INSTRUCTIONS

-J01703 REV. 7-12-2004

Kit Number 29640-99 and 29641-99

SCREAMIN' EAGLE® 42 mm FLATSLIDE CARB KITS

General

These kits are designed for use on 1990 and later 1340 Evolution engines and 1999 and later Twin Cam 88 engines. SCREAMIN' EAGLE air cleaner kits must be used with these carburetors. See "Additional Kits Required" for Part No.

Part No. 29640-99- Kit, Carburetor, polished
Part No. 29641-99- Kit, Carburetor, unpolished
Part No. 29564-98- Kit, Tuner, race
Part No. 29565-98- Carburetor Rebuild Kit for SCREAMIN' EAGLE 42MM flatslide carbs used in above kits.

NOTE

This kit will not fit cruise control equipped vehicles.

CAUTION

Harley-Davidson motorcycles equipped with some Screamin' Eagle high-performance 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 Service Parts Illustration and list on page 7 for kit contents:

Additional Kits Required

SCREAMIN' EAGLE air cleaner Part No.'s are as follows:

1990-1992 1340 Evolution engines-29008-90A
1993 and later 1340 Evolution engines-29543-99
1999 and later Twin Cam 88 engines-29440-99

Stock Carburetor Configuration

Accelerator Pump Nozzle: 70	Not Available Separately
Jet Needle (Clip Position 3): 97	Part Number 27923-98
Pilot Jet: 25	Part Number 27903-98
Main Jet: 160	Part Number 27916-98

⚠WARNING

Use of this kit with air cleaner covers other than those recommended in the above listed kits could result in failure of element faceplate. The element in this kit is specifically designed for use with the original equipment cover used on the models specified. This kit may be used in conjunction with other H-D accessory covers provided that the appropriate adapter recommended in those kits is used. If the element faceplate fails, the air cleaner cover could detach, possibly distracting the rider and could result in death or serious injury.

Removal of Stock Air Cleaner, Throttle Cables and Carburetor (All Models)

⚠WARNING

The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)

NOTE

Service Manuals are available from your Harley-Davidson Dealer.

⚠WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative (-) cable first) before proceeding. (00307a)

⚠WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

1. Disconnect negative battery cable first followed by positive cable.
2. Remove stock air cleaner assembly including backplate.

⚠WARNING

Gasoline can drain from the fuel line when disconnected from carburetor. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. Wipe up spilled fuel immediately and dispose of rags in a suitable manner. (00257a)

3. Turn fuel valve to OFF position. Disconnect fuel line at carb and drain any remaining gas into proper container. Remove fuel tank.

⚠WARNING

Use red fuel storage container only. Storing gas in unapproved container could create a dangerous situation such as leakage, leading to explosion or fire hazard which could result in death or serious injury.

4. Disconnect the throttle cables at the carburetor.
5. Disconnect Vacuum Operated Electrical Switch (VOES), if present, and choke/enrichener cable. Remove carb.

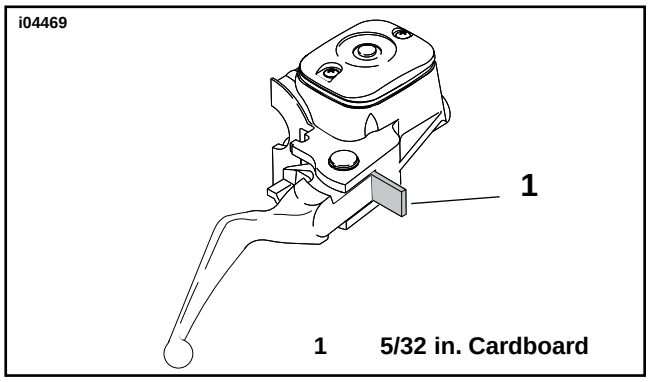


Figure 1. Install Cardboard insert (1996 and later)

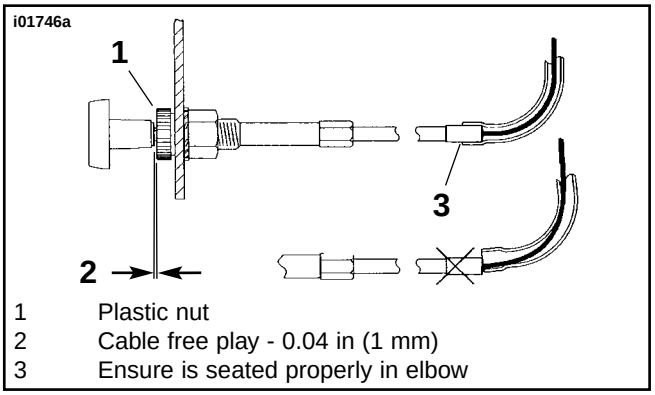


Figure 2. Proper Choke Cable Free Play

NOTE

This carburetor is designed to work with stock throttle cables, so removal of existing stock cables is NOT required.

Starter System (Choke)

The carburetor in this kit uses stock choke cable and stock black plastic nut. Remove black plastic nut from kit carburetor and discard it. Remove spring and plunger from carburetor kit and install them on the stock choke cable and attach to kit carb. Discard stock choke spring and plunger. Do not over tighten the plastic nut. See Figure 2.

Carburetor Installation

NOTE

Unless otherwise indicated, the following installation procedures apply to both Evolution and Twin Cam 88 engines.

⚠WARNING

When installing cables to the new carburetor make certain that cables are well lubricated and do not bind when handlebars are turned from lock to lock. Improperly installed throttle cables can affect vehicle operation which could result in death or serious injury.

NOTE

If throttle cables require lubrication, refer to Figure 1 on 1996 and later models. Insert 5/32 in. cardboard as illustrated to prevent damage to brake switch boot.

