



# INSTRUCTIONS

-J00050

REV. 6-24-97

Kit Number 29081-90C

## SCREAMIN' EAGLE® EVOLUTION XLH HI-FLO CARB & AIR CLEANER

### General

This kit is designed for use on 1986 and later Evolution Sportster (XLH) models.

#### ⚠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.

#### NOTE

On 1988 and later models, you must replace the intake manifold. Use a stock replacement 1987-style manifold for proper installation of the carburetor and air cleaner kit.

See Figure 1. This kit contains the following components:

Qty	Description
1	VOES fitting
2	Gasket
1	Manifold spacer
1	Carburetor assembly
2	Allen head bolt, 5/16-18 x 2 in.
2	Washer, 5/16 in.
2	Lockwasher, 5/16 in.
1	Air cleaner adapter assembly
2	Allen head bolt, 1/4-20 x 2-3/4 in.
2	Nut, 1/4-20 in.
4	Washer, 1/4-20 in.
1	Carburetor gasket
1	Back plate
4	Button head screw, 1/4-20 x 3/4 in.
2	Support spacer, 5/16 in. ID.
2	Support spacer, 17/32 in. ID.
2	Hex head bolt, 5/16-18 x 3-1/2 in.
2	Allen head bolt, 1/2-13 x 3-1/2 in.
2	Washer, 5/16 in. ID.
2	Washer, 17/32 in. ID.
2	Lockwasher, 5/16 in. ID.
2	Lockwasher, 17/32 in. ID.
2	Air cleaner cover spacer
2	Counter-sunk allen head screw, 5/16-18 x 5/8 in.
1	Crankcase breather hose fitting
1	O-ring
1	Hose clamp
1	Venturi
1	Air cleaner element
1	Vacuum hose kit

### Removal

#### NOTE

Refer to applicable Service Manual for detailed instructions to remove necessary components. Service Manuals are available from your Harley-Davidson Dealer.

1. Remove stock air cleaner assembly.

#### ⚠WARNING

Gasoline is extremely flammable and highly explosive. Do not smoke or allow open flame or sparks anywhere in the area when servicing any part of the fuel system.

2. Turn fuel valve to OFF position. Disconnect fuel line at carburetor and drain any remaining gas into proper container.

#### ⚠WARNING

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

3. Refer to applicable Service Manual and remove fuel tank.
4. Disconnect the throttle cables at the throttle and carburetor and discard.
5. **On 1994 and Earlier Vehicles.** Disconnect Vacuum Operated Electrical Switch (VOES) and choke/enrichener cable. Remove carburetor.  
**On 1995 and Later Vehicles.** Noting position of hoses for later reinstallation of new hoses, disconnect VOES by disconnecting short hose from carburetor and remove hose from plastic "Y" fitting. Remove long hose from "Y" fitting and vacuum operated fuel valve. Discard hoses. Disconnect choke/enrichener cable and remove carburetor.
6. On 1988 and later vehicles, remove the intake manifold.

### Installation- Carburetor

#### NOTE

- After disconnecting the choke/enrichener cable, remove the top center engine mount. Use a piece of wire or string and let the bracket and related parts hang from the handlebar. This will allow you easier access to the manifold nuts and bolts.
- The right rear corner of the front cylinder head will probably interfere with the carburetor throttle pulley and cable guides. You will have to grind away enough material for proper clearance. Doing this will not harm the structural integrity of the cylinder head. Be certain to cover manifold or ports so metal chips do not get into engine.
- If you grind approximately 0.33 in. off the short end of the allen wrench, it will make installation of the manifold allen head bolts easier.

1. See Figure 1. Make VOES connection by drilling and tapping a hole for a 1/4-28 thread in manifold spacer (1) at position indicated by boss, visible through slot on the

carburetor side of the spacer. Apply Loctite Pipe Sealant with Teflon to threads on VOES fitting (2), supplied with kit, and install fitting in threaded hole in spacer.

