



Because every industry has a leader

Installation Instructions: TÜV Approved Super E Carburetor Kits

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 affect 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 judgment when performing installation and operating motorcycle. Good judgment begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgment. 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.

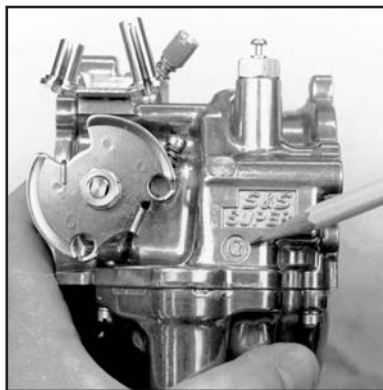
ADDITIONAL WARRANTY PROVISIONS:

- (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

S&S® Super E Shorty carburetors are designed for big twin and Harley-Davidson® Sportster® models as well as other American v-twin engines. They are butterfly type carburetors with an accelerator pump for improved throttle responses and a variable enrichment/fast idle device for improved engine starting and warm ups.

The Super E has a 1 7/8" (47.6mm) bore and 1 1/8" (39.6mm) venturi. It is identified by an "E" cast into the throttle linkage side of the body below the letters "S&S SUPER".



Picture 1

NOTE: S&S carburetors are jetted at the factory to meet noise and exhaust emissions when properly installed. It is illegal to run the bike without the noise reducers installed. Operating the motorcycle without the noise reducers will also cause engine damage. The user shall determine the suitability of the product for his or her use and shall assume all risk and liability in connection therewith.

Kit Contents:

Each complete carburetor kit includes:

- One S&S Super E gas carburetor
- One S&S teardrop air cleaner assembly with noise reducer
- One manifold with noise restrictor
- Mounting hardware
- Fuel line, fuel line insulator, clamps and overflow line
- VOES tubing and additional hardware (when applicable)
- Installation instructions and TUV documentation

CHROME PLATING THE CARBURETOR

NOTE: S&S does not recommend chrome plating the Super E carburetor. Preparation requires polishing with abrasive buffing compounds. These materials invariably plug air and/or fuel passages and other orifices regardless of precautions taken.

⚠ CAUTION

The chrome plating process can alter critical operating tolerances in several areas. Additionally, chrome may obstruct fuel passages, possibly altering the fuel mixture and causing engine damage. All manufacturer warranties become void if any part of the carburetor is polished, chrome plated or otherwise altered.

THROTTLE REQUIREMENTS

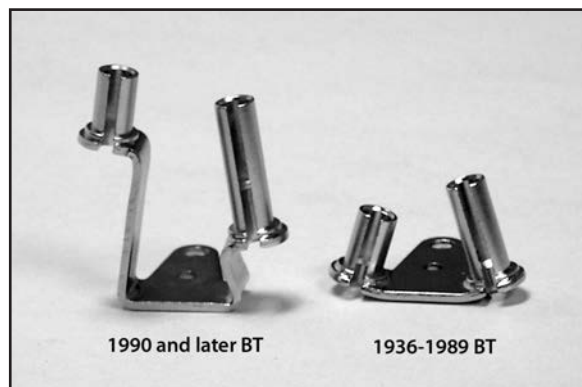
NOTE: S&S Super E and G carburetors require the use of a two cable, pull open - pull closed throttle assembly. All 1980 and earlier stock H-D® models equipped with a single cable throttle mechanism must be converted to the two cable, pull open-pull closed type. S&S offers these throttle assemblies but does not include them with any carburetor kit because of the multitude of chassis designs and fitment requirements.

⚠ WARNING

WARNING -Single, braided wire cable throttle mechanisms cannot mechanically close the throttle. If throttle inadvertently sticks in open position, loss of control of motorcycle and personal injury to operator or others may result.

1981 to Present Big Twin Models

Stock big twin models from 1981 to 1989 have two cable throttle system designed for stock, butterfly type carburetors. Big twins from 1990 to present have a two cable throttle system designed for the stock, constant velocity (CV) type carburetor. In spite of the differences in throttle cables for these year groups, stock throttle cables on all 1981 to present big twin models can be installed on the S&S Super E throttle linkage with no cable modification. S&S® Super E carburetor kits for 1936 to 1989 big twins contain a throttle cable guide designed for butterfly type throttle cables, and kits for 1990 and later big twins contain a taller throttle cable guide designed for CV type throttle cables. **See Picture 2.** The two throttle cable guides are interchangeable on the carburetor body, and can be changed very easily to update older carburetors or to accommodate custom throttle cables which are not stock for a particular year chassis.



Picture 2

1981 to Present Harley-Davidson® Sportster® Models

Stock Sportster models from 1981 to 1987 have two cable throttle system designed for butterfly type carburetors. 1988 to present models have a two cable throttle system designed for use with the stock constant velocity (CV) type carburetor. Since the taller cable guide bracket can not be used on a Sportster chassis due to insufficient frame clearance, throttle cables on motorcycles originally equipped with a CV type carburetor must be changed to butterfly style cables. S&S can supply the correct style throttle cables. **See S&S Throttle Cable Application Chart 1.**

S&S® Throttle Cable Application Chart				
Length Total Housing	Length Vinyl Housing	Part Number Open Side	Part Number Close Side	Fitment
36"	32"	19-0430	19-0431	For Buell® with 7/8" handlebars
36"	32"	19-0432	19-0433	To 1995, 1981-'85 FX and FL; All 1981-'85 XL (Also pre-1981 w/2-cable throttle housing replaced) For Buell with 1" diameter handlebar
36"	32"	19-0436	19-0437	1996-up 883-1200 XL
39"	35"	19-0434	19-0435	To 1995 Softail® (FXCTC, FXST, FLSTC, FLSTC, FLSTF) 1986-'94 FXR, 1993-'95 Dyna®
39"	35"	19-0438	19-0439	1996-up Softail (FXSTS, FXSTC, FLSTC, FLSTF) 1996-Up Dyna
42"	38"	19-0446	19-0447	To 1995 Custom Application
42"	38"	19-0440	19-0441	1996-up Custom Application
48"	44"	19-0462	19-0463	To 1995 All FLT Models
48"	44"	19-0464	19-0465	1996-up All FLT Models

Chart 1

S&S THROTTLE KITS

S&S throttle kits fit 1" handlebars and can be used on most chassis. (An adapter sleeve is available for use with earlier, 7/8" OEM handlebars originally equipped with internal throttle cable). Barrel fittings on S&S® cables readily "plug in" to S&S Super E, G, and stock H-D® 1981-'90 butterfly type carburetor throttle linkage. Kits include one opening and one closing side cable, left and right grips, and handlebar clamps. Kits with 36", 39", 42", or 48" length cables are available. Length specified refers to overall cable length. Vinyl covered outer housing is 4" shorter than overall length.

