



Installation Instructions: S&S® Air Cleaners for Stock Harley-Davidson® Carburetors, 1994-up Carbureted Buell® Models and all 1999-up Single Runner Fuel Injected Models

DISCLAIMER:

S&S parts are designed for high performance, off road, racing applications and are intended for the very experienced rider only. The installation of S&S parts may void or adversely effect your factory warranty. In addition such installation and use may violate certain federal, state, and local laws, rules and ordinances as well as other laws when used on motor vehicles used on public highways, especially in states where pollution laws may apply. Always check federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties, and risks associated therewith.

The words Harley®, Harley-Davidson®, H-D®, Sportster®, Evolution®, and all H-D part numbers and model designations are used in reference only. S&S Cycle is not associated with Harley-Davidson, Inc.

SAFE INSTALLATION AND OPERATION RULES:

Before installing your new S&S part it is your responsibility to read and follow the installation and maintenance procedures in these instructions and follow the basic rules below for your personal safety.

- Gasoline is extremely flammable and explosive under certain conditions and toxic when breathed. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.
- If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.
- Before performing any installation steps disconnect battery to eliminate potential sparks and inadvertent engagement of starter while working on electrical components.
- Read instructions thoroughly and carefully so all procedures are completely understood before performing any installation steps. Contact S&S with any questions you may have if any steps are unclear or any abnormalities occur during installation or operation of motorcycle with a S&S part on it.
- Consult an appropriate service manual for your motorcycle for correct disassembly and reassembly procedures for any parts that need to be removed to facilitate installation.
- Use good judgement when performing installation and operating motorcycle. Good judgement begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgement. Start installation when you are fresh.
- Be sure all federal, state and local laws are obeyed with the installation.
- For optimum performance and safety and to minimize potential damage to carb or other components, use all mounting hardware that is provided and follow all installation instructions.
- Motorcycle exhaust fumes are toxic and poisonous and must not be breathed. Run motorcycle in a well ventilated area where fumes can dissipate.

IMPORTANT NOTICE:

Statements in this instruction sheet preceded by the following words are of special significance.



WARNING

Means there is the possibility of injury to yourself or others.



CAUTION

Means there is the possibility of damage to the part or motorcycle.

NOTE

Other information of particular importance has been placed in italic type.

S&S recommends you take special notice of these items.

WARRANTY:

All S&S parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at S&S's option if the parts are returned to us by the purchaser within the 12 month warranty period or within 10 days thereafter.

In the event warranty service is required, the original purchaser must call or write S&S immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action.

A part that is suspect of being defective must not be replaced by a Dealer without prior authorization from S&S. If it is deemed necessary for S&S to make an evaluation to determine whether the part was defective, a return authorization number must be obtained from S&S. The parts must be packaged properly so as to not cause further damage and be returned prepaid to S&S with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by S&S and the part was found to be defective, repair, replacement or refund will be granted.

ADDITIONAL WARRANTY PROVISIONS:

- (1) S&S shall have no obligation in the event an S&S part is modified by any other person or organization.
- (2) S&S shall have no obligation if an S&S part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the S&S part.
- (3) S&S shall not be liable for any consequential or incidental damages resulting from the failure of an S&S part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between S&S and a customer.
- (4) **S&S parts are designed exclusively for use in Harley-Davidson® and other American v-twin motorcycles. S&S shall have no warranty or liability obligation if an S&S part is used in any other application.**

INTRODUCTION

Installing an S&S® air cleaner on a stock carburetor is simple and straightforward. Because this modification increases airflow, larger carburetor jets may be required. Additionally, S&S® air cleaners for stock carburetors have no provision for the emissions canister purge valve required in some areas. As a result, installing this product may render the motorcycle illegal for street use in California and other areas with similar emissions standards. It is solely the owner's responsibility to determine the suitability of this product for his use and application.

S&S® air cleaner kits for stock carburetors are available for big twin, Harley-Davidson® Sportster® engines and 1994-up carbureted Buell® models.

- Kit 17-0199 fits 1966-1984 shovelhead and 1966-1985 Sportster® models.
- Kit 17-0105 fits 1994-up carbureted Buell® models.
- Kit 17-0108 fits 1984-1989 big twin and 1986-1987 Sportster® models.
- Kit 17-0117 fits 1991-up Sportster® models and 1993-up big twins.
- Kit 17-0117 fits 1999-up Twin Cam 88® models with carburetor or single runner fuel injected models.