**NOTE**

*If you do not use the VOES with the carburetor kit, you can expect poor mid-range performance and reduced fuel economy.*

2. On 1988 and later vehicles install 1987-style intake manifold. Do not tighten manifold bolts or nuts at this time.

**NOTE**

*The large I.D. gasket goes on the large I.D. side of the manifold spacer (towards carburetor).*

3. See Figure 2. Assemble gaskets (1), manifold spacer (2) and carburetor assembly (3) to manifold using allen head bolts (4), washers (5) and lockwashers (6). Tighten bolts.
4. Align the carburetor:
  - 4a. See Figure 3. Install the air cleaner adapter (1) on the carburetor throat using bolts (2), nuts (3) and washers (4). Do not tighten nuts at this time.
  - 4b. See Figure 5. Place the carburetor gasket (2) and the backplate in position on the carburetor. Use two button head screws, diagonally opposite each other and snug the backplate up to the carburetor.

**NOTE**

- For 1986 - 1990 models use the 5/16 in. ID. spacers.
  - For 1991 and later models use the 17/32 in. ID. spacers.
- 4c. Install the air cleaner support spacers on the backplate and cylinder heads, using the hex head bolts or allen head bolts, washers and lockwashers. Do not tighten bolts at this time.

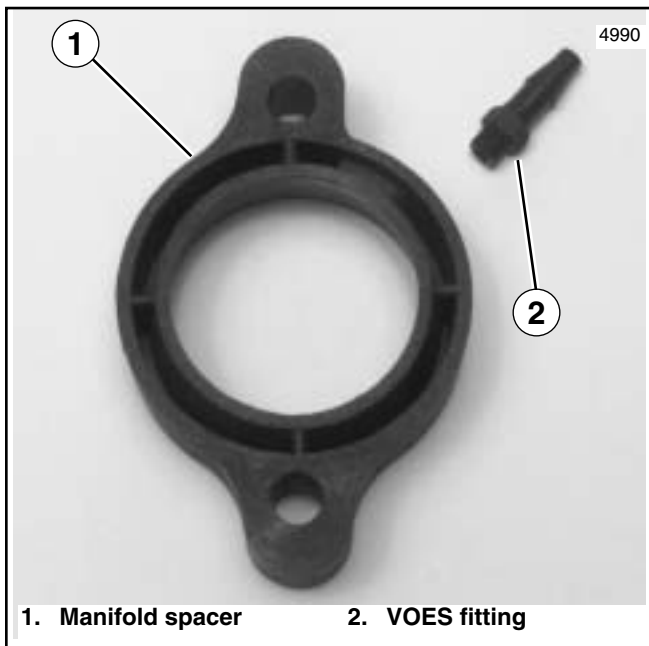
At this point, be sure the carburetor throttle pulley and cable guides clear the cylinder head.

5. Remove the two button head screws, backplate and carburetor gasket. Do not move the carburetor.

**⚠WARNING**

**Check for fuel leaks after installing fuel lines.**

6. **On 1994 and Earlier Models.** Connect the fuel line and the VOES hose. Replace original throttle cables with



**Figure 1. Manifold Spacer Boss**

appropriate Screamin' Eagle cables (see chart on last page for selection). See applicable Service Manual for detailed cable installation and routing information.

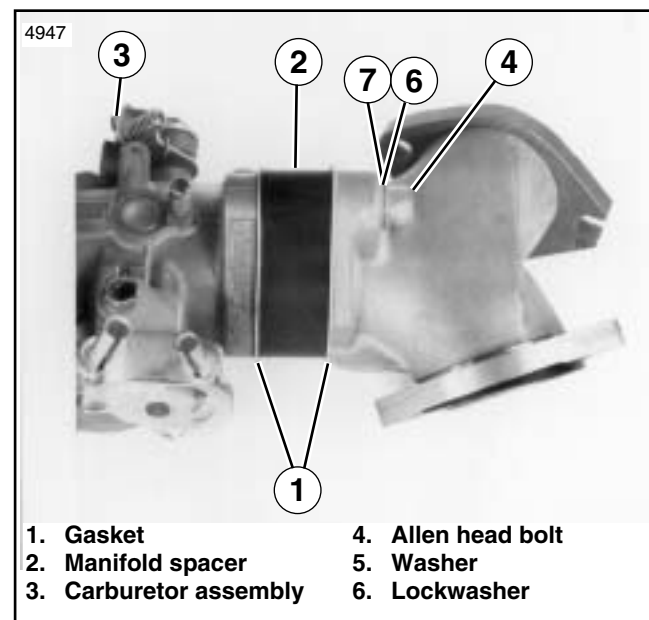
**On 1995 and Later Models.** See Figure 4. Connect the fuel line. Install new VOES hoses to "Y" fitting in the following manner:

- a. Connect new long hose (1) to "Y" fitting (3) in previous location noted in Step 5 of Removal section of this instruction sheet. Connect remaining end of long hose (1) to vacuum operated fuel valve.
  - b. Connect new short hose (2) to "Y" fitting (3) and remaining end to VOES fitting on manifold spacer.
7. See Figure 5. Align the air cleaner adapter (1) on the carburetor throat. Do not tighten bolts at this time.
  8. See Figure 6. Install the air cleaner cover spacers (1) on the backplate (2) using the counter-sunk allen head screws (3). The screw heads fit into the counter sunk screw holes in the backplate (2). Both ends of the spacers have counter sinks; one end is tapered and the other end is bored. The screws (3) go in the bored end.
  9. On 1990 and earlier models, drill a 3/8 in. hole in the backplate (2), approximately 2 in. from the rear and bottom edge of the backplate. Install the crankcase breather hose fitting and O-ring in the hole. Place hose clamp on breather hose.
  10. See Figure 6. Assemble carburetor gasket (4), backplate (2) and venturi (5) to the air cleaner adapter, using the button head screws (not visible in photo). Use Loctite 271 (red) and tighten the air cleaner adapter bolts and nuts.

**⚠CAUTION**

**Be sure throttle plate returns to full idle position (idle adjusting screw against stop) when throttle grip is released. Turn handlebars lock to lock to check.**

11. Hold spacers and backplate in position against cylinder heads and install support spacer bolts, washers and lockwashers. Check alignment of carburetor, spacer and manifold. Tighten all support spacer bolts.
12. Tighten the manifold allen head bolts and nuts at the cylinder heads without changing the carburetor position.