NOTE: Cables supplied with above kits are interchangeable with 1981-'90 stock H-D butterfly style throttle cables.

S&S® Throttle Cables for 1996 and Later Chassis

These throttle cables feature the "plug in" cable fastener to fit 1996 and later throttle grips, and the correct length inner cable for use with S&S butterfly style carburetors with the shorter cable bracket. These cables must be used in 1996 and later Sportster installations. These cables may be used on 1996 and later big twin installations if the S&S carburetor is equipped with the short cable guide bracket.

CARB INSTALLATION

Read instructions thoroughly to familiarize yourself with all procedures before beginning installation.

NOTE: Installation of S&S Super E carburetor kits on certain models is easier with gas tanks removed. Some owners may elect to perform installation without removing gas tanks. This is left to individual discretion. If installer elects to remove tanks or other stock parts, S&S recommends referring to appropriate Harley-Davidson® service manual for correct removal procedure as necessary.

1. Remove Old Carburetor

WARNING

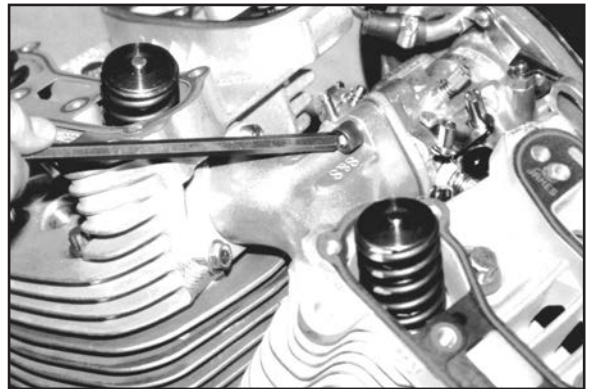
- Gasoline is extremely flammable and explosive under certain conditions. Do not smoke around gasoline. Gasoline fumes are toxic when inhaled. Perform installation in a well ventilated area away from open flames or sparks. Any gasoline leak or spill constitutes a health and fire hazard.
- If motorcycle has been running, wait until engine and exhaust have cooled to avoid getting burned during installation.
- Electrical sparks can ignite explosive gasoline fumes. Failure to disconnect battery while working on motorcycle can also result in inadvertent engagement of starter and personal injury.

- A. Shut off fuel petcock and disconnect battery.
- B. Remove air cleaner assembly. Drain fuel from existing carburetor. Remove carburetor, manifold, choke cable and any carburetor mounting hardware.

NOTES: Removing and tightening hard to reach Allen bolts like carburetor mounting bolts and manifold flange bolts can be greatly simplified by using some special tools. The S&S rocker cover wrenches work very well for this application. **See Picture 3.** Allen ball-end drivers are also very helpful and are available at most automotive and tool supply houses. **See Picture 4.** As an alternative a standard hex wrench can be shortened for convenience.



Picture 3



Picture 4

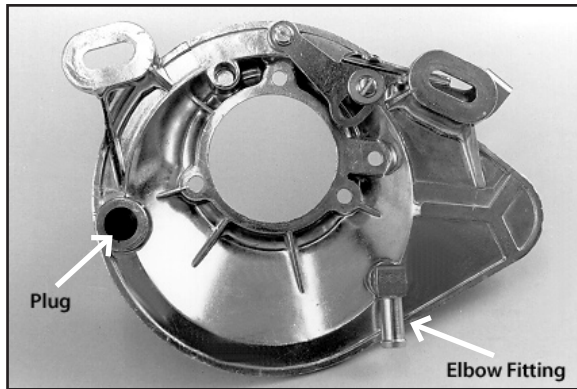
2. Prepare Air Cleaner Backplate

NOTE: Fast idle lever screws must not be over tightened. Loctite® or other thread locking compound may be used sparingly on threads to prevent screws from vibrating loose.

CAUTION

Over tightening fast idle lever screws may damage backplate.

- A. 1984-'92 Harley-Davidson® Evolution® big twin engines
1. Press plug into hole on left in air cleaner backplate as shown in Picture 5.
 2. Screw vent hose elbow fitting into remaining hole at right. See Picture 5.
 3. Assemble fast idle mechanism as shown in Figure A.



Picture 5

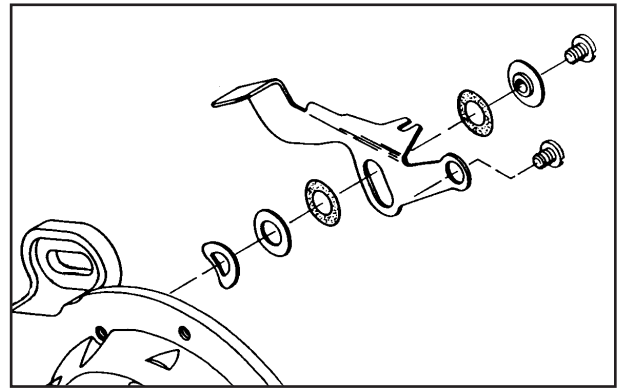
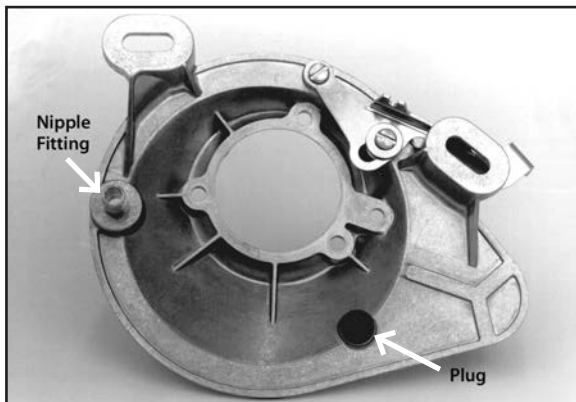


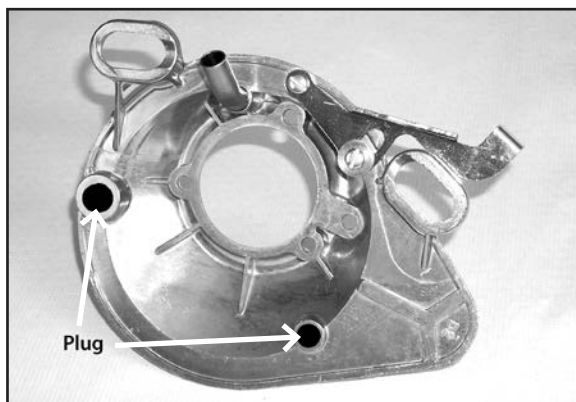
Figure A

- B. 1986 to 1990 Sportster® models
1. Press plug into hole on right in air cleaner backplate as shown in **Picture 6**.
 2. Screw vent hose nipple fitting into remaining hole at left. **See Picture 6**. Elbow fitting supplied in kit may also be used in this location if required.
 3. Assemble fast idle mechanism as shown in **Figure A**.