NOTE

In the next step, on certain models, it may be necessary to remove the cable tie in order to achieve non-binding cable routing.

1. Refer to the Figures 3 and 4 and your applicable Service Manual to begin throttle cable installation. Start by connecting the idle cable then the throttle or opening cable.

NOTE

This kit contains a cable guide clamp that may be attached at one of the tapped holes on the right front of the frame. Also cable straps are in kit to secure throttle cables. Install clamp and cable straps after carburetor has been installed.

NOTE

Before inserting the carburetor into the stock manifold , check the condition of the rubber seal. If the seal is damaged, it must be replaced to prevent air leakage. The fit between the carburetor and the seal ring is tight. For ease of installation it is recommended that the mating surfaces, carburetor body and seal ring be lubricated prior to assembly to reduce surface friction. Use liquid dish soap or tire mounting lube for this purpose.

2. Insert the carburetor into the manifold. As the carb is being inserted, check that the choke cable is not being kinked.
3. See Figure 4. Slip the VOES/fuel petcock vacuum hose on the carburetor fitting below idle cable bracket.
4. Slip the fuel hose onto the carburetor fuel nipple and secure with hose clamp from kit.
5. Route float bowl overflow hose behind rear cylinder push rod tubes and down between crankcase and transmission.

NOTE

Continue at "Attaching Adapter to Backplate-1340 Evolution Engine" for 1340 Evolution Engine or "Attaching Adapter to Backplate-Twin Cam 88 Engine" as applicable.

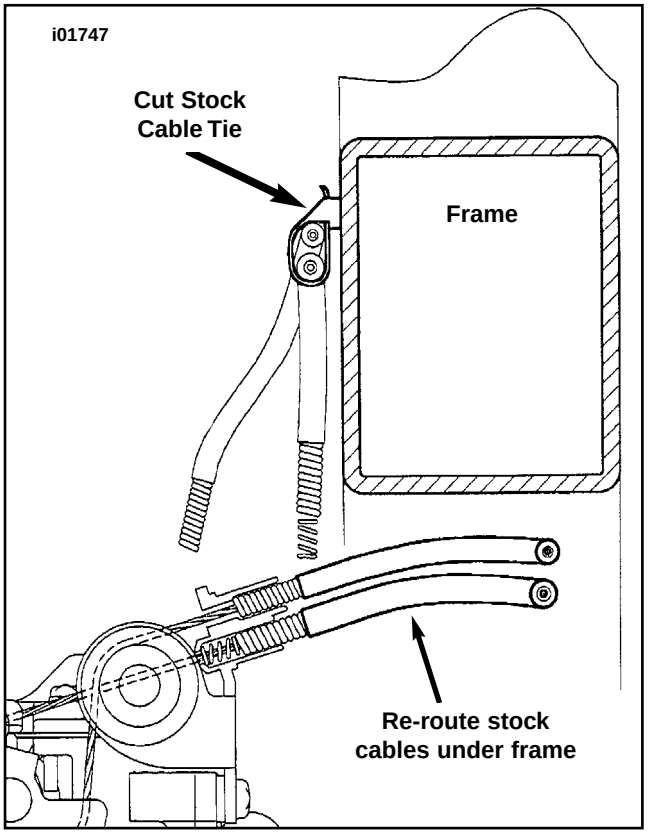
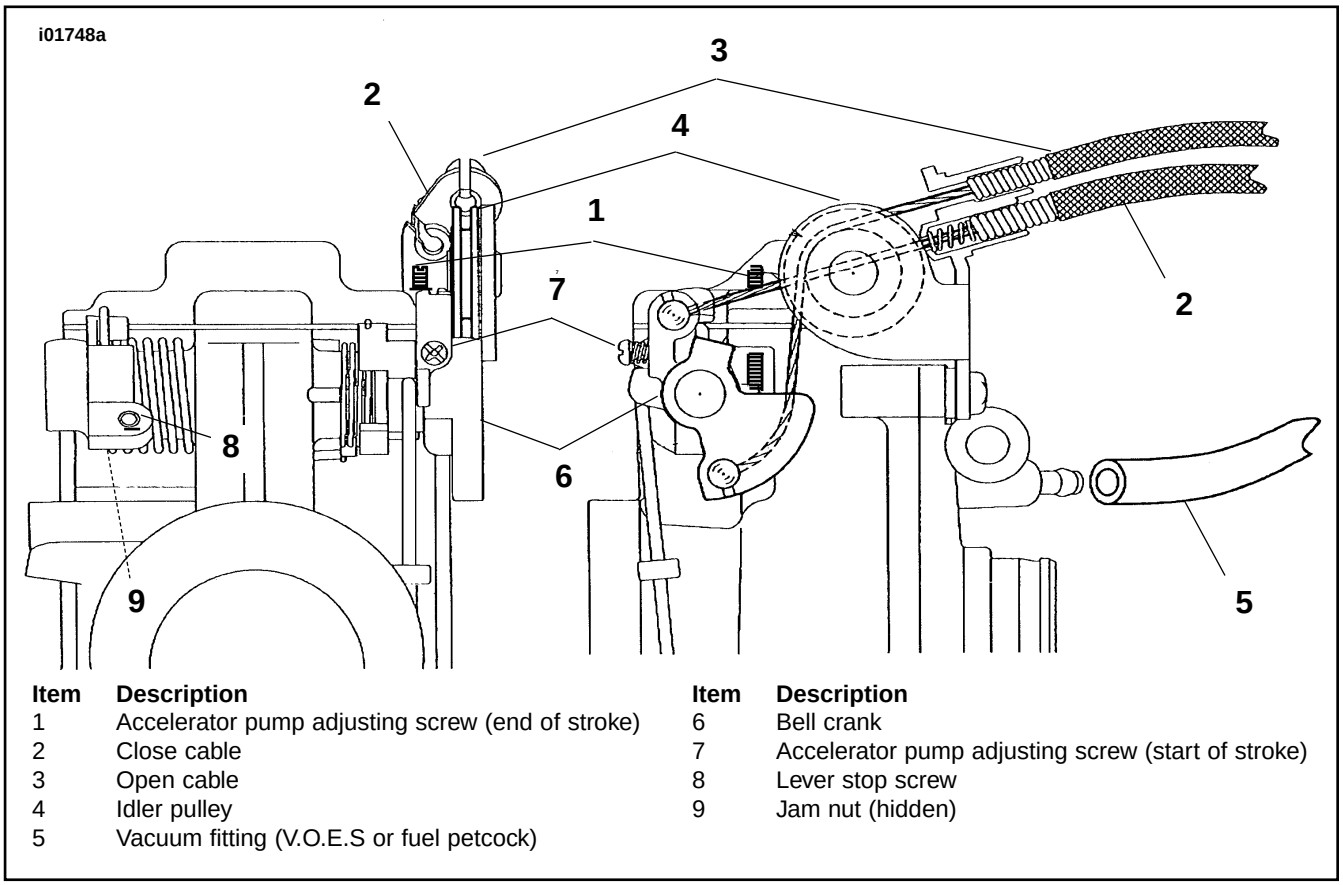