**Figure 2. Manifold, Spacer, Gaskets and Carburetor**

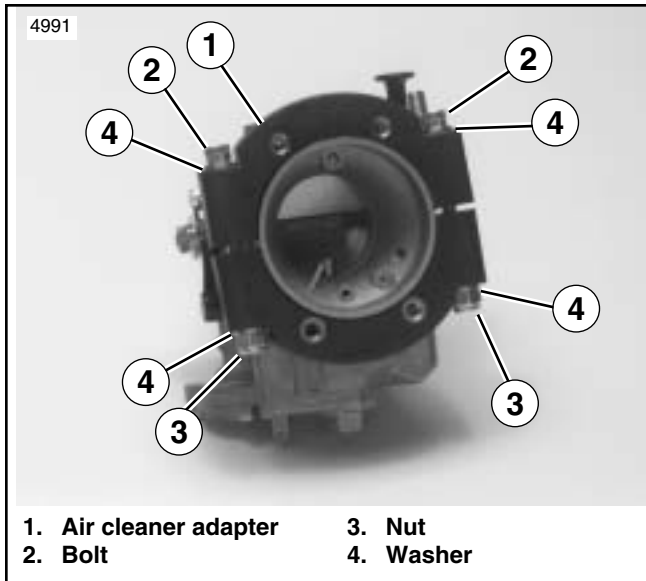


Figure 3. Air Cleaner Adapter and Carburetor

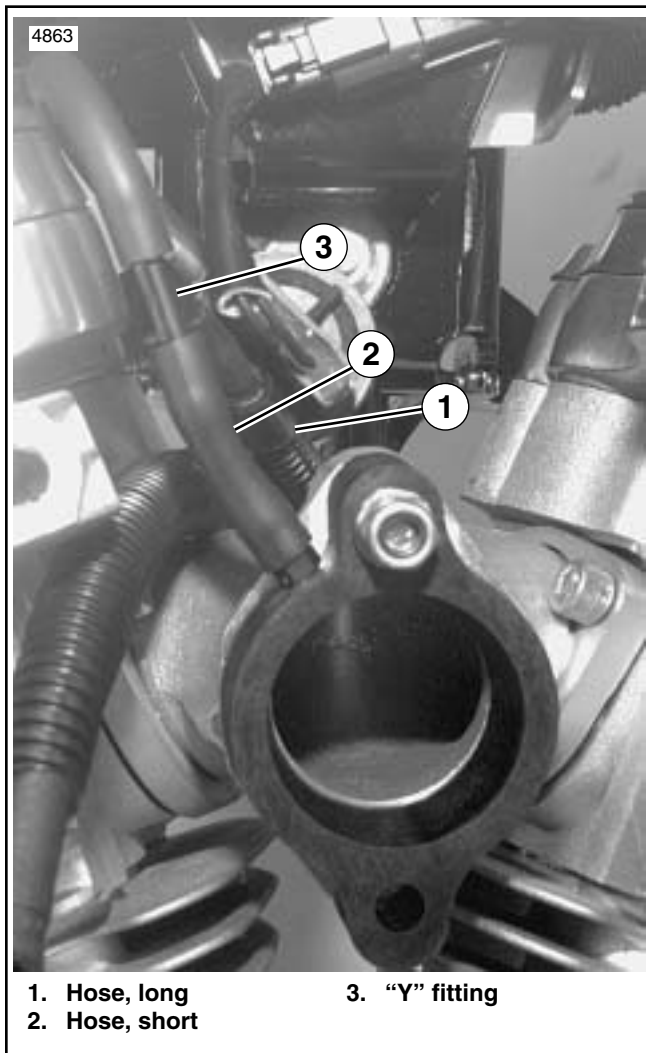


Figure 4. VOES Connections on 1995 and Later Models

13. See Figure 7. Place air cleaner element (1) over air cleaner cover spacers. Install air cleaner cover washers and screws. Tighten screws.

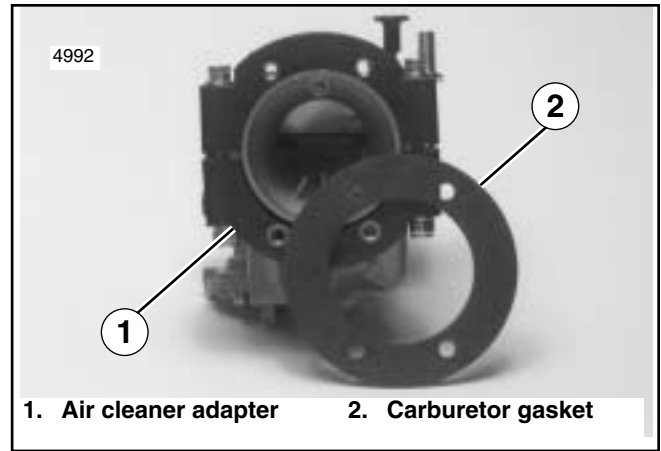


Figure 5. Air Cleaner Adapter and Carburetor Gasket

**NOTE**

The air cleaner element is pre-oiled and requires no service upon installation. For service interval and procedure see Air Cleaner Element Maintenance section at end of this Instruction Sheet.

- 14. Install top center engine mount. Tighten the frame bolts to 30-35 ft-lbs. Tighten the cylinder head bolts to 21-27 ft-lbs.
- 15. On 1990 and earlier models, route the crankcase breather hose to the fitting on the back of the backplate. Slip the hose over the fitting and tighten the hose clamp.

**CHOKE** - See Figure 9. The carburetor choke knob should be pulled up for initial or cold starting. Push the knob down as soon as the engine is warm enough to run without stumbling. Vehicle can be driven with the knob up the first few blocks.

**AIR/FUEL MIXTURE** - See Figure 9. The air/fuel mixture screw is set initially at one full turn outward from the full in position. DO NOT set idle speed or smoothness with this screw. The screw must be set within 1/8 turn of the one full turn position for optimum performance.

**ENGINE IDLE SPEED** - See Figure 9. Idle speed is set with the throttle stop screw. Set engine idle speed at 1000 - 1150 rpm with engine at normal operating temperature.