Kits are not available for 1989-1992 big twin or 1988-1990 Sportster®.



WARNING

- **Gasoline is highly flammable, explosive under certain conditions, and the fumes toxic when inhaled. Be sure gasoline petcock is OFF before beginning installation, provide adequate ventilation, and disconnect battery ground cable to avoid sparks and accidental engagement of electric starter.**
- **Improperly mounted carburetor may become detached from motorcycle, resulting in immediate health and fire hazard.**



CAUTION

- **If improperly tightened or loosened by vibration, bolts, screws, etc. located inside air cleaner assembly may fall into engine, causing extensive damage not covered under warranty. S&S recommends applying Loctite® 242 or equivalent thread locking compound to threads of all bolts, screws, and nuts located inside air cleaner assembly.**
- **Mounting bracket bolt of incorrect length may cause parts damage not covered under warranty.**
- **It is the owner's responsibility to determine if the installation of this air cleaner assembly is in accordance with applicable legal and emissions requirements.**
- **Crankcase and cylinder head vents must be open and free of restriction. To meet C.A.R.B. and similar standards if applicable, crankcase pressure must be vented into air cleaner assembly, not directly into atmosphere.**
- **Pressure relief passages in crankcase and/or cylinder heads must not be plugged as gasket failure and oil leakage may result.**

NOTES:

- *Air cleaner assembly must be firmly supported. S&S includes support brackets only with kits for stock carb or single runner fuel injection. Brackets for other applications are listed in the S&S catalog and may be purchased separately.*
- *Parts from different year group installed on motorcycle by previous owners may require different support bracket. Adjustable bracket 16-0471 attaches to center case bolt and lower carb-manifold bolt. It is recommended for 1983-'84 shovelhead and works on most other models as well.*
- *Kits may contain wire ties or metal clamps for securing vent hoses depending on application.*
- *A 36" length of hose is provided for race applications. This hose may be used to route crankcase fumes/oil mist to a catch can or similar device as required and approved by race organizer.*

INSTALLATION KIT 17-0199 (See line drawing on page 6.)

1966-1984 shovelhead and for 1957-1985 Harley-Davidson® Sportster® models

1. Remove existing air cleaner assembly and related hardware, if applicable. Refer to authorized Harley-Davidson® Service Manual as needed.
2. Prepare air cleaner backplate.
 - A. 1966-1979 shovelhead and 1957-1979 ironhead Sportster® models – press plugs 50-8313 into holes "D" in backplate. (See Figure 1)
 - B. 1980-1984 shovelhead and 1980-1985 ironhead Sportster® models – apply PTFE plumber's tape or thread lubricant to threads of crankcase breather vent elbow fitting 50-8110 and install in hole "A" in backplate. (See Figure 1)

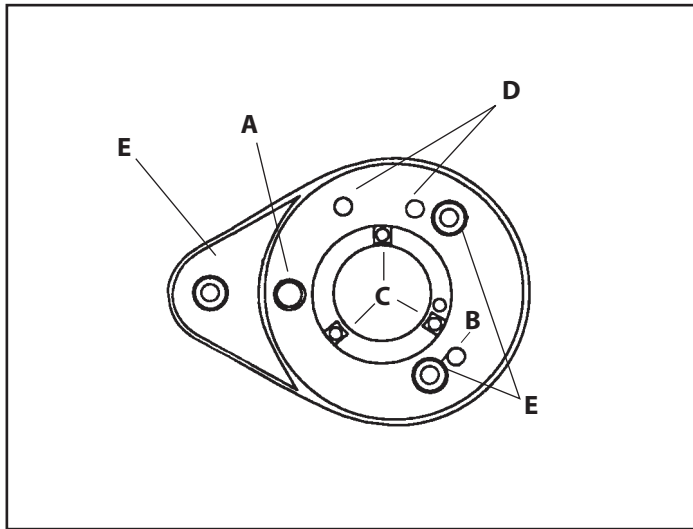


Figure 1

3. Attach mounting bracket to engine. Do not tighten bracket completely at this time.
 - A. 1966-1982 shovelhead normally utilize bracket 17-0092, which attaches to bottom of front rocker box and air cleaner backplate.
 - B. Ironhead Sportster® models normally utilize bracket 17-0093, which attaches to front intake lifter guide bolt and air cleaner backplate.

NOTE: Backplate screws supplied with this kit have thread locking compound on threads. If screw without thread locking compound is used, a thread locking compound such as Loctite® 242 must be applied, and screws properly tightened.