Figure 3. Throttle Cable routing under Frame



Item	Description
1	Accelerator pump adjusting screw (end of stroke)
2	Close cable
3	Open cable
4	Idler pulley
5	Vacuum fitting (V.O.E.S or fuel petcock)
6	Bell crank
7	Accelerator pump adjusting screw (start of stroke)
8	Lever stop screw
9	Jam nut (hidden)

Figure 4. Front and Side View of Throttle Cable Routing (including VOES)

Attaching Adapter To Backplate-1340 Evolution Engine

CAUTION

In the next step, do not use the stock screws from backplate assembly. The screws are too long and will prevent O-ring sealing interface between adapter and carb.

1. See Figure 5 on page 4. Insert the large diameter O-ring into the adapter. Attach the adapter to the backplate with the screws from SCREAMIN' EAGLE air cleaner kit. Apply 1 or 2 drops of Loctite 243 (blue) on each of the screws.

CAUTION

Before attaching backplate to cylinder heads, check that carb is fully inserted into the manifold. If the carb is not fully seated, air leaks might result.

2. Refer to Instruction Sheet covering applicable SCREAMIN' EAGLE air cleaner kit and follow instructions given to install air cleaner assembly.

Attaching Adapter To Backplate-Twin Cam 88™ Engine

1. See Figure 6 on page 4. Insert the large diameter o-ring into the adapter. Attach the adapter to the SCREAMIN' EAGLE backplate with the three studs from air cleaner kit. The studs must be inserted through mounting holes in backplate and gasket on back side of backplate and finally threaded into adapter.

CAUTION

Before attaching backplate to cylinder heads, check that carb is fully inserted into the manifold. If the carb is not fully seated, air leaks might result.

2. Refer to Instruction Sheet covering applicable SCREAMIN' EAGLE air cleaner kit 29440-95, and follow instructions given to install air clean assembly.

Throttle Cable Adjustment

See Figure 4. Refer to the applicable Harley-Davidson Service Manual and adjust throttle cables following the instructions given. Adjust throttle cable so throttle valve (slide) opens fully. Lever stop screw should touch carb body at wide open throttle. To adjust lever stop screw, loosen jam nut and turn screw in (clockwise) or out (counterclockwise), respectively.

Starting

Pull choke out fully, leave throttle closed and crank engine with starter. Push choke knob in as engine warms up and engine runs smoothly.

