the fuel pump or lines or hoses, and vice versa. Do not use the linkage in any configuration that will cause sticking and binding, which could result in uncontrolled engine speed, property damage, serious personal injury or death.

Step 1 - Fit the SuperLink arms

- Follow the instructions as described overleaf (Premium direct linkage with rod ends) to mount the two short SuperLink lever arms onto the two outer carburetors. Use the smaller torsion-type throttle return spring (supplied) on one of these two carburetors.
- The swivels on these two arms are different. One has a hole right through it for the sliding linkage rod (and a front grub screw for added versatility). The other has a small blind cross-hole used only as a levering point for tightening the nut on the back.

Push linkage (on rear carburetor):

Mount the swivel with the full cross-hole on the rear carburetor. (See **Picture 6**)

Pull linkage (on front carburetor):

Mount the swivel with the full cross-hole on the front carburetor. (See **Picture 7**)

- Adjust the linkage rod length as required to ensure both lever arms are at the same angle (ie. 40 degs before the vertical) **with both carburetors shut against their throttle stops** before you tighten the lock nuts and clamping screws. (See **Pictures 2 & 3** overleaf.) **The linkage must fit your pre-set 'balanced' carburetor idle settings - not dictate them.**
- Now mount the long lever arm (and its bigger torsion spring) on the center carburetor. Clamp it tight at the same angle as the smaller levers, with all three carburetors firmly shut against their throttle stops. Check that the center lever arm does not touch the linkage rod between the two outer carburetors. For most applications, keep the swivel in the top hole of the center lever arm. (See **'Tuning the linkage'**, below.)

Step 2 - Fit the sliding linkage rod

- Mount the sliding (primary to secondary) rod through the center and outer swivels (front or rear carburetor), with one tapered throttle stop each side of the outer swivel. Tighten the grub screw in the center swivel with a 3/32in hex key, leaving around 3/8th inch of rod clear past the swivel. Leave the grub screw loose in the outer carburetor swivel, allowing the rod to slide.
- Eye the rods through from above (See **Picture 8**) and adjust the position of the center lever on its shaft to keep the two rods close to parallel and avoid any binding in the swivels.
- Now set the throttle stops to achieve Wide Open Throttle (WOT) on all three carburetors at the same time. It's easier with a helper.

Push linkage (on rear carburetor):

Hold all three carburetors at wide open throttle. Slide the tapered throttle stop that's between the two carburetors up to the swivel on the rear carburetor and tighten it up with the 5/64in hex key.

Pull linkage (on front carburetor):

Hold all three carburetors at wide open throttle. Slide the tapered throttle stop on the far end of the rod up to the front carburetor swivel and tighten it up with the 5/64in hex key.

Return the carburetors to idle, then slide the other throttle stop to meet the same swivel, but from the other direction. Lock that one down too.

- 3x2 linkage, with all its return springs, can cause the center Stromberg throttle shaft to twist in operation. In some applications, you may need to account for this twist by adjusting the throttle stop even further along the sliding rod to push or pull the outer carburetors to WOT.

4. Tuning the linkage

The baseline setting described above will work for most applications. With the swivel on the top hole of the center carburetor lever arm, the linkage will start to open the outer carburetors at around 50% throttle rotation (ie. when the center arm is around vertical). We say 'around' because the geometry changes for different intake manifolds, and whether you use a push or pull linkage system.

One setting does not fit all applications. The weight of the car, the gearing and rearend ratios, the engine tune and drivability, your favored freeway cruising speed, and more, can all play a part. The Stromberg linkage is hugely flexible in operation and you can tune it for many different outcomes.

For details of alternative settings, with geometry and advice on how to get the best from your linkage, visit our Tech Center at www.stromberg-97.com

5. 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. 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!

Stromberg torsion-type throttle return springs are supplied. NEVER run a carburetor without an effective throttle return spring. The Stromberg 97 accelerator pump lever spring is NOT a 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, property damage, serious personal injury or death.



Picture 5



Picture 6



Picture 7



Picture 8

6. 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 grub screws (including the one in the sliding swivel).
- b) After an initial running period, and at regular intervals throughout the life of the linkage, check and retighten all fasteners as required.

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You'll find more information and pictures at the Stromberg Tech Center.

Log on to **www.stromberg-97.com**