Picture 6

- C. 1993-up big twin & 1991-up Harley-Davidson® Sportster®
1. Press plugs into both holes in air cleaner backplate as shown in **Picture 7**.
 2. Assemble fast idle mechanism as shown in Figure A.



Picture 7

3. Throttle Preparation

NOTE: Throttle grip assembly must be assembled correctly and work freely to prevent possible sticking during operation. Throttle must snap closed when released. Cable routing must be free of tight bends to minimize friction between cable and housing.

WARNING

If throttle does not work freely, it may inadvertently stick open possibly causing loss of control of motorcycle and personal injury to operator or others.

- A. Prepare existing throttle assembly - 1981-1989 Harley-Davidson® Sportster® and 1981 and later big twin chassis equipped with two cable pull open-pull closed type throttle assembly.
 1. Loosen cable freeplay adjustment locknuts and thread adjusting screw so half of threads are exposed. **See Picture 8.**
 2. Clean grease and dirt off cables, cable housings and cable fittings.
 3. Apply light coat of cable lubricant to cables and fittings.
- B. Replace throttle cables - all 1988 and later Sportster® models equipped with constant velocity (CV) type carburetor.
 1. Carefully remove existing cables noting how they are routed.
 2. Install replacement cables using same routing as stock cables.
 3. Loosen cable freeplay adjustment locknuts and thread adjusting screw so half of threads are exposed. **See Picture 8.**
 4. Apply light coat of cable lubricant to cables and fittings.



Picture 8

4. Install New Manifold and Mounting Hardware

NOTE: When applicable, all carburetor mounting brackets and hardware supplied in kit must be installed to secure carburetor and air cleaner backplate assembly rigidly to engine.

CAUTION

- Improperly mounted carburetor could loosen unexpectedly, resulting in air leak, poor performance and possible damage to engine or carburetor.
- Incorrect combinations of mounting hardware may cause mounting bolts to bottom out in holes or inadvertently contact other parts possibly causing damage to engine or carburetor components.

WARNING

Improperly mounted carburetor may break free in event of collision or other vehicle accident creating a fire hazard with potential personal injury to operator/others.

- A. All models: Clean intake ports on cylinder heads to insure proper manifold to head seal.
- B. All models: Install S&S® intake manifold. If applicable, vacuum advance fitting must point upward. For manifold flange and seal assembly order, **See Figure B**. Note that bevel side of seal goes toward recess in manifold flange, flat side of seal against head. Do not completely tighten manifold clamps or flange bolts at this time.

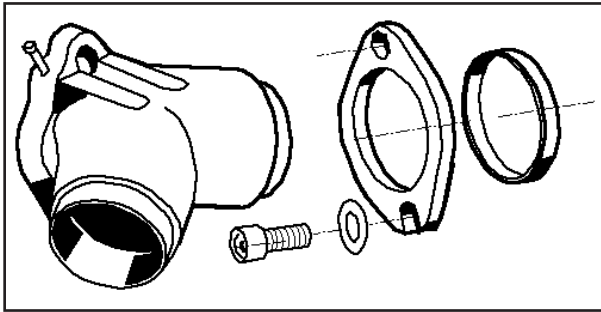
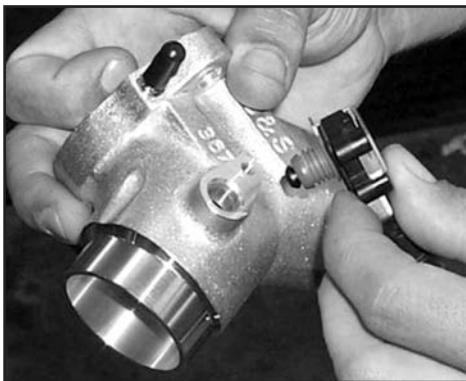


Figure B

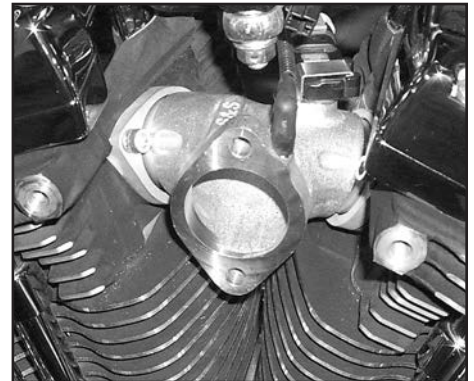
- C. Harley-Davidson® Sportster® models 1983-later and all 1984-up big twins - Connect vacuum operated advance ignition switch (VOES) to manifold using 8" piece of black tubing supplied in kit. Cut tubing to shorter length if necessary.
- D. Twin Cam 88®, 1999-up engines - Install stock map sensor in S&S manifold. **See Picture 9**. Secure sensor to manifold with stock clip and screw. **See Picture 10**. Install manifold on engine with stock hardware. Connect fuel petcock vacuum hose to manifold fitting and connect wiring harness to map sensor. **See Picture 11**.



Picture 9



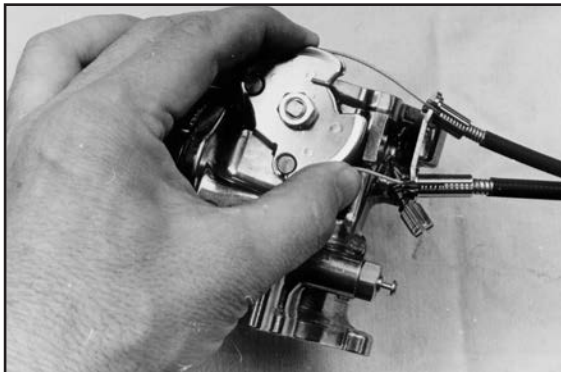
Picture 10



Picture 11

5. Install Carburetor

- A. Install throttle cables on carburetor.
 1. Locate throttle cable housing bracket on carburetor or in kit.
 2. Install opening side throttle cable barrel fitting and throttle cable in throttle linkage and appropriate side of throttle cable housing bracket. Opening side cable housing outside diameter is smaller and measures 0.190".
 3. Repeat step 2 for closing side throttle cable. Closing side cable has a spring around inner cable wire. **See Picture 12**.