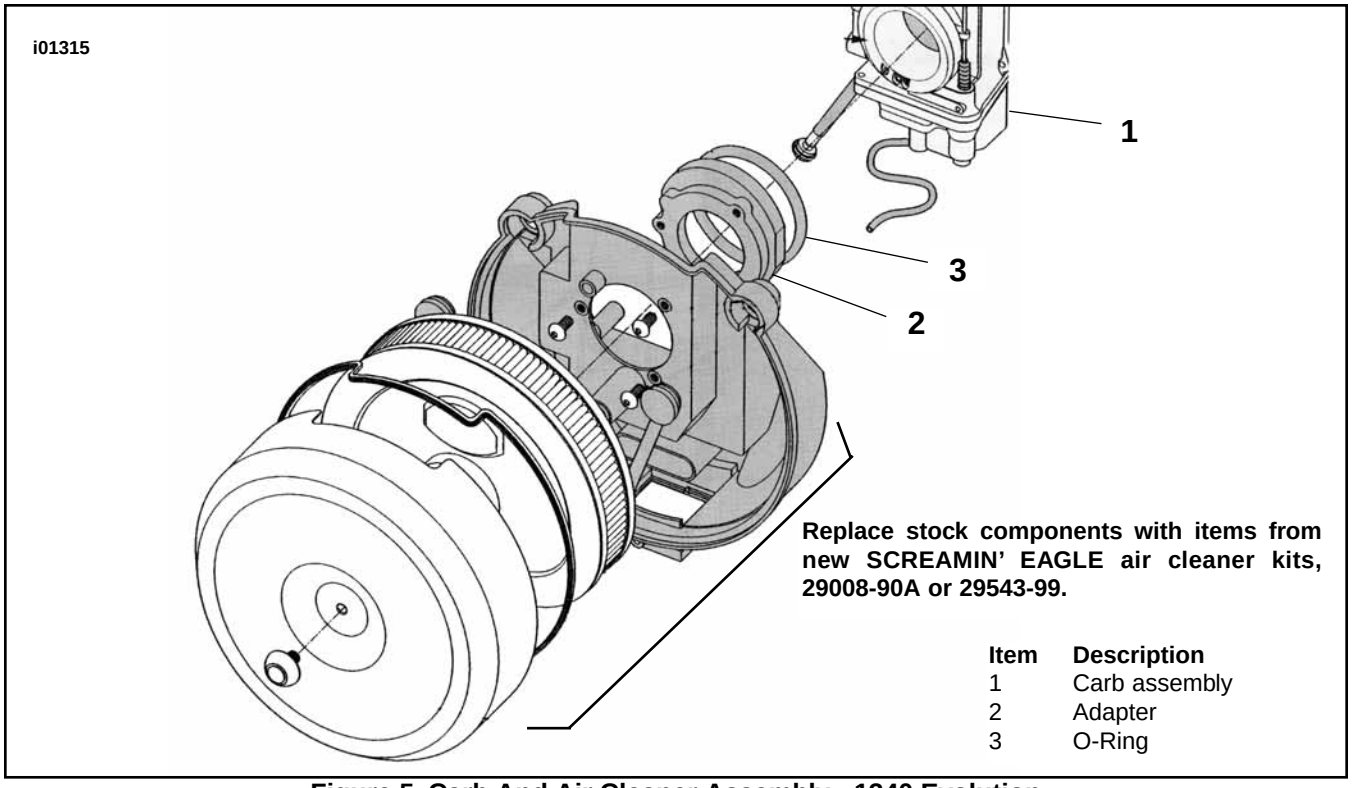


Figure 5. Carb And Air Cleaner Assembly - 1340 Evolution

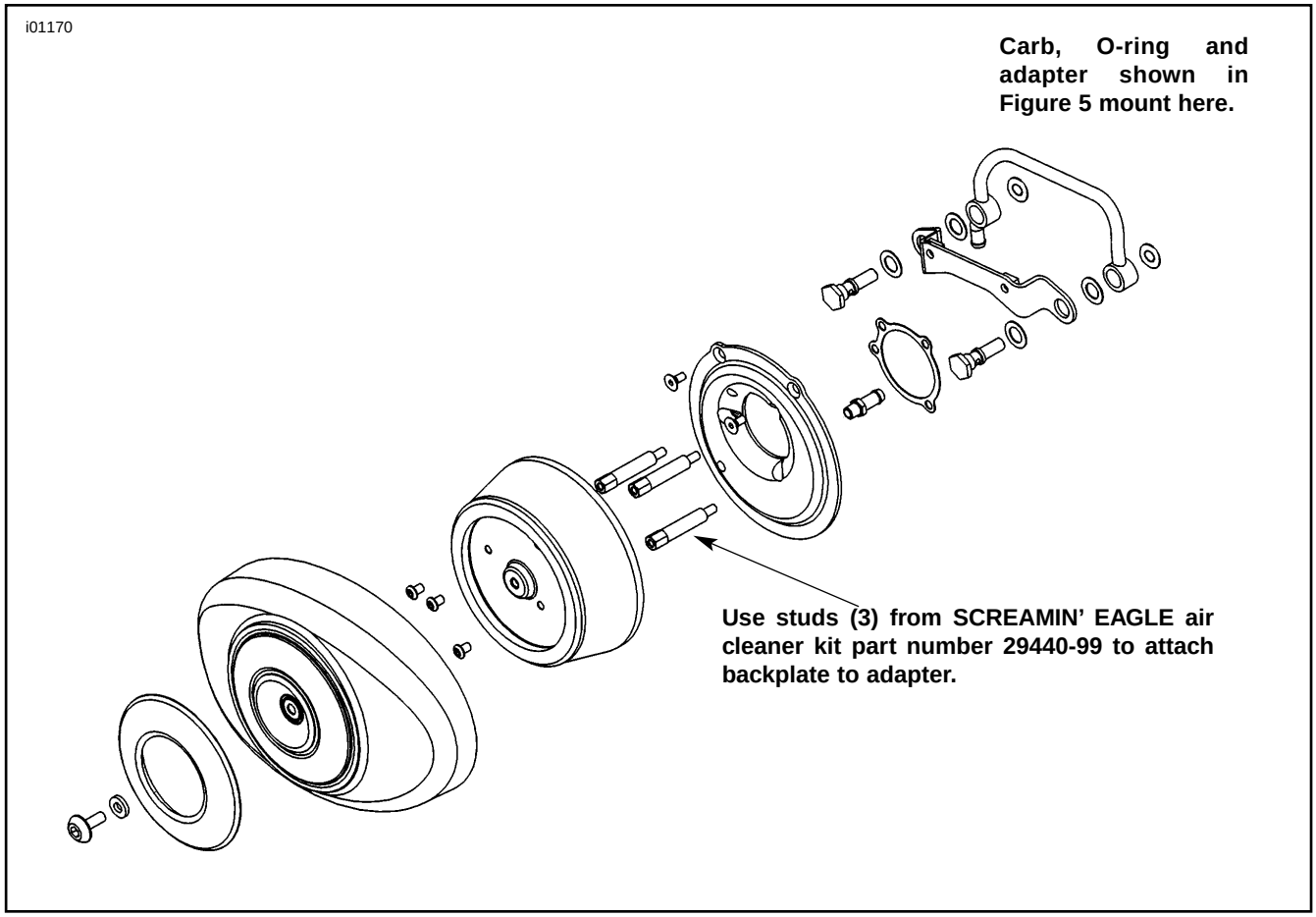


Figure 6. Air Cleaner Assembly-Twin Cam 88

RECOMMENDED TUNING PROCEDURES

This carburetor is tuned to run well on a majority of Harley-Davidson engine configurations however, if fine tuning is required for a particular engine configuration, follow these recommended tuning procedures.