4. Align hole in other end of bracket with hole in backplate. Bracket may require slight bend or shims for correct fit. If gap exists between backplate and mounting bracket, install shims or washers (not supplied) to fill gap. Secure bracket to backplate with 1/4-28 bolt, flatwashers, and Nyloc locknut. Tighten to 10-12 ft-lbs. If bracket attaches to manifold bolt, confirm that adequate thread engagement exists between bolt and carburetor body. If longer bolt is required, insure that bolt is not long enough to bottom out against carburetor.
5. Apply a few drops of Loctite® 242 (blue) or equivalent to threads, install nuts and lockwashers, and tighten.

6. Tighten all mounting hardware.
7. Install crankcase vent hose to fitting installed in step 2.



WARNING

Vent hose must not contact hot or moving surfaces that could damage it and expose brakes or tires to crankcase oil/air mist. Oil on these components could result in loss of control of motorcycle with death or severe injury to operator and others.

8. Install filter element and air cleaner cover. Secure with three air cleaner cover screws 50-0072 to complete installation.
9. Start motorcycle, inspect for leaks, and test ride. Engine should run smoothly after proper warm-up. Surging or misfire may indicate lean carburetion. If necessary, consult professional mechanic regarding possible need to install larger carburetor jetting.

INSTALLATION KIT 17-0108 (See line drawing on page 6.)

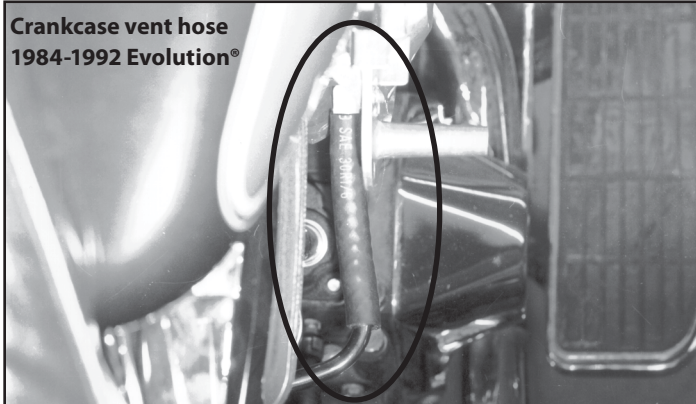
1984-1989 big twin and 1986-1987 Sportster® models (Crankcase vented only.)

1. Remove existing air cleaner assembly and related hardware, if applicable. Refer to authorized Harley-Davidson® Service Manual as needed.
2. Prepare air cleaner backplate.
 - A. 1984-1989 big twin – press plug 50-8312 into hole "B" in backplate. Apply PTFE tape or thread lubricant to threads and screw crankcase breather vent elbow fitting 50-8110 into hole "A." (See Figure 1)
 - B. 1986 and 1987 Sportster® models – press plug 50-8312 into hole "A" in backplate. Apply PTFE tape or thread lubricant to threads and screw crankcase breather vent elbow fitting, 50-8110 into hole "B." (See Figure 1)
3. Mount air cleaner support bracket 17-0311 (two required) from air cleaner support holes in cylinder heads with 5/16 -18 x 1 1/4" bolts and lockwashers. Do not tighten bracket completely at this time.

NOTE: Backplate screws supplied with this kit have thread locking compound on threads. If screw without thread locking compound is used, a thread locking compound such as Loctite® 242 must be applied, and screws properly tightened.

4. Attach backplate to carb and determine number of shims or washers required to fill gap between backplate and mounting bracket.
5. Insert 5/16-18 bolts of appropriate length through backplate, shims, mounting bracket, and lockwasher.
6. Tighten all mounting hardware.

7. Insert vent hose connector 50-8111 into end of existing crankcase vent hose, place S&S® crankcase vent hose 17-0113 over other end of connector, and secure with hose clamp. Place second clamp over vent hose and attach end of hose to elbow fitting 50-8110 in backplate. Secure with clamp. **See Picture 1.**