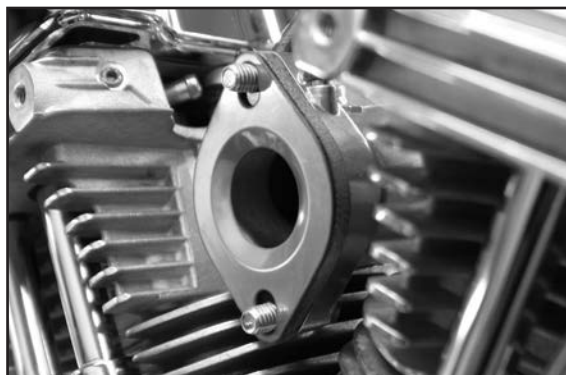


Picture 12

4. Apply drop of Loctite® 242 or equivalent to threads of cable bracket screw and reinstall bracket on carburetor.

B. Install carburetor

1. Install the two $\frac{3}{8}$ "-16 socket cap screws through mounting holes in manifold from back side.
2. Install insulator block onto cap screws with O-ring side of block facing manifold.
3. Install noise restrictor onto cap screws with the gasket side facing manifold. **See Picture 13.**
4. Install carburetor and tighten cap screws.



Picture 13

CAUTION

- If noise restrictor is not installed engine damage will result due to lean condition.
- If insulator block is not installed, lower manifold bolt may damage carburetor bowl causing possible gasoline leak.

WARNING

Gasoline is extremely flammable and explosive under certain conditions. Do not smoke around gasoline. Gasoline fumes are toxic when inhaled. Any gasoline leak or spill constitutes a health and fire hazard.

C. Adjust throttle cables

1. Turn threaded throttle cable adjusters to remove excessive free play.
2. Test throttle to insure that it opens and closes freely. Turn handlebars to extreme left and open and close throttle, then turn bars to extreme right and open and close throttle. If throttle binds, loosen cable adjusters to put more free play in cables. Tighten adjusting screw locknuts after making final adjustments.

NOTE: Throttle must not bind and must snap shut to fully closed position when released.

WARNING

If throttle does not return to fully closed position when released, it may inadvertently stick open, causing possible loss of control of motorcycle and personal injury to operator or others.

D. Install Overflow Hose

1. Slip fuel overflow hose onto fitting on carburetor bowl and neatly route behind pushrod tubes. On a big twin model, hose should go toward back of engine. On a Harley-Davidson® Sportster® model, hose should go toward front of engine. Exit end of overflow hose must extend down below engine and away from exhaust pipes. **See Pictures 14 and 15.**



Picture 14



Picture 15

⚠ WARNING

Overflow hose must not contact hot surface such as exhaust pipe where it could melt and catch fire.

- E. Install fuel line
1. Slip hose clamp over end of fuel line with 90° bend.
 2. Apply thin coat of oil to carburetor fuel inlet fitting and slip end of fuel line with 90° bend on fitting.
 3. Position fuel line in such a way as to avoid contact with cylinders and other hot engine parts. Tighten hose clamp.
 4. Slip protective fuel line covering over fuel line and position to protect fuel line where contact with engine parts could occur. On models equipped with fuel line support guide, use guide if possible.
 5. Connect other end of fuel line to gas tank petcock using hose clamp provided.

⚠ WARNING

Fuel line must be clamped securely and not contact hot surfaces such as exhaust pipes where it could melt and catch fire.

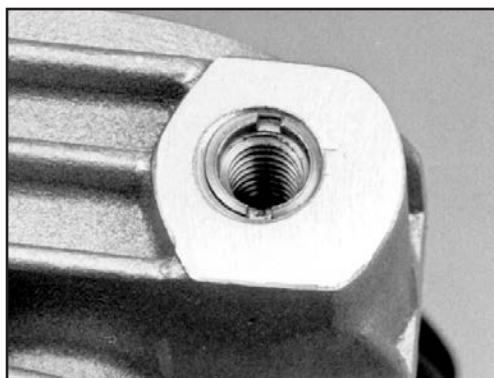
6. Install Air Cleaner Backplate

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

⚠ CAUTION

Failure to apply thread locking compound or properly tighten screws may cause screws to loosen and fall into engine, causing engine damage not covered under warranty.

- A. Harley-Davidson® Evolution® big twin 1984 to 1992 and Sportster® models 1986 to 1990
1. 1992 big twin models with crankcase breather vented from cases to air cleaner backplate - Install thread-ert in each cylinder head air cleaner mounting bolt hole. This converts stock ½"-13 thread to ⅝"-18 thread. Surface of thread-ert should be just below surface of cylinder head. **See Picture 16.**



Picture 16

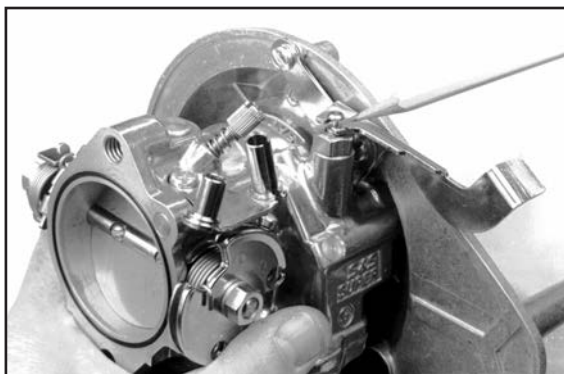
NOTES:

- Most 1992 big twins have crankcase breather routed from case to air cleaner backplate. However, some late 1992 engines have breather routed from heads to air cleaner backplate through air cleaner mounting bosses. If crankcase breather is routed through heads, 1993 and later carburetor kit must be installed. Follow instructions for installation on 1993 engine.
- Thread-erts may be supplied with or without thread locking compound on threads. Loctite® 242 or equivalent should be applied to threads of thread-erts not supplied with thread locking compound. Thread-erts should be installed in desired position and left in place.
- Installing thread-ert in hole activates thread locking compound making it difficult to change position of thread-ert after installation.

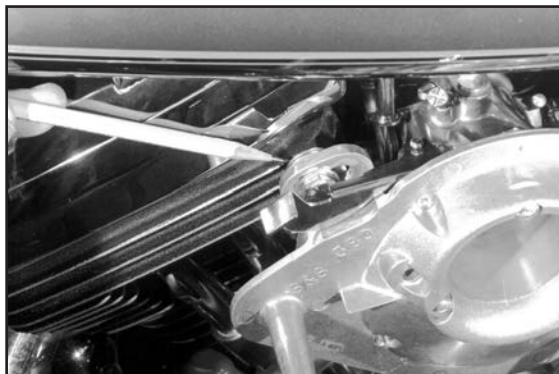
⚠ CAUTION

Cylinder head vent passages in "head breather" type engine must not be plugged as oil leakage and engine damage may result. Same applies to crankcase vent in "case breather" type engine.