Tuning the Pilot Circuit

The first step in tuning the carburetor is to adjust the idle circuit. This is done by adjusting the idle air screw for the best idle. The factory sets the air screw at two turns out during assembly. If the air screw position has been altered, reset it to two (2) turns out by turning the screw in (clockwise) and gently bottoming the screw on its seat, then turn out (counterclockwise) two full turns. Ride the bike until the engine is at normal operating temperature. With the motorcycle sitting upright, off its side stand and idling at 1000 rpm, adjust the air screw in (richer) slowly until the idle either slows or becomes irregular, then begin turning the screw out (leaner) until the engine again slows or begins an irregular idle. Count the number of turns between the too rich and too lean positions. Set the air screw mid-way between the the too rich and too lean positions. If the above idle screw setting procedure results in the air screw at less than 3/4 turn out, or more than 2 turns out, the pilot jet should be changed to a larger or smaller size, respectively.

How to Change the Needle and Needle Position

Remove the top cover. Use a long 2.5 mm allen wrench to loosen the needle retainer screw. Move the needle retainer aside to clear the needle's e-clip. Back out the idle speed adjuster five or six turns to bottom the slide. Remove the jet needle with needle nose pliers, or invert the carb and the needle will fall out. There is plastic washer under the needle clip, make sure to save this for re-installation of the needle. Carefully remove the e-clip and raise or lower as required. Re-install needle with plastic washer under the e-clip. Relocate the retainer to hold the needle securely in place and tighten the 2.5mm screw.

Tuning the Jet Needle: 1/8-1/4 Throttle (Straight portion)

The initial straight portion of the jet needle affects the mixture from idle to approximately 1/4 throttle.

Lean Condition

If the jet needle is too lean (large), part throttle acceleration will be flat along with slower warm-ups. To correct this, install a one size smaller jet needle (richer) and compare acceleration with the previous. If acceleration is improved, leave the smaller jet needle in.

Rich Condition

A black sooty spark plug is a sign of richness along with poor fuel mileage. A slightly rich condition lets the bike accelerate better at very low rpm's and from very low throttle settings.

Checking spark plug color after an extended run, at steady speeds (<1/4 throttle), will allow you to check the effects of changing the jet needles. The porcelain around the spark plug electrode should be a light grey to brown in color.

Tuning the Jet Needle: 1/4-3/4 (Tapered Portion)

The tapered portion has an increasing effect on fuel mixture from about 1/4 throttle. Between 1/2 and 3/4 throttle the influence of the jet needle taper is greatest and it controls most of the fuel flow. With the engine at operating temperature, accelerate from 1/2 to 3/4 throttle, in top gear from approximately 50 mph. If acceleration seems soft or flat and the engine is slow to respond when the throttle is quickly opened from 1/2 to 3/4 throttle position, the mixture is too lean. Raise the jet needle one clip position and repeat the test. If acceleration is crisp but the engine hesitates or staggers as the throttle is suddenly closed from 3/4 to 1/2 throttle, the mixture is too rich. Lower the jet needle one clip position and repeat the test. The jet needle will be correct when acceleration is crisp at mid rpm yet the engine does not hesitate during throttle shut down.

Tuning the Main Jet

The main jet affects the fuel mixture above 3/4 throttle opening and is the last jet you need to adjust. The most effective method for adjusting the main jet is to measure the time required to accelerate between two points. The start and end markers should be spaced so that starting at about 35 mph at the first marker will have you going past the second at near 55 mph. Set up markers that are far enough apart, on a safe road, to meet the conditions mentioned above. When you pass the first marker, roll the throttle fully open and have a friend (it's easier with help) measure the time needed to get to the second marker. The main jet that gives the fastest time between the two points is the optimum jet.

Accelerator Pump System

Tuning the Accelerator Pump

This carburetor uses an accelerator pump to achieve maximum fuel economy during cruise throttle settings and still create a rich enough condition for brisk throttle response. The accelerator pump can be adjusted to begin and end operation in response to the fuel requirements of your particular engine. Engines of smaller displacement tend to require the pump stroke to begin with the movement of the throttle. Larger displacement engines require less pump stroke, so the pump can be adjusted to start slightly after the initial throttle movement. The beginning point of the pump stroke is adjusted with the adjusting screw on the white plastic pump lever. To start the pump sooner, back the screw out. Turn the screw in to make the pump start its stroke at a larger throttle opening. The end of the accelerator pump stroke is adjusted by the adjusting screw located on the top of the carburetor just behind the pump lever. Best performance is generally achieved when the pump stroke ends just before 3/4 throttle.

Kit, Tuner-race, Part No. 29564-98

Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Jet, box		27767-98	9	Jet, needle 96		27922-98
2	Packing, float bowl	3	27758-98	10	Jet, needle 98		27924-98
3	Screws, float bowl	4	27763-98	11	Jet, main (170.0)		27916-98
4	O-ring, accel.pump nozzle		27764-98	12	Jet, main (172.5)		27917-98
5	Nozzle, accel.pump		27930-98	13	Jet, main (175.0)		27918-98
6	Jet, slow (20.0)		27901-98	14	Jet, main (177.5)		27919-98
7	Jet, slow (30.0)		27905-98	15	Jet, main (180.0)		27920-98
8	Jet, needle 95		27921-98				

Installing Carb Rebuild Kit (All Models)

See Carb Rebuild Kit Service Parts Illustration on page 8. Item numbers used in these procedures are the ones shown in the Service Parts Illustration.