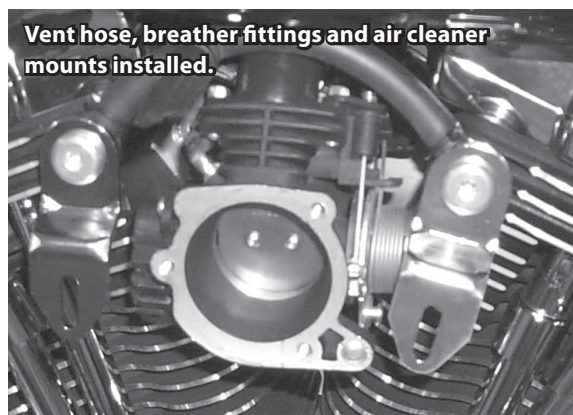
Picture 1

8. Install filter element and air cleaner cover. Secure with three air cleaner cover screws 50-0072 to complete installation.
9. Start motorcycle, inspect for leaks, and test ride. Engine should run smoothly after proper warm-up. Surging or misfire may indicate lean carburetion. If necessary, consult professional mechanic regarding possible need to install correct carburetor jetting.

INSTALLATION KIT 17-0117 (See line drawing on page 7.)

1993-up big twin, 1991-up Harley-Davidson® Sportster® models, and 1999-up carbureted and single runner fuel injected Twin Cam 88®

1. Remove existing air cleaner assembly and related hardware including cylinder head breather fittings if applicable. Refer to authorized Harley-Davidson® Service Manual as needed.
2. Assemble both head breather bolt assemblies as pictured in line drawing.
3. Screw breather assemblies into breather vent holes in the heads. Do not tighten completely at this time.
4. Install rubber T-hose 17-0339 over cylinder head breather fittings with hose T toward rear of engine. Hose must not be kinked or otherwise obstructed, and should be trimmed to length as needed. Once proper fit is obtained, secure T-hose to breather fittings with black tie-wraps or metal clamps provided. **See Picture 2.**

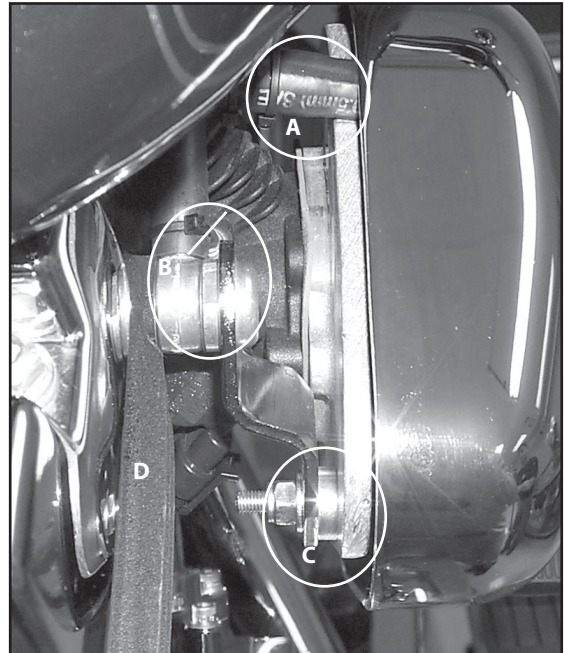


Picture 2

5. Tighten the head breather vent bolts.

NOTE: Use Loctite® 262 (Red) on breather fitting to head threads.

6. Insert ¼ -28 bolt through backing plate from filter side. On big twin only, position the .200" thick spacer between the backplate and support bracket. Next install the bracket, flat washer and the Nyloc nut. Repeat with the other mounting bracket. **(See Picture 3 Item C)**



Picture 3

- A**-Breather T-hose in backplate notch.
- B**-Breather T-hose in backplate bracket.
- C**-.200" Shim used on 1993 and up Big Twins only.
- D**-Position of shims used on fuel injected models.

7. Position the included gasket between the backplate and carburetor or throttle body. Align the backplate on carburetor. Do not tighten completely at this time.

NOTE: Backplate screws supplied with this kit have thread locking compound on threads. If screw without thread locking compound is used, a thread locking compound such as Loctite® 242 must be applied, and screws properly tightened.

8. Align the mounting brackets with the head breather bolts and secure with backplate screw 17-0346. Do not tighten completely at this time.
9. Position mounting brackets.
 - A. On all carbureted models align backing plate and brackets then tighten all mounting hardware.
 - B. On single runner fuel injected models align and tighten all hardware except backplate screw. Fill gap between mounting bracket and breather screw with supplied shims 50-7113, 50-7114, 50-7115 as needed. Shims are only used on fuel injected models. **(See Picture 3 Item B)**

10. Place wire tie or metal clamp over T of T-hose, insert ½" steel tube 50-8121 part way into T and tighten clamp. Then slide short length of beveled hose 17-0365 over ½" steel tube with beveled end out and facing down. Tighten clamp. **See Picture 1.**
11. Apply a few drops of Loctite® 242 (blue) or equivalent to threads, install nuts and lockwashers.
12. Tighten all mounting hardware.

