



INSTRUCTIONS

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REV. 02-06-2003

Kit Number 27432-02

SCREAMIN' EAGLE® SUPER BORE 51 MM CV CARBURETOR TUNER KIT

General

This kit is designed for use on Screamin' Eagle® Super Bore 51mm CV carburetor, Part Number 27926-02. The kit contains a selection of jets and needles to help tune the carburetor, and can be used with Carburetor Rebuild Kit 27524-02.

CAUTION

Harley-Davidson® motorcycles equipped with some Screamin' Eagle® high-performance engine parts may not be used on public roads and in some cases must be restricted to closed course competition.

This engine related performance part is intended for racing applications and is not legal for sale or use in California on pollution controlled motor vehicles.

Engine related performance parts are intended FOR THE EXPERIENCED RIDER ONLY.

Kit Contents

See the Service Parts illustration on the last page of these instructions for kit contents.

NOTE

Refer to the applicable Service Manual for detailed instructions for removing necessary components. A Service Manual for your model motorcycle is available from any Harley-Davidson dealer.

WARNING

Do not smoke or allow open flame or sparks near gasoline. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury.

Removal

For removal procedures refer to the "Fuel System" section in a 1999 or later Service Manual for Carbureted Twin Cam model motorcycles.

Reassembly

This Super Bore carburetor uses many of the same parts and rebuilding procedures as stock 1999 and later CV Carbureted models. Refer to the "Fuel System" section of a 1999 or later Twin Cam Service Manual for Super Bore carburetor reassembly procedures.

Installation

For installation refer to the "Fuel System" section in a 1999 or later Service Manual for Carbureted Twin Cam model motorcycles.

51mm Carburetor Tuning Procedures:

The 51mm Super Bore CV Carburetor, as shipped, is calibrated for use on modified Harley-Davidson Big Twin engines equipped with Screamin' Eagle bolt in High Performance Cam, Air Cleaner, Cylinder Heads and Exhaust System.

The carburetor, as shipped, is fitted with a #48 slow jet, an NDKS jet needle and a #230 main jet.

NOTE

All carburetor tuning should be performed with the engine warmed up to normal operating temperature.

NOTE

Prior to performing any jetting changes, ensure the carburetor and manifold are installed correctly and there are no intake leaks. Also make sure the float is adjusted correctly. Refer to the "Fuel System" section in a 1999 or later Service Manual covering Carbureted Twin Cam model motorcycles for float adjustment procedures.

Lean Conditions

If you experience lean running conditions such as the engine spitting back through the carburetor and/or hesitation upon acceleration, the carburetor may need to be jetted for a richer running condition.

Rich Conditions

If fuel economy drastically decreases, black smoke appears from the exhaust, acceleration is sluggish, and/or the spark plugs are black and sooty, the carburetor may need to be jetted for a leaner running condition.

Changing Jet Needles

The jet needles that can be used on this carburetor are listed below, from leanest to richest.

- **NDKT:** The leanest. Provided in this kit.
- **NDKS:** Comes with carburetor. Not included in this kit.
- **NDKR:** Provided in this kit.
- **NDKU:** Provided in this kit.
- **NDKV:** The richest. Provided in this kit.

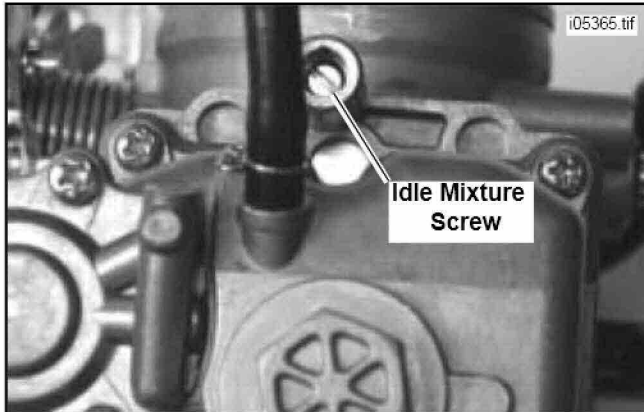
NOTE

The jet needles for the OE stock and CV Big Bore 44mm carburetors are too short and cannot be used in the Super Bore 51mm carburetor.

Idle and Off-Idle Adjustment:

The Idle Mixture Screw is a fuel adjustment screw located on the bottom of the carburetor (outlet side) in a passage-way (see Figure 1). Turning the Idle Mixture Screw in (clock-wise) will lean the idle mixture and turning it out (counter-clockwise) will enrich it. Adjusting the Idle Mixture Screw will adjust the idle and off-idle operating mixture.

If the idle mixture requires adjustment, start at the initial setting point of 1-1/2 turns out and an idle speed of 1000 rpm. Then adjust the screw 1/2 turn at a time, (in for a leaner mixture, out for a richer mixture) After each adjustment, reset the idle speed back to 1000 rpm and check the engine for improvements in operation.