CARB REMOVAL

⚠WARNING

Gasoline can drain from the fuel line when disconnected from carburetor. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. Wipe up spilled fuel immediately and dispose of rags in a suitable manner. (00257a)

1. Turn the fuel supply valve off.
2. Disconnect the fuel line.
3. See Figure 5 on page 4 for Evolution. Remove the air cleaner and backplate.
4. Disconnect the throttle and idle control cables. Remove choke cable from it's bracket.
5. Remove VOES/fuel petcock vacuum hose from the carburetor. Pull carburetor free of seal ring and manifold.

NEEDLE VALVE ASSEMBLY REPLACEMENT

1. See Carb Rebuild Kit Service Parts Illustration on page 8. Remove drain plug (77) and drain any gasoline into a suitable container.
2. Remove four screws (78) and remove float chamber body (74).
3. Remove float pin screw (72) and gently lift float assembly (70) and needle valve from needle valve assembly (69).
4. Remove needle valve retaining screw (68) and slide needle valve seat with O-ring from carb.

NOTE

Before installing needle valve assembly, clean all internal fuel/air passages and jets with carb cleaner. Check that all passages are open and free of obstruction.

5. Install needle valve assembly by reversing the removal procedure.
6. Before installing float chamber body (74), reach in bore of carburetor and with finger press accelerator pump nozzle (62) downward and remove. Replace O-ring (63) with new one from kit. Replace accelerator pump rod boot (80) with new one from kit.

NOTE

For best results, the accelerator pump nozzle should be pointed directly at the jet needle. The nozzle is held in place by the friction of an O-ring and can be turned easily with a pair of needle nosed pliers. Nozzle adjustment should be made with a minimum of pump strokes to avoid flooding the engine.

7. See Figure 7. Check float level with carb in position shown. The actuator tab should just begin to contact the needle valve assembly when the bottom of the float is 0.709 in.(18mm) from bottom surface of carb.

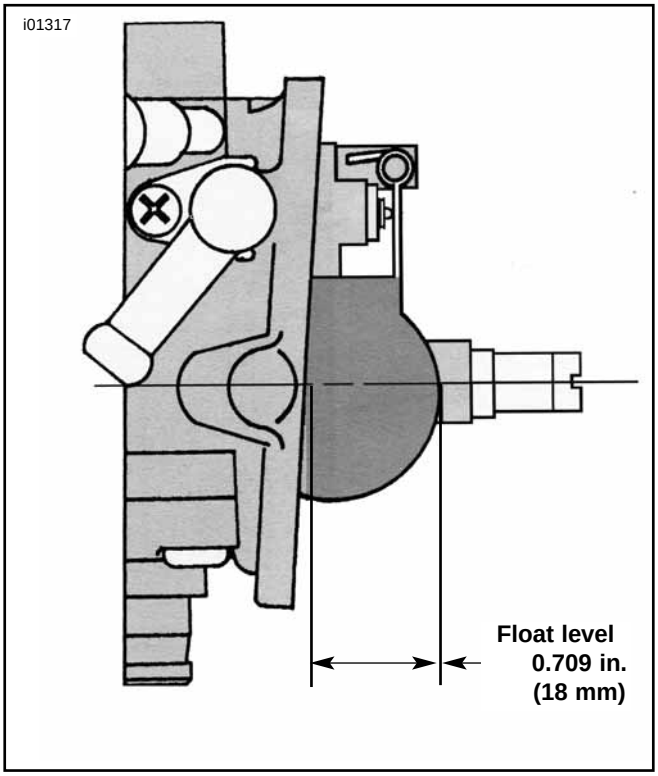


Figure 7. Checking Float Level

8. If adjustment is needed, adjust by bending the actuator tab.
9. Install new float bowl packing (73) in float chamber body (74). Align holes in float chamber body with pins on carb body and secure with four new screws (78) from kit.
10. Tighten screws to 18 **in-lbs** (2.0 Nm).
11. Install drain plug O-ring (76) on drain plug (77) and tighten plug to 73 **in-lbs** (8.2 Nm).

TOP COVER GASKET AND FUEL FITTING O-RINGS

1. See Carb Rebuild Kit Service Parts Illustration on page 9. Remove screws (1 & 2). Remove the top cover and replace top cover gasket (4) being careful to position gasket on alignment pins on carb body.
2. Install top cover and align holes in cover with alignment pins on carb body. Install and tighten screws (1 & 2).
3. Remove fuel fitting retainer screw (48) and retainer (47). Remove old O-rings from fitting and install new O-rings from kit. Reassemble retainer and retainer screw .

⚠WARNING

Do not dis-assemble throttle lever linkage. Improper reassembly could lead to throttle linkage becoming loose or stuck which could result in death or serious injury.

NOTE

If you must remove the throttle shaft bolt (19), be certain that you:
1.) Apply a drop of Loctite 243 (blue) to the threads.
*2.) Tighten the bolt to 18 **in-lbs** (2.0 Nm).*
3.) Replace the tab washer (40) and bend it up until it is flush against one of the bolt head flats. It is not normally necessary to remove the bolt to change position of the jet needle.