NOTE: Torque specifications: ¾" flat vent fittings 15-20 ft-lb with red Loctite® (262) Air Cleaner mounting screw 8-12 ft-lb with no Loctite®.

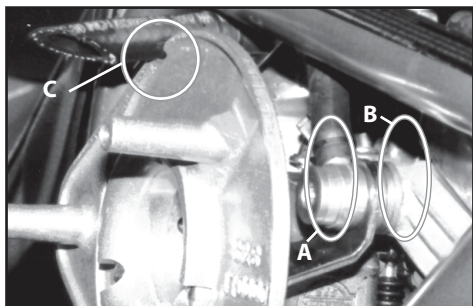
13. Install filter element and air cleaner cover. Secure with three air cleaner cover screws 50-0072 to complete installation.
14. Start motorcycle, inspect for leaks, and test ride. Engine should run smoothly after proper warm-up. Surging or misfire may indicate lean carburetion. If necessary, consult professional mechanic regarding possible need to install correct carburetor jetting.

INSTALLATION KIT 17-0105 (See line drawing on page 7.)

1. Remove existing air cleaner assembly and related hardware including cylinder head breather fittings if applicable. Refer to authorized Harley-Davidson® Service Manual as needed.

NOTE: Hose barb on rear cylinder head breather fitting must be removed. To remove fitting from cylinder head, a cut-off wheel or similar tool is used to cut barb off. Care must be taken that no metal chips get into the breather fitting. S&S® recommends packing fitting with grease. An alternative is to grasp barb with pliers and snap off.

2. Place head vent shim 50-7120 over breather cap screw 17-0338 and roll 5/8" O.D. O-ring 50-8032 into large diameter O-ring groove closest to head of breather screw. **(See Picture 4 Item A).**



Picture 4

A-50-7120 spacer.
B-.125" spacer required (minimum).
C-Vent hose in notch in backplate.

NOTE: At least one .125" shim must be installed between breather fitting and cylinder head. Otherwise breather screw may bottom out in cylinder head, resulting in oil leak and possible damage to head or screw. **(See Picture 4 Item B)**

6. Position the included gasket between the backplate and carb. Install backplate on carb.

NOTE: Backplate screws supplied with this kit have thread locking compound on threads. If screw without thread locking compound is used, a thread locking compound such as Loctite® 242 must be applied, and screws properly tightened.

7. Remove backplate and breather screw assemblies, then install shims and reinstall breather screw assemblies. Do not tighten at this time.
8. Align breather fitting outlets to permit installation of T-hose.
9. Install rubber T-hose 17-0339 over cylinder head breather fittings with hose tee toward rear of engine. Hose must not be kinked or otherwise obstructed, and should be trimmed to length as needed to align tee with backplate cut out. Once proper fit is obtained, secure T-hose to breather fittings with black tie-wraps or clamps provided. **(See Picture 4 Item C)**

10. Place wire tie or metal clamp over tee of T-hose, insert ½" steel tube 50-8121 part way into tee and tighten clamp. Then slide short length of beveled hose 17-0365 over ½" steel tube with beveled end out and facing down, and tighten clamp. **(See Picture 1)**
11. Apply a few drops of Loctite 242 (blue) or equivalent to threads, install nuts and lockwashers.
12. Tighten all mounting hardware.
13. Install filter element and air cleaner cover. Secure with three air cleaner cover screws 50-0072 to complete installation.



WARNING

Vent hose must not contact hot or moving surfaces that could damage it and expose brakes or tires to crankcase oil/air mist. Oil on these components could result in loss of control of motorcycle with death or severe injury to operator and others.

14. Start motorcycle, inspect for leaks, and test ride. Engine should run smoothly after proper warm-up. Surging or misfire may indicate lean carburetion. If necessary, consult professional mechanic regarding possible need to install correct carburetor jetting.

3. Roll ½" O.D. O-ring 50-8006 into small diameter O-ring groove of breather screws. Apply thin film of light grease to O-rings.