2. Mount the air cleaner backplate on carburetor using three $\frac{1}{4}$ "-20 x $\frac{5}{16}$ " screw/washer assemblies. Confirm that enrichment device lever, engages enrichment device plunger. **See Picture 17.** Tighten backplate mounting screws to 10-12 ft-lbs.
3. Fill gap between backplate mounting ears and cylinder heads with shims provided in S&S® shim kit.
4. Bolt backplate to cylinder heads with $\frac{5}{16}$ "-18 x $1\frac{1}{4}$ " bolts, flat washers and lock washers. **See Picture 18.**
5. Final tighten all mounting bracket bolts and manifold clamps.
6. Connect crankcase breather hose to air cleaner backplate hose fitting. **See Pictures 19 and 20.**



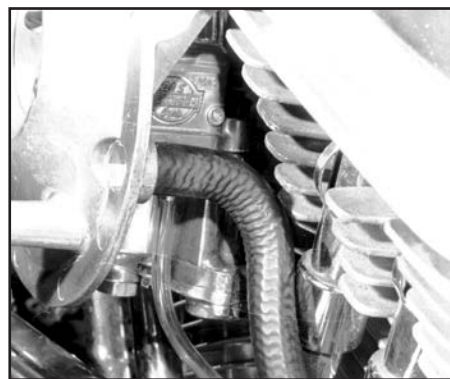
Picture 17



Picture 18



Picture 19

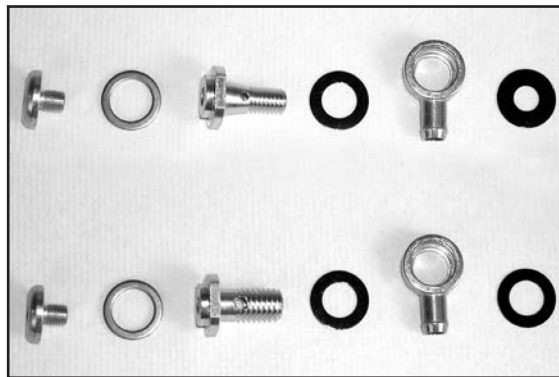


Picture 20

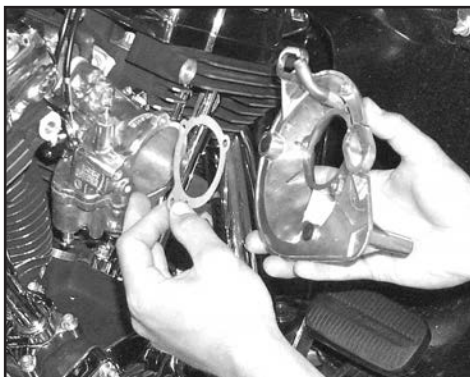
- B. Harley-Davidson® Evolution® big twin engines 1993-'99, Sportster® models 1991-'03, and all Twin Cam 88® engines 1999-up.
1. Install breather fittings in heads. **See Picture 21.** Apply red Loctite® to threads and torque to 15-20 ft-lb. **See Picture 22** for component placement.
 2. Install breather hose between breather fittings with long hose runner toward rear cylinder breather fitting. Position hose in such a way that it is not kinked and does not interfere with travel of the enrichment lever. Trim ends of vent hose as required. Secure hose to fittings with small wire ties.
 3. Install backplate and gasket. Connect the short "T" of the breather hose to the steel nipple fitting on the back of backplate. **See Picture 23.** Secure hose to backplate fitting with hose clamp. Confirm that fast idle lever has properly engaged enrichment plunger. **See Picture 17.** Tighten screws holding backplate to carburetor to 10-12 ft-lbs.
 4. Determine which of the provided shims correctly fills the gaps between backplate and breather fittings. **See Picture 24.**
 5. Fill gap between backplate mounting ears and cylinder heads with correct shims. Install screws to attach backplate to breather fitting. **Torque to 8-12 ft-lb with no Loctite. See Picture 25.**



Picture 21



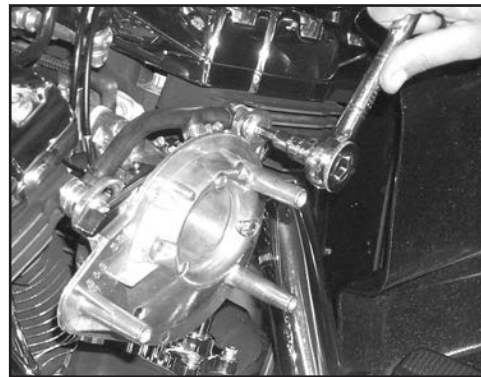
Picture 22



Picture 23



Picture 24



Picture 25

NOTE: Backplate screws supplied with kit have pre-applied thread locking compound on threads. If screw without thread locking compound is used, a thread locking compound such as Loctite® 242 must be applied to threads, and screws properly tightened. If screws are removed in future, Loctite 242 or equivalent must be applied before reinstallation.

CAUTION

Failure to apply thread locking compound or properly tighten screws may cause screws to loosen and fall into engine, resulting in engine damage not covered under warranty.

7. Final assembly and checks.

- A. Check carburetor to manifold mounting bolts.
- B. Check carburetor to air cleaner backplate mounting screws.
- C. Check each of following that is applicable:
 1. Carburetor mounting bracket to head bolts.
 2. Mounting bracket to air cleaner backplate.
 3. Mounting bracket to center case stud.
 4. Mounting bracket to tappet guide bolt.
 5. Mounting bracket to head breather vent fitting.
 6. Air cleaner backplate to head mounting bolts.
- D. Check fuel line connections and routing. Avoid hot surfaces.
- E. Check vacuum operated ignition advance connections if applicable.
- F. Check crankcase to backplate vent hose connections if applicable.
- G. Check fuel overflow hose routing. Avoid hot surfaces.
- H. Test throttle to be sure it opens and closes freely. Turn handlebars to extreme left and open and close throttle, then turn bars to extreme right and check throttle. When released, throttle should snap closed in all positions.
- I. Reassemble components that were removed or disassembled for carburetor installation. Consult authorized Harley-Davidson® service manual for installation procedure for stock parts not covered in S&S® carburetor instructions.
- J. Check fuel needle and seat assembly. Fill gas tank with just enough fuel to test system. Lean motorcycle over towards carburetor side, turn on fuel petcock and wait 20 seconds. If gas runs out end of carburetor or out overflow hose, turn off petcock and check needle and seat. See "General Information."
- K. Check fuel inlet fitting and fuel line connections for leaks. Hose clamps must be tight.

NOTE: Fuel needle and seat assembly must completely shut off fuel supply to carburetor bowl. Fuel inlet fittings and fuel line connections must not leak.