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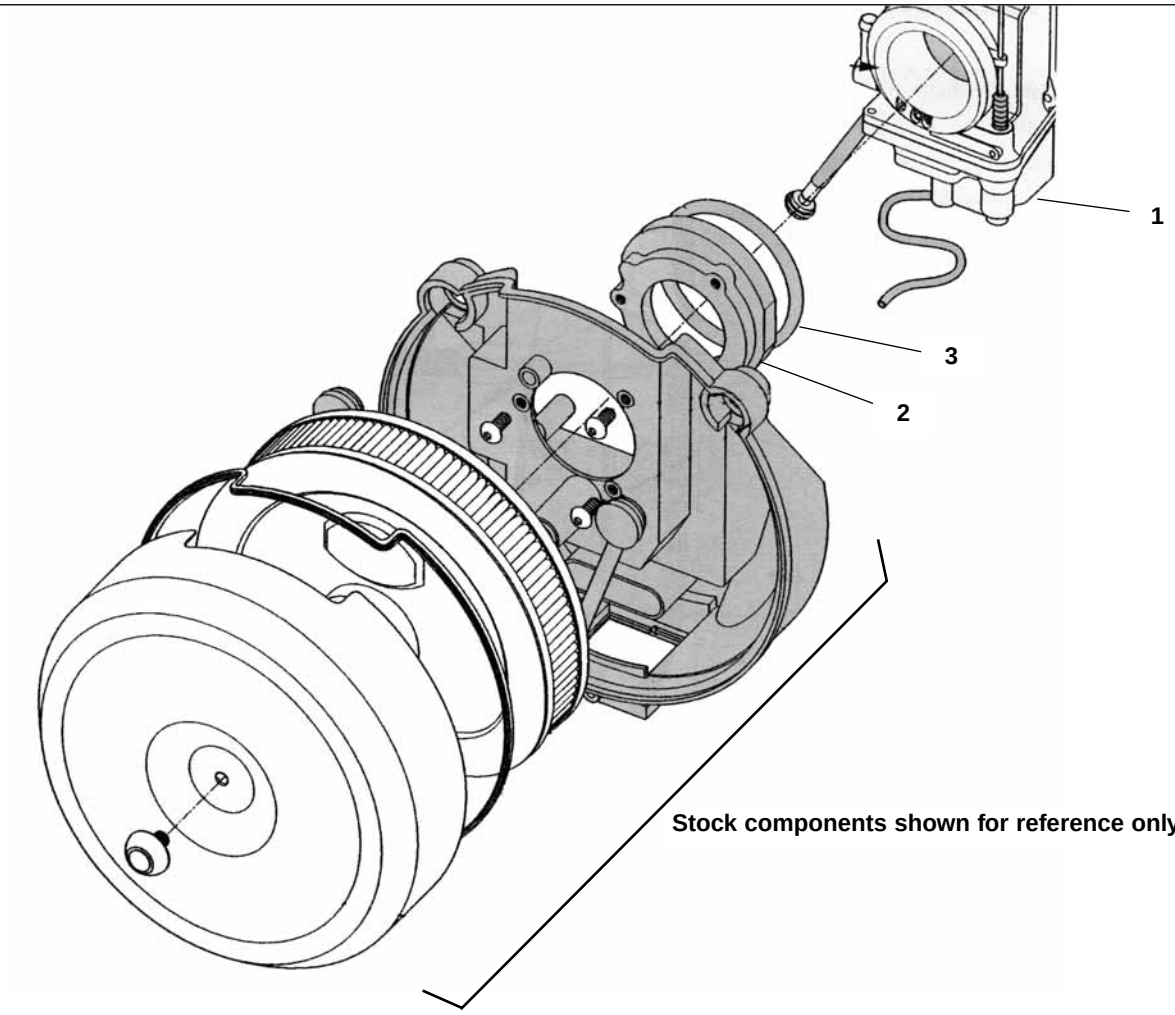

Kit Numbers 29640-99 and 29641-99

Item	Description	Qty.	Part No.
1	Carb assembly	1	Not sold
2	Adapter	1	27756-98
3	O-Ring	1	27754-98
4	Main jet #155 (not shown)	1	27910-98
5	Main jet #165 (not shown)	1	27914-98
6	Hose clamp (not shown)	3	Not sold
7	Cable holder (not shown)	1	27753-98
8	Cable straps (not shown)	3	Not sold