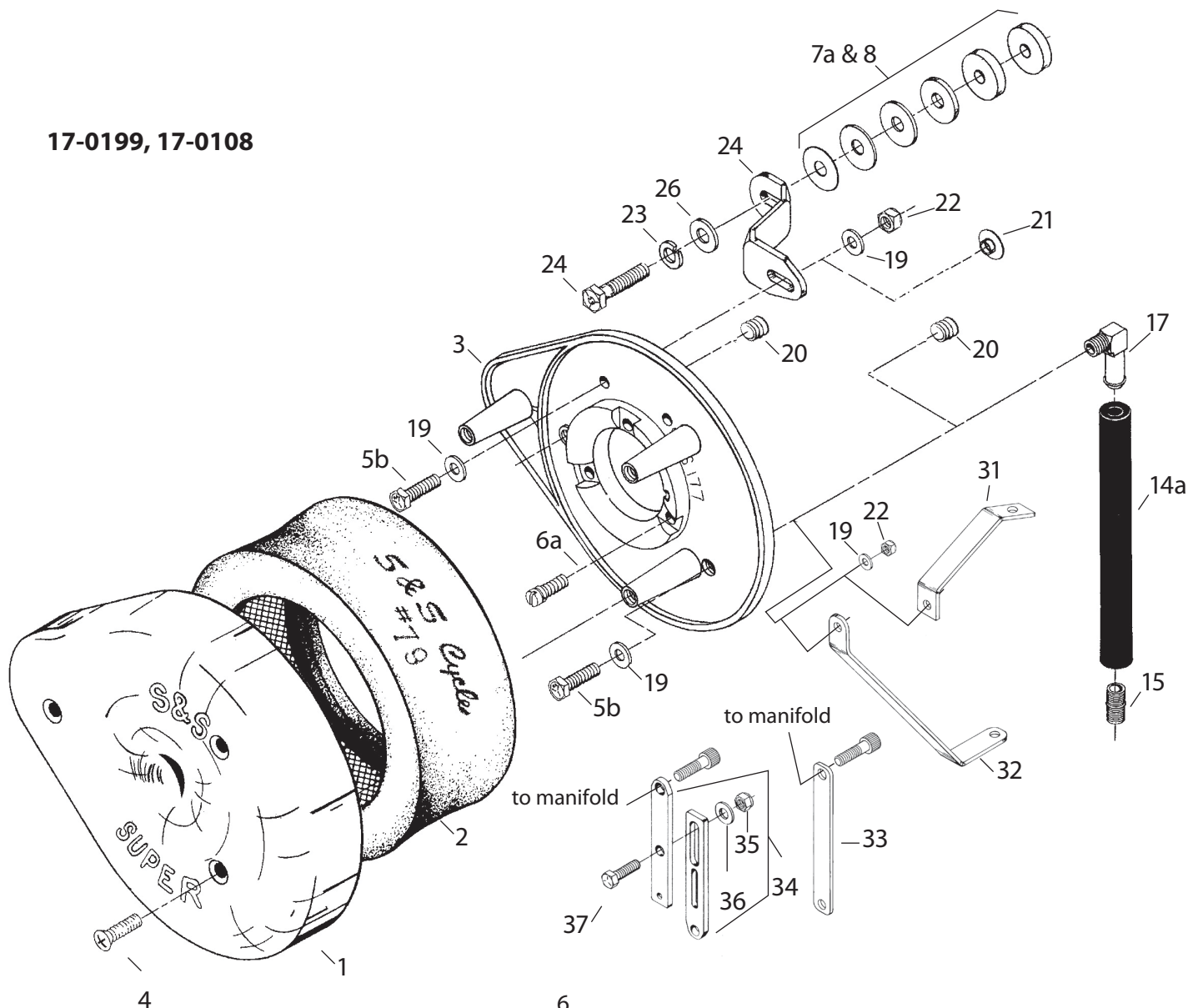
NOTE: Breather fitting O-rings are easily damaged. It is suggested that replacements be obtained prior to removing breather fittings in future.