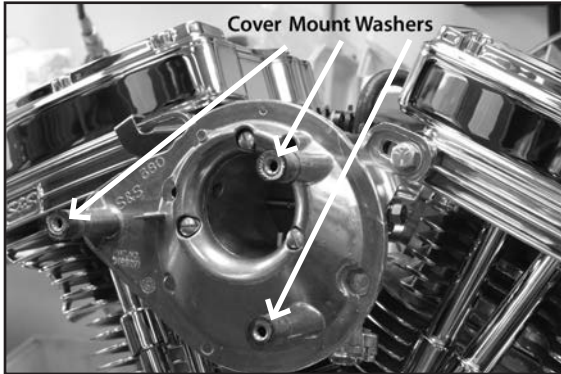
CAUTION

Gasoline leaking past inlet needle may flood engine causing contamination of oil supply and damage to engine.

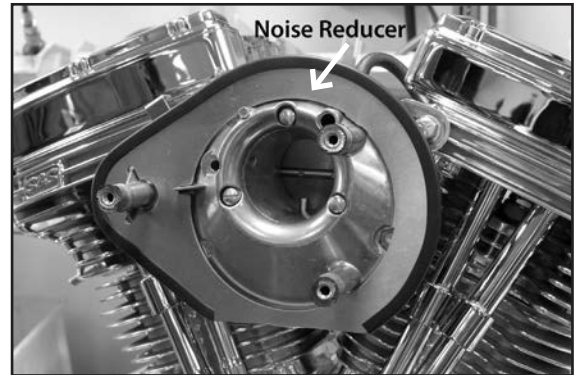
WARNING

Any gasoline leak represents a health and fire hazard.

- L. Install air cleaner element, noise reducer, and air cleaner cover.
1. Install three cover mounts and washers on backplate cover supports. Use Loctite® 242 or equivalent on threads. **See Picture 26.**
 2. Install noise reducer on backplate over supports. **See Picture 27.**
 3. Flat side of pleated filter element goes against noise reducer. Insure that element goes around outside edge of locating tang at 9 o'clock position on backplate. Rounded side of element with S&S® part number goes toward outside. Correctly installed element will remain in place on backplate without support.
 4. Install cover using the three ¼" -20" mounting screws provided.



Picture 26



Picture 27

NOTE: Pleated air filter element supplied in carburetor kits for big twins and Harley-Davidson® Sportster® models goes on dry. Do not apply filter oil to pleated filter. Foam filter element may be installed dry or foam type filter oil may be applied. Foam filter elements may be washed and reused, but pleated elements must be replaced when they become dirty or clogged.

M. Fill gas tank.

INSTALLATION NOTES: In designing the S&S® Super E carburetor S&S has made every effort to keep overall assembled length as short as possible. Due to the short installed length of the carburetor assembly, the air cleaner cover may contact the gas tank of four-speed shovelhead chassis. In such instances an optional chromed, notched cover that will provide additional clearance can be ordered. If a new, undamaged Super E/G cover is shipped to S&S prepaid, it will be exchanged for the difference in cover prices. See your authorized S&S dealer for this service.

An optional 1" spacer block can be installed between carburetor and manifold as an alternative, or existing air cleaner cover modified to provide 1/8" minimum clearance.

⚠ CAUTION

Improperly mounted carburetor may loosen from engine resulting in gas or air leaks, poor performance and possible damage to carburetor or other components.

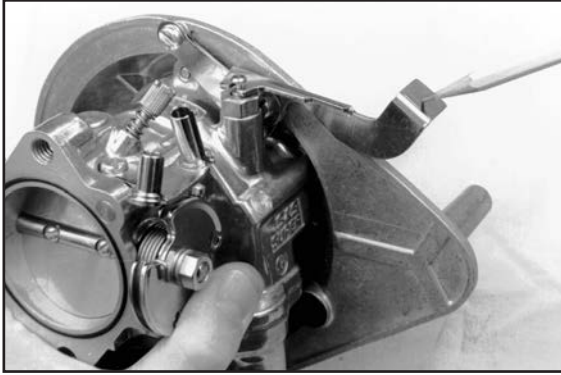
⚠ WARNING

Any gasoline leak represents a potential health and fire hazard.

CARB OPERATION

1. Carburetor Starting Procedure

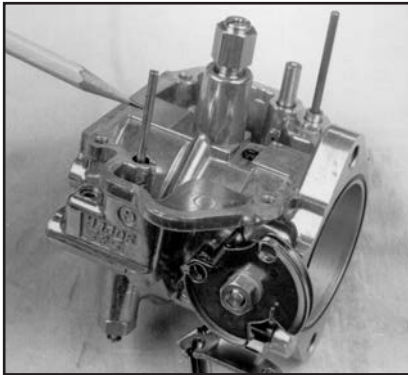
S&S® Super E carburetors do not have a conventional choke. Instead, a mixture enrichment/fast idle device is used for starting and engine warm-ups. The enrichment device utilizes separate air and fuel pickup passageways and is engaged by pulling fast idle level upward. **See Picture 28.** Super E carburetors also feature an accelerator pump which is actuated by quick throttle movements at partial throttle openings and can be used as an additional starting aid.



Picture 28

ENRICHMENT DEVICE NOTES:

- Enrichment/fast idle pickup tube located directly below fast idle plunger is pressed into carburetor body and must not be removed. **See Picture 29.**



Picture 29

CAUTION

Removal of enrichment/fast idle pickup tube from carburetor body may cause irreversible damage to carburetor.

- Plunger nut, plunger spring, and plunger, may be removed for cleaning purposes.
- If air cleaner backplate is removed, be sure fast idle lever and enrichment plunger are engaged properly when backplate is reinstalled. **See Picture 17.**
- S&S® enrichment system operates on manifold vacuum. If throttle is opened while starting engine, vacuum will be reduced and enrichment system will not function normally.

A. Cold Starts

1. Open fuel petcock.
2. NOTE: When motorcycle is not running, fuel petcock/shutoff valve should be turned off to prevent possible leakage should needle and seat not seal properly.

 CAUTION

Gasoline leaking past inlet needle may flood engine causing oil contamination and engine damage.

 WARNING

Gasoline leaking past inlet needle may flood engine and surrounding area creating a potential health and fire hazard.

3. Prime engine with one or more squirts from accelerator pump. Ambient temperatures below 60° may require increased priming, up to 6-7 squirts depending upon exact temperature and carburetor jet size.
4. Lift fast idle lever, to fully raised position.
5. Turn on ignition.

NOTE: Some engines, especially those equipped with magnetos, will start easier if given two prime kicks BEFORE ignition is turned on. For reliable starting, magneto should be equipped with kill button to disable ignition for prime kicks.

6. With throttle closed, kick engine through or engage electric starter.
7. If engine fails to start immediately, crack throttle enough to barely open butterfly and continue to kick or engage starter until engine fires.
8. After engine starts, position lever to maintain rpm at approximately 1000-1200 rpm with throttle closed. Lever may gradually be pushed down to closed position as engine warms. Engine should be warmed sufficiently to idle with fast idle lever off in 1 to 4 minutes or after a few miles of riding.

NOTE: Operating engine with fast idle lever up for excessive time will result in fouled spark plugs. Push lever completely down as soon as engine will run smoothly without enricher.

B. Hot Starts

1. Open fuel petcock.
2. Turn on ignition.
3. With throttle closed, kick engine through or engage electric starter.
4. If engine fails to start immediately, open throttle slightly and continue to kick or engage starter until engine fires.

C. Troubleshooting Tips - engine will not start:

1. Fuel supply exhausted.
2. Weak or no spark - discharged battery, worn points, faulty condenser, ignition module, coil, spark plug wires, or magneto.
3. Plug gap too wide - S&S® uses .025" to .030" plug gap on engines with points type ignition and stock coil. Electronic ignitions and high output coils can run wider plug gaps.
4. Improper ignition timing - Worn or poorly maintained mechanical advance units sometime stick in advanced position causing hard starting, kick-back and erratic idle.
5. Tight tappet adjustment - If solid tappets are adjusted too tightly, valves may not seat properly, and the loss of compression may prevent the engine from starting.
6. Improper idle mixture and/or engine idle rpm setting. If idle mixture is set incorrectly, throttle plate must be opened farther with the idle speed screw in order to maintain idle speed. This reduces manifold vacuum and makes the enrichment circuit less effective. See Adjusting Carburetor -Idle Circuit on page 15.
7. If the enrichment device feed hole in bowl is plugged then clear with compressed air.

 CAUTION

Do not use wire or drill to clear hole. If size of hole is changed, starting system will be altered and carburetor bowl irreversibly damaged.

⚠ WARNING

Compressed air and particles dislodged by compressed air are potentially harmful to eyes and body. Wear protective goggles when using compressed air and always direct air stream away from yourself and others nearby.

8. Improper diagnosis of rich or lean mixture condition. If engine backfires in carburetor, mixture is usually lean and engine must be reprimed. If there is no response after three kicks or if engine pops in exhaust pipes, mixture is probably too rich. Leave switch on and slowly open throttle $\frac{1}{4}$ turn with each successive kick until engine fires.
9. If engine was running properly before installation of carburetor, no other changes were made and carburetor settings were confirmed as instructed previously, hard starting is likely caused by incorrect intermediate jet or starting routine. Remain calm and patient while attempting to start motorcycle, and experiment with different starting procedures (throttle and enrichener position, number of squirts from accelerator pump, etc.), especially with kickstart motorcycle. Carburetor tuning and ignition tuning and maintenance are critical for kick start motorcycles.

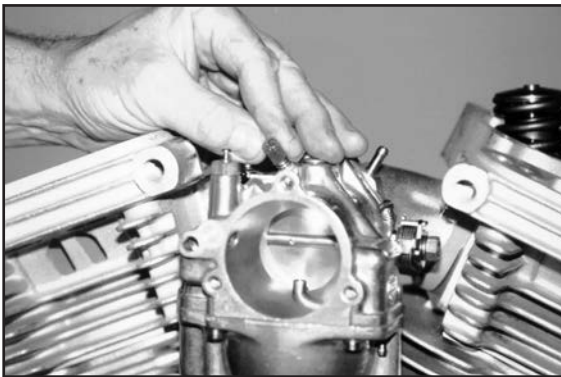
NOTES:

- If severe flooding is suspected, turn ignition off, slowly roll throttle to wide open position, and kick 6-8 times to clear engine. Then close throttle to approximately $\frac{1}{8}$ turn, turn ignition on and kick until engine starts.
- If insufficient fuel is suspected, remove air cleaner cover and confirm accelerator pump operation by snapping throttle open from closed position. Fuel should exit accelerator pump nozzle directly behind main discharge tube in carburetor bore.
- No more than 2-3 squirts from accelerator pump should be required to start motorcycle with temperature 60°F or above. This may also be caused by incorrect idle mixture adjustment or a manifold leak. Refer to following sections for additional information on tuning.

2. Adjusting Carburetor

The carburetor comes preset from S&S®. It is illegal to adjust the carburetor to settings other than those provided in the documentation included with the engine. In the case maintenance is needed the idle emissions and idle speed may be reset to the specification in the documentation by the following procedure.

- A. Adjusting Idle Circuit for idle emission – The idle mixture screw regulates air/fuel mixture at idle speeds and has been angled out for greater accessibility. **See Picture 30.** Engine rpm adjustment screw is located on boss on rear side of carburetor body. **See Picture 31.** During assembly S&S adjusts both screws to settings that should work for your application.



Picture 30



Picture 31

1. Start engine and allow it to fully warm up.
2. Adjust idle speed by turning rpm adjustment screw.
3. Adjust idle emissions by turning idle mixture screw.
4. Verify idle speed has not changed.

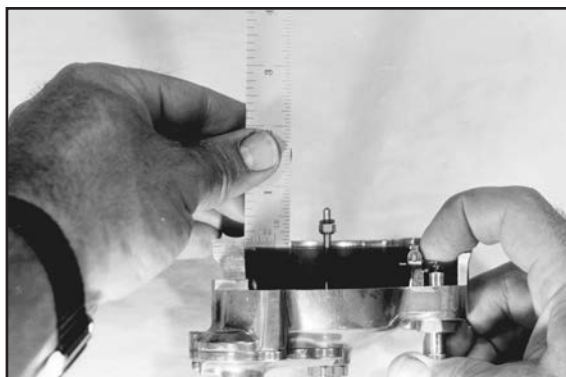
GENERAL INFORMATION NOTES:

- Carburetor body has six drilled passages that are permanently sealed with drive plugs.

CAUTION

Removal of these plugs may cause irreversible damage to carburetor.

- To insure proper seal so needle completely shuts off fuel supply entering bowl, float hinge, needle lift and needle must work freely and not bind. Float must not contact bowl gasket. If problem is suspected, remove bowl and check float movement. If obvious misalignment, binding or sticking occurs, remove, straighten and reinstall to obtain free movement. Reset float level and double check for free movement. To check, remove bowl (not accelerator pump cap) and raise float until needle is in closed position and spring in top of needle is compressed. The top of the float opposite the needle and seat assembly should be $\frac{1}{8}$ " to $\frac{3}{16}$ " below the bowl gasket surface. Float must not contact bowl gasket. See cut away bowl in **Picture 32**.



Picture 32

- When motorcycle is not running, fuel shutoff valve should always be turned off to prevent possible leakage should needle and seat not seal completely.

CAUTION

Gasoline leaking past inlet needle may flood engine causing contamination of oil supply and damage to engine.

WARNING

Any gasoline leak constitutes a fire and health hazard.

- Throttle plate and throttle shaft should be checked annually for signs of wear. Replace if necessary. If carburetor body throttle shaft bushings are worn, carburetor must be returned to S&S® for repair. If throttle plate is removed, be sure to reinstall correctly. Beveled edges of plate must fit flat against carburetor throat.
- If accelerator pump cap is removed, lift cap slowly so small spring, checkballs, and o-rings are not lost.

IMPORTANT NOTES:

- We at S&S feel we have designed and manufactured a superior product and will stand behind it. If you have questions or problems, first refer to this instruction manual. Answers to nearly all questions can be found herein. If your problem cannot be resolved, call 608-627-8324 for technical assistance. Do not, however, call until you have become thoroughly familiar with this manual.
- S&S also has a complete carburetor repair and rebuild service that provides quality work at a fair price. If you are not properly equipped to service an S&S carburetor and do not have a qualified repair shop nearby, we recommend that you contact us for a Return Authorization (RA) number and send the carburetor to us. Be sure to include a note with your name and address, RA number, and a detailed description of any problems or repairs needed. Thanks for using S&S products!

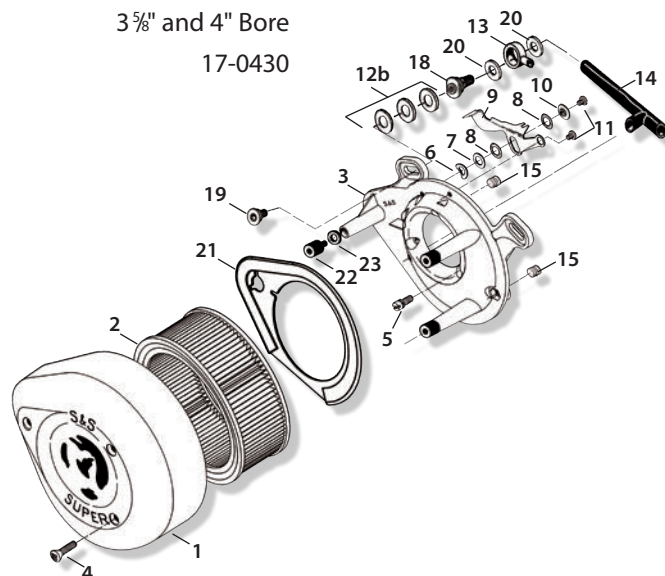
REPLACEMENT PARTS FOR TÜV APPROVED S&S® SUPER E & G AIR CLEANERS

1. Air cleaner cover
Chrome **17-0378**
2. Element, pleated carbon – TÜV **17-0375**
3. Backplate
1970-'84 **17-0860**
TÜV 1984-'99 – 3 $\frac{5}{8}$ " and 4" Bore..... **17-0388**
TÜV S&S – 4 $\frac{1}{8}$ " Bore **17-0395**
4. Cover screw, chrome (10 Pack)..... **50-0347**
5. Backplate screw (10 Pack)..... **106-2105**
6. Fast idle friction washer (10 Pack)..... **50-7058**
7. Fast idle steel washer (10 Pack)..... **50-7061**
8. Fast idle nylon washer (10 Pack)..... **50-7060**
9. Fast idle lever **17-0329**
10. Fast idle brass washer (10 Pack) **50-7010**
11. Fast idle lever screw (10 Pack) **50-0062**
12. Shims (10 Pack)
a. S&S 4 $\frac{1}{8}$ " Bore
 $\frac{5}{16}$ " x .018" **50-7107**
 $\frac{5}{16}$ " x .030" **50-7070**
 $\frac{5}{16}$ " x .048" **50-7068**
 $\frac{5}{16}$ " x .105" **50-7062**
b. 1984-'99 3 $\frac{5}{8}$ " & 4" bore TÜV
 $\frac{5}{8}$ " x .025" **50-7110**
 $\frac{5}{8}$ " x .050" **50-7111**
 $\frac{5}{8}$ " x .075" **50-7112**
13. Breather fitting, BT 1993-'99 & XL 1991-up
..... **17-0337**
14. Crankcase breather hose
TÜV 1970-'84 **17-0113**
TÜV 1984-up **17-0339**
15. Backplate plug $\frac{1}{8}$ "-27 (10 Pack) **50-1015**
16. Flatwasher – $\frac{5}{16}$ " x $\frac{1}{16}$ " (10 Pack)..... **50-7069**
17. Mounting bracket bolt – S&S 4 $\frac{1}{8}$ " Bore
 $\frac{5}{16}$ "-18 x 1 $\frac{1}{4}$ " (10 Pack)..... **50-0148**
18. Screw vent fitting – BT 1993-'99 **17-0347**
19. Screw, air cleaner to head **17-0346**
20. Washer, silicone coated steel .520" – (10 Pack)
BT 1993-'99 **50-7057**
21. Plate, air cleaner noise reducer **17-0389**
22. Rubber isolator mounts (3 Pack) **50-8511**
23. Shim, spacers, $\frac{1}{2}$ " OD x $\frac{1}{4}$ " ID x .080"
(3 Pack) **50-7970**
24. Shim, .850" x .325" x .400" – S&S 4 $\frac{1}{8}$ " Bore
..... **50-7027**
25. Lockwasher, $\frac{5}{16}$ " (10 Pack)..... **50-7077**
26. Locknut, HH, $\frac{5}{16}$ " -18 (10 Pack) **50-5020**
27. Spring clamps (NS) (10 Pack)..... **50-8088**

1984-'99 Big Twin TÜV

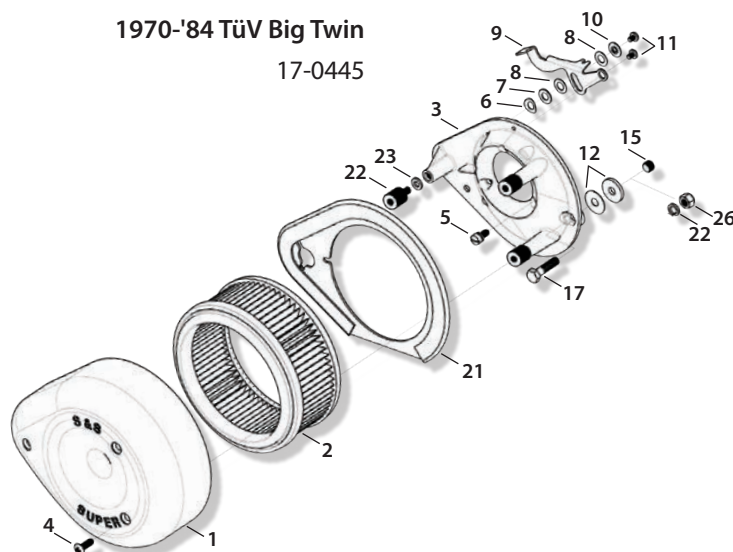
3 $\frac{5}{8}$ " and 4" Bore

17-0430



1970-'84 TÜV Big Twin