**Figure 1: Idle Mixture Screw (IMS) Location
(Viewed from Carburetor Bottom)**

NOTE

Do NOT turn the Idle Mixture Screw out more than 3-1/2 turns. If good operation is achieved at 3-1/2 turns out, you may want to install one size larger SLOW jet, then readjust the Idle Mixture Screw.

NOTE

Do NOT tightly bottom out the Idle Mixture Screw or damage to the screw and its seat may result. If good operation is achieved at 1/2 turn out, you may want to install one size smaller SLOW jet, then readjust the Idle Mixture Screw.

Off Idle to 1/4 Throttle Mixture:

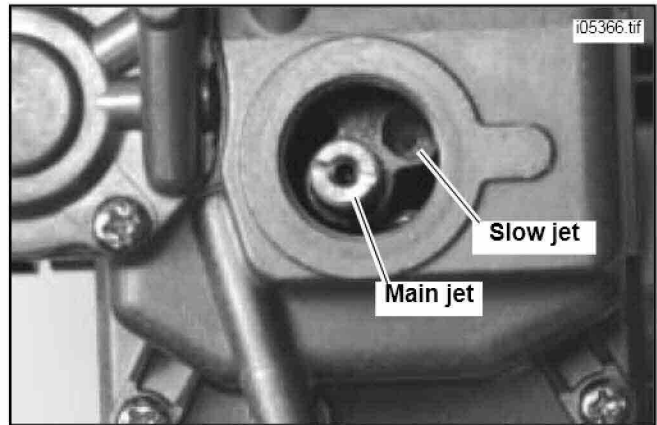
The SLOW jet affects the engine's mixture from off-idle to approximately 1/4 throttle. Changing the SLOW jet also affects the idle mixture adjustment, so the idle will need to be reset if the SLOW jet is changed.

1/4 to 3/4 Throttle Mixture:

The JET needle mainly affects the engine's mixture from approximately 1/4 to 3/4 throttle position.

3/4 to WOT (Wide Open Throttle) Mixture:

The MAIN JET affects engine mixture above 3/4 throttle position. The most effective method to tune this area is to perform timed runs between two fixed points. Begin by cruising at a steady speed of approximately 60 mph in high gear. When you pass the 1st point, open the throttle to WOT and have someone measure the time it takes to reach the 2nd point. Change the MAIN jet and repeat this process until the fastest time is obtained.



**Figure 2: Carburetor Jets (Viewed from
Carburetor Bottom, with Bowl Plug Removed)**

Vacuum Piston Spring:

The Super Bore 51mm CV carburetor comes equipped with a 200/290 gram vacuum piston coil spring (item 22, Part Number 27162-89). The Tuner Kit has a lighter 130/210 gram spring (Part Number 27728-99) included which will make the transition from off-idle to WOT quicker.

Additional Items (not in Tuner Kit 27432-02)

In addition to the items included in this Tuner Kit (see Page 3), the following CV carburetor parts can also be used. These items can be obtained from any Harley-Davidson Dealer.

Item	Description	Part Number
1.	Main Jet #180	27114-88
	Main Jet #185	27185-90
	Main Jet #190	27243-95
	Main Jet #195	27275-96Y
22.	Spring 200/290 gm	27162-89
23.	Slow Jet #45	27170-89
23.	Slow Jet #48	27165-90