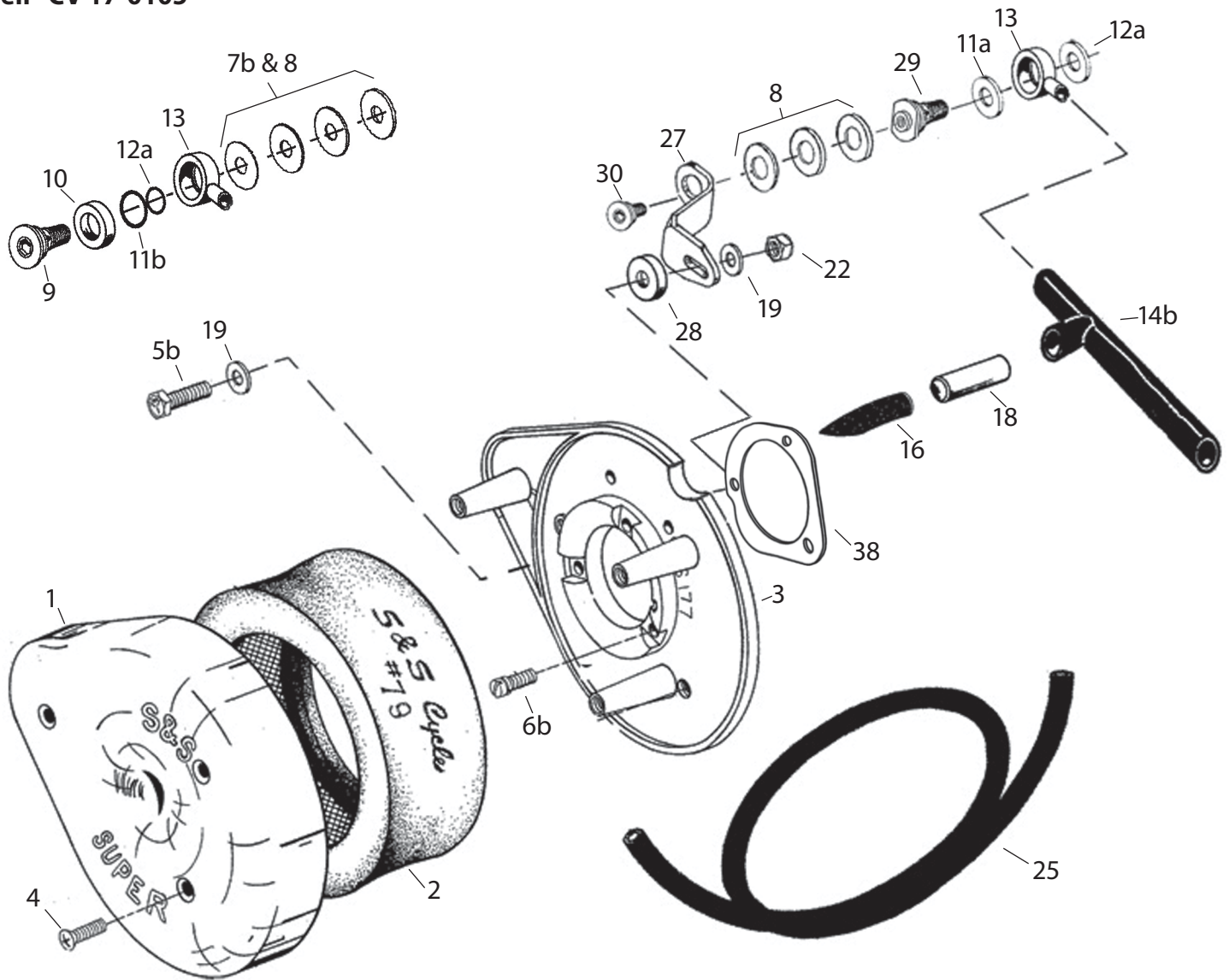
4. Repeat for other breather screw.
5. Pass breather screws through breather fittings 17-0337 and stock support bracket. Do not tighten at this time.