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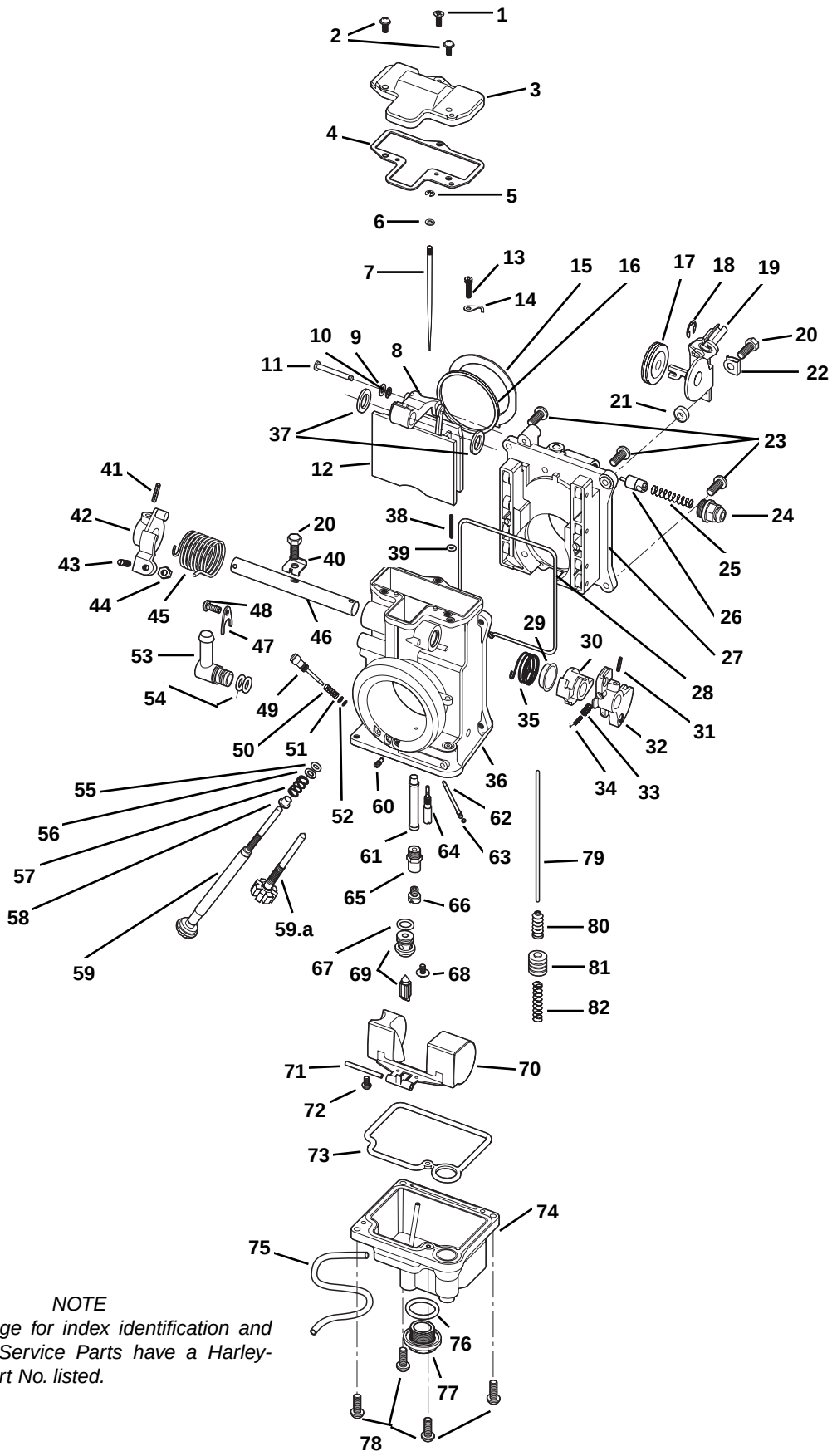

NOTE

See next page for index identification and description. Service Parts have a Harley-Davidson Part No. listed.

Service Parts

Kit No. 29640-99 and 29641-99 | Date 7/04

42mm Carb Rebuild kit

Item	Description	Part No.
1	Screw, top cover (flat head)	
2	Screw, top cover	
3	Top cover	
4*	**Gasket, top cover**	**27768-98**
5*	**E-ring, jet needle**	**27761-98**
6*	**Washer, needle clip**	**27760-98**
7	Jet needle (4 sizes available)	
8	Lever, throttle valve	
9	E-ring	
10	Packing link lever	
11	Pin, link lever	
12	Throttle valve	
13	Screw, needle retaining clip	
14	Clip, needle retainer	
15	Sealing ring, throttle valve	
16	Seal, throttle valve	
17	Pulley, cable bracket	
18	E-ring, cable bracket	
19	Bracket assembly. cable	
20	Bolt	
21	Spacer	
22	Plate, lock tab	
23	Screw	
24	Guide holder, starter	
25	Spring, starter plunger	
26	Starter plunger	
27	Body assembly, bearing and spigot (N/A)	
28	Seal, spigot body	
29	Ring (Steel)	
30	Lever, accelerator pump	
31	Pin, throttle lever	
32	Lever, throttle	
33	Spring, accelerator pump adjuster	
34	Screw, accelerator pump adjuster	
35	Spring, accelerator pump return	
36	Mixing body assembly (N/A)	
37	Packing, shaft (plastic)	
38	Adjusting screw, accelerator pump	
39	O-ring, accelerator pump screw	
40	Plate, lock tab for shaft	
41	Pin, throttle stop lever	
42	Lever, throttle stop	
43	Adjusting screw, throttle	
44	Nut, throttle stop	
45	Spring, throttle return	
46	Shaft, throttle	
47	Plate, fuel joint retainer	
48	Screw, fuel joint retainer	
49	Screw, pilot air adjusting	
50	Spring, pilot air screw	
51	Washer, pilot air screw	
52*	**O-ring, pilot air screw**	**27765-98**
53	Fuel joint	
54*	**O-ring, fuel joint**	**27771-98**
55	Packing, idle adjuster	
56	Washer, idle adjuster (Steel)	
57	Spring, idle adjuster	
58	Ring, idle adjuster (Brass)	
59	Idle adjuster assembly (Long)	
59a	Idle adjuster screw (Short)	
60	Air jet (Blank)	
61	Needle jet (723 Series)	
62	Nozzle, accelerator pump	
63*	**O-ring, accelerator pump**	**27764-98**
64	Pilot jet	
65	Extender, main jet	
66	Main jet	
67*	**O-ring, needle valve**	**27757-98**
68*	**Screw w/washer, needle valve retainer**	**27769-98**
69*	**Needle valve assembly w/O-ring**	**27759-98**
70	Float assembly	
71	Pin, float	
72	Screw, float pin	
73*	**Packing, float bowl**	**27758-98**
74	Float chamber body	
75	Hose, overflow	
76*	**O-ring, drain plug**	**27770-98**
77	Drain plug	
78*	**Screw, float bowl (4)**	**27763-98**
79	Rod, accelerator pump	
80*	**Boot, accelerator pump rod**	**27766-98**
81	Plunger, accelerator pump	
82	Spring, accelerator pump	

NOTE

Items shown in “bold” and with asterisk (*) are included in Carburetor Rebuild Kit P/N 29565-98.