NOTE

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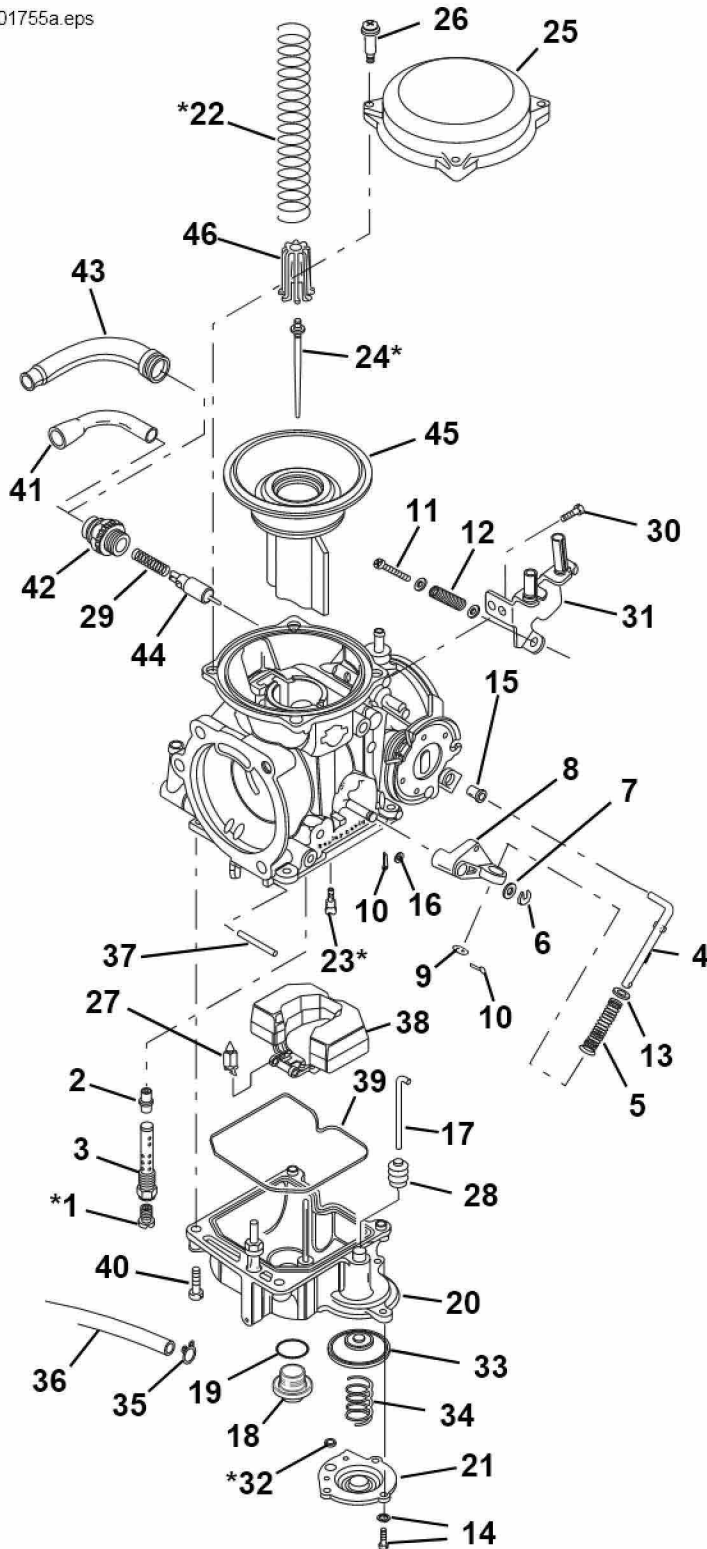
Service Parts

Kit No. 27432-02

Date 02/03

51mm Super Bore CV Carburetor Tuner Kit

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**NOTE:**

"Bold" items marked with an asterisk (*) are included in this Tuner Kit. (Part Number 27432-02).

All other items are for illustration purposes only. Service Parts have a Harley-Davidson Part No. listed.

Item	Description	Part No.
1*	Main Jet	
	#200	27105-88
	#210	27726-99
	#220	27775-99
	#230	27776-99
	#240	27778-99
	#250	27779-99
2	Needle jet	27743-03
3	Needle jet holder	27056-03
4	Rod	27122-89
5	Spring	27123-89A
6	E-clip	27124-89
7	Washer	27125-89
8	Lever	27126-89
9	Washer	27127-89
10	Pin (2)	27128-89
11	Idle screw	27130-90
12	Spring	27136-90
13	Washer	27137-81
14	Screw w/ washer (3)	27146-89
15	Collar	27147-89
16	Washer	27148-89
17	Rod	27156-89
18	Plug, bowl	27744-03
19	"O"-ring, bowl plug	27556-03
20	Float chamber assembly	27055-03
21	Pump housing	27260-00
22*	Spring (130/ 210 gram)	27728-99
23*	Slow jet	
	#50	27724-99
	#52	27780-99
	#55	27735-03
24*	Jet needle (listed lean to rich)	
	NDKT (leanest)	27736-03
	NDKS (not in this kit)	27742-03
	NDKR	27737-03
	NDKU	27738-03
	NDKV (richest)	27739-03
25	Top, carburetor	27740-03
26	Screw, Top (4)	27262-96
27	Valve w/clip	27886-78A
28	Boot, accelerator top	27311-76
29	Spring	27315-88A
30	Screw (2)	27317-88
31	Bracket, throttle cables	27741-03
32	"O"-ring (2)	27360-76
33	Diaphragm, accelerator pump	27361-76A
34	Spring, diaphragm	27362-76
35	Clip, overflow hose	27368-76
36	Hose, overflow w/clip	27553-99
37	Pin	27575-88A
38	Float	27576-92
39	"O"-ring, float chamber	27577-92
40	Screw (4)	27579-88A
41	Cable guide	27580-88
42	Starter cap	27581-88
43	Cable sealing cap	27582-88
44	Starter valve	27583-88
45	Vacuum piston	Not sold
46	Spring seat	27586-88