**ACCELERATOR PUMP** - See Figure 9. If your vehicle has an off-idle hesitation, you may have to adjust the accelerator pump stroke. Do this by adjusting the accelerator pump screw **after** all other adjustments have been made. Since off-idle hesitation can be caused by either a too lean or too rich pump stroke, you will have to determine which way to turn the screw by experimentation. Turn screw 1/4 turn at a time.

**JETS** - See Figure 9. If your vehicle's engine is relatively unmodified, it will run well with the jets that come in the carburetor. Depending on the level of performance modifications that you have done to your vehicle, your vehicle may run better with different size jets than those which are furnished in the carburetor. The chart which follows lists the carburetor jets available. Your Harley-Davidson Dealer can order the jets listed in the chart.

**NOTE**

All the carburetor jets are slightly rich. If engine runs too rich just off idle, use a #65 slow speed. If engine is rough or jerky at 55 - 65 mph, remove the blank intermediate speed jet and install a #80.

**Air Cleaner Element Maintenance**

- 1. Remove air cleaner cover and inspect cleaner element every 5000 miles or more often under dusty conditions.

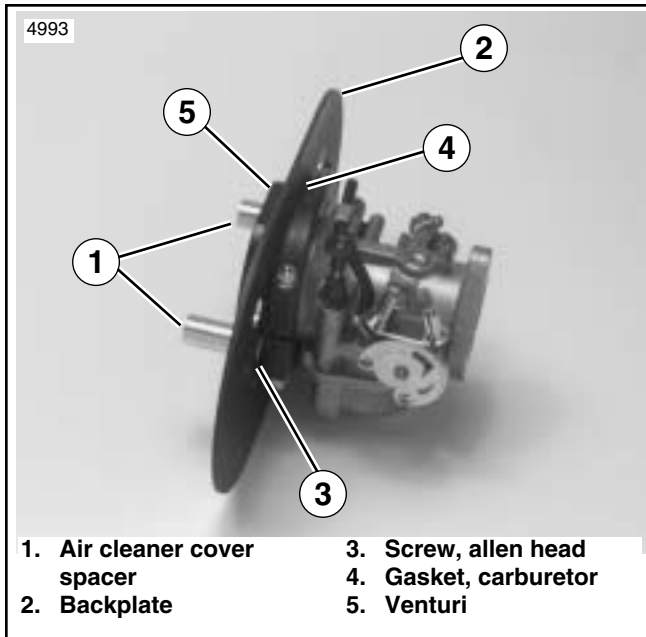


Figure 6. Air Cleaner Cover Spacers and Backplate

**CAUTION**

Do not let dirty air filter cleaner/degreaser solution run to inside of filter.

2. To clean element, remove it and wash it by rolling it in a shallow pan containing a small amount of air filter cleaner/degreaser (no more than 3/4 the depth of filter pleats).
3. Remove element from cleaner and allow five minutes for cleaner to dissolve dirt. From the inside out, rinse the filter with cold water. Shake and allow to air dry. Do not dry with compressed air.
4. Oil element using air cleaner oil. Apply along the full length of each pleat and allow to set until the element is a uniform color. Allow excess oil to drain off. Install element and cover.

**NOTE**

A new filter element, Part No. 29025-88B can be purchased from your Harley-Davidson dealer.