S&S® Air Cleaner Assemblies for Stock Carburetor Parts and Mounting Hardware

1. Air cleaner cover
 - Chrome **17-0078**
2. Element **17-0079**
3. Backplate **17-0002**
4. Cover screw (10 Pack) **50-0094**
5. Screw
 - a. Harley-Davidson® Twin Cam 88® 1999-up & FI Softail® 2001
HHCS ¼"-28 x 1¼" (10 Pack) **50-0265**
 - b. All others
HHCS ¼"-28 x 7/8" (10 Pack) **50-0193**
6. Backplate screw, Twin Cam 88® 1999-up & FI Softail® 2001
 - a. SLTD FH, w/lockwasher - ¼"-20 x ¾" (10 Pack) **50-0096**
 - b. SLTD FH, w/lockwasher - ¼"-20 x 1" (10 Pack) **50-0214**
7. Shim kit
 - a. Evolution® bt 1966-'89 & Evolution® Sportster® models 1966-'87
(Includes 2 each ⅝" x .018", ⅝" x .030", ⅝" x .048", ⅝" x .105" &
4 each ⅝" x .125") **17-0314**
 - b. Evolution® bt 1993-'99, Evolution® Sportster® models 1991-up,
& Buell® 1994-up
(Includes 2 each ½" x .018", ½" x .030", ½" x .048", ½" x .105", and
4 each ½" x .125") **17-0464**
8. Shims (10 Packs) bt 1966-'89 & Sportster® models 1966-'87
 - a. ⅝" x .018" **50-7107**
 - b. ⅝" x .030" **50-7070**
 - c. ⅝" x .048" **50-7068**
 - d. ⅝" x .105" **50-7062**
 - e. ⅝" x .125" **50-7066**
 Evolution bt 1993-up, Evolution® Sportster® models 1991-up, &
Buell® 1994-up
 - f. ½" x .018" **50-7100**
 - g. ½" x .030" **50-7099**
 - h. ½" x .048" **50-7098**
 - i. ½" x .105" **50-7097**
 - j. ½" x .125" **50-7102**
 Twin Cam 88® 1999-up & FI Softail® 2001
 - k. ⅝" x .025" **50-7110**
 - l. ⅝" x .050" **50-7111**
 - m. ⅝" x .075" **50-7112**
9. Breather cap screw **17-0338**
10. Shim, head vent - .62" I.D. x .80" O.D. x .185" **50-7120**

17-0199, 17-0108





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|---|-----------------|
| 11. Breather screw seal | |
| a. Harley-Davidson® Twin Cam 88® 1999-up & FI Softail® 2001, Washer, .520 (10 Pack) | 50-7057 |
| b. All others, O-ring 5/8" O.D. (10 Pack) | 50-8130 |
| 12. Breather screw seal | |
| a. Twin Cam 88® 1999-up & FI Softail® 2001, Washer, .380 (10 Pack)..... | 50-7059 |
| b. All others O-ring, 1/2" O.D. (10 Pack)..... | 50-8077 |
| 13. Vent fitting - Evolution® bt 1993-'99, Evolution® Sportster® models 1991-up, Twin Cam 88® 1999-up & FI Softail® 2001 | 17-0337 |
| 14. Crankcase breather vent hose | |
| a. Evolution® bt 1984-'92, Evolution® Sportster® models 1986-'90..... | 17-0113 |
| b. Evolution® bt 1993-up, Evolution® Sportster® models 1991-up, Twin Cam 88® 1999-up & FI Softail® 2001 | 17-0339 |
| 15. Vent hose connector, Evolution® bt 1984-'92 & Sportster® models 1986-'90 (5 Pack) | 50-1006 |
| 16. Vent hose, Evolution® Sportster® models 1991-up | 17-0365 |
| 17. 90° Elbow fitting (5 Pack)..... | 50-1005 |
| 18. Hose fitting | 50-8121 |
| 19. Flatwasher, 1/4" (10 Pack)..... | 50-7074 |
| 20. Backplate plug, 1/8"-27 NPT (10 Pack) | 50-1015 |
| 21. Plug, press-in clear plastic (10 Pack)..... | 50-8322 |
| 22. Support bracket locknut - 1/4"-28 x 7/8" (10 Pack)..... | 50-5015 |
| 23. Lockwasher, 5/16", (10 Pack)..... | 50-7077 |
| 24. Support bracket, Air cleaner-head, Evolution® | 17-0311 |
| 25. Rubber tubing - 1/4" x 5/8" x 1'..... | 19-0169 |
| 26. Washer, flat - 3/8" x 7/8" x .146" (10 Pack)..... | 50-7075 |
| 27. Carb suport bracket | |
| Twin Cam 88® 1999-up & FI Softail® 2001 | 17-0308 |
| 28. Shim, 1/4" x 3/4" x .200"..... | 50-7024 |
| 29. Screw vent fitting | 17-0345 |
| 30. Screw A/C backplate..... | 17-0346 |
| 31. Air cleaner support bracket 1966-'82 bt..... | 17-0092 |
| 32. Air cleaner support bracket 1957-'85 Sportster® models..... | 17-0093 |
| 33. Support bracket - panhead..... | 16-0096 |
| 34. Support bracket - 1986-'84 shovelheads..... | 16-0471 |
| 35. Locknut, 5/16" x 18 (10 pack) | 50-5020 |
| 36. Flatwasher, 5/16" x 1/8" (10 pack) | 50-7077 |
| 37. Support bracket screw 5/16"-18 x 1" (10 pack) | 50-0155 |
| 38. Gasket for stock CV carbs and stock single bore throttle body | 106-6022 |



Because every industry has a leader