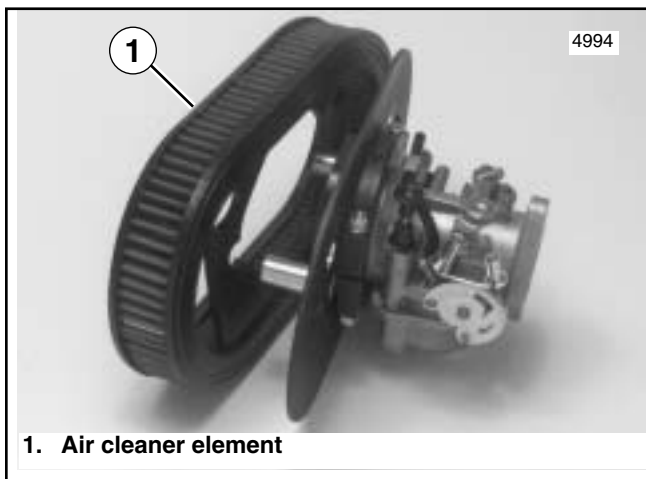


Figure 7. Air Cleaner Element and Backplate

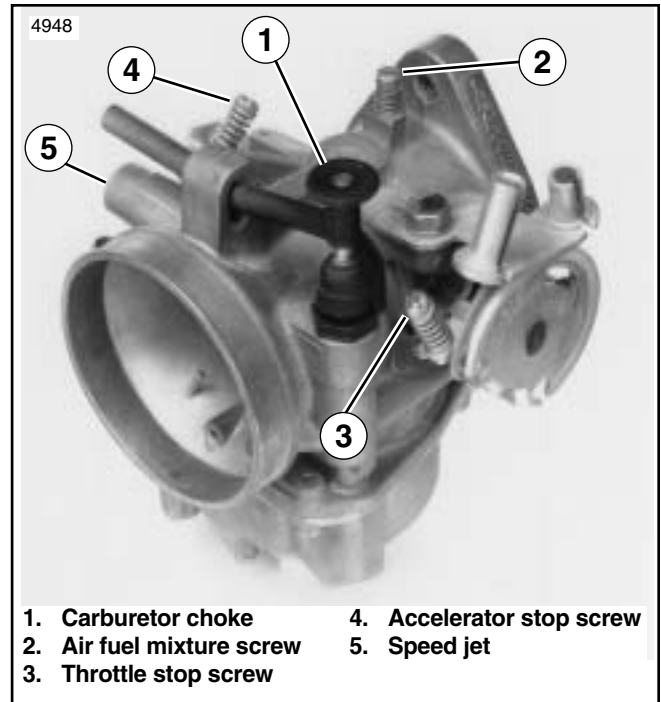


Figure 8. Carburetor Adjustments

**Jet Chart**

Jets and Part #	Size (mm)
<b>Slow speed</b>	
27383-88	42
27302-84	50
27329-83	52
27284-85	55
27310-85	58
27318-85	60
27283-85	62
27896-79	65
27894-78	68*
27895-87	70
27897-78	72
<b>Intermediate Air/Fuel</b>	
27113-87	Blank*
27109-87	55
27172-89	60*
27110-87	80
27111-87	1.00
27112-87	1.20
27173-89	1.70
<b>Main</b>	
27106-85	1.30
27107-85	1.35
27149-85	1.40
27151-85	1.45
27150-85	1.50
27108-87	1.60*
27119-88	1.65
27134-89	1.70

\* In carburetor

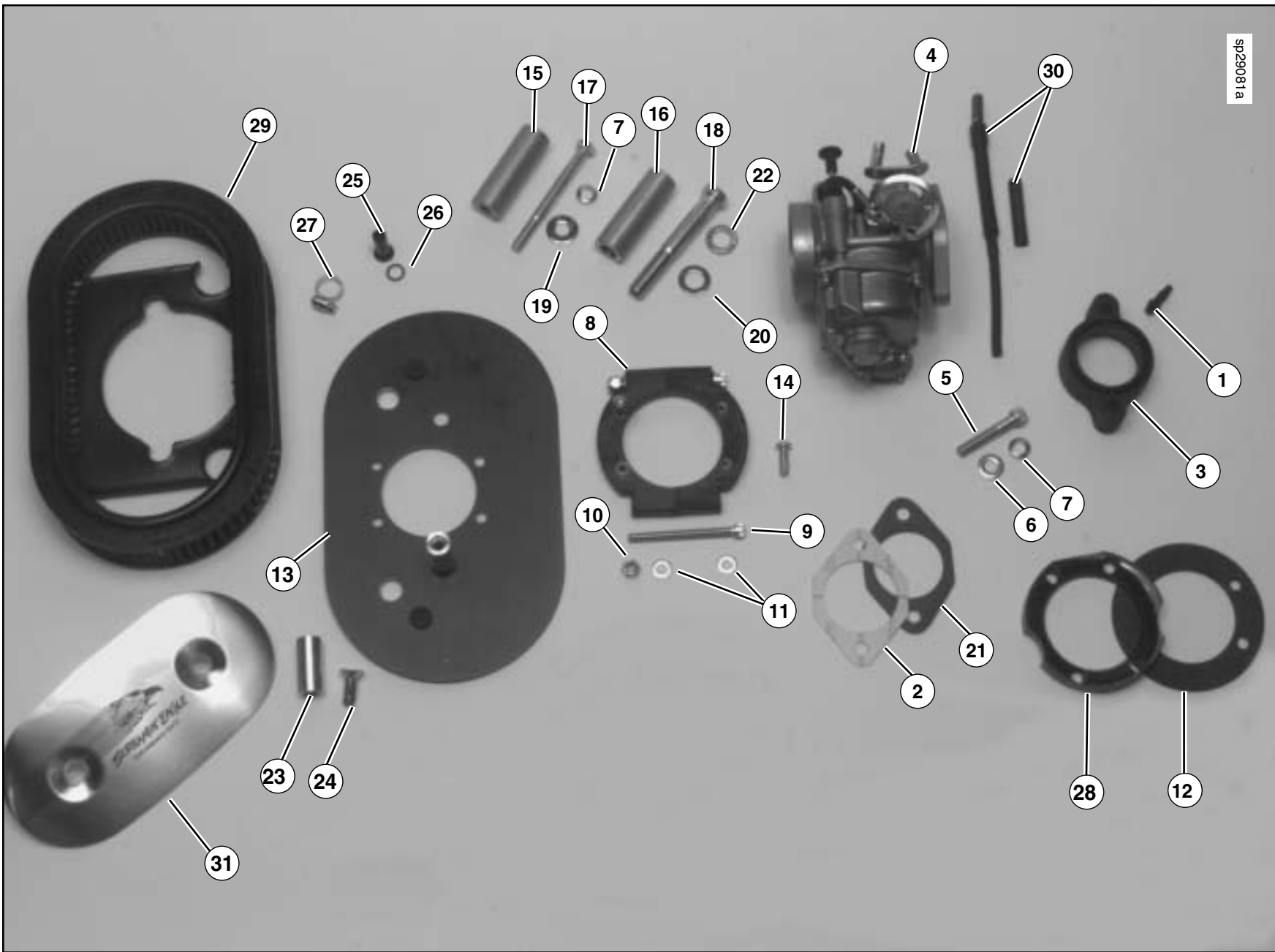


Figure 10. Carburetor and Air Cleaner Assembly- Service Part



# Service Parts

Part No. 29081-90C

Date 6/97

XLH Hi-Flo Carburetor and Air Cleaner Kit

Item	Description	Part No.
1	VOES fitting	29190-85
2	Gasket	27022-88
3	Manifold spacer	29275-88
4	Carburetor assembly	27001-88
5	Allen head bolts	3485A
6	Washer	6702
7	Lockwasher	7041
8	Air cleaner adapter	27041-90
9	Allen head bolt	885A
10	Nut	7686
11	Washer	6228W
12	Carburetor gasket	27044-90
13	Backplate	29075-91
14	Button head screw	927A
15	Support spacer, small I.D.	6786
16	Support spacer, large I.D.	6785
17	Hex head bolt	3427
18	Allen head bolt	3587A
19	Washer	6333
20	Washer	6738
21	Gasket	27077-78
22	Lockwasher	7068
23	Air cleaner cover spacer	31523-88
24	Counter-sunk allen head screw	3795
25	Crankcase breather hose fitting	29034-85
26	O-ring	11110
27	Hose clamp	9946
28	Venturi	29148-90
29	Air cleaner element	29025-88B
30	Vacuum hose kit	26553-94
31	Air cleaner trim	29024-88

## Screamin' Eagle Throttle Cable Selection Guide

Year	Model	95 OE Throt. Cable P/N	95 Screamin' Eagle P/N	96 OE Throt. Cable P/N	96 Screamin' Eagle Ass'y P/N	96 Screamin' Eagle Throt. Cable P/N.	96 Screamin' Eagle Idle Control P/N
89-95	XL	56308-88	56298-88	56308-96	56416-96	56413-96	56419-96
	XLS	N/A	N/A	56308-96	56416-96	56413-96	56419-96
	XLC	N/A	N/A	56381-96	56415-96	56412-96	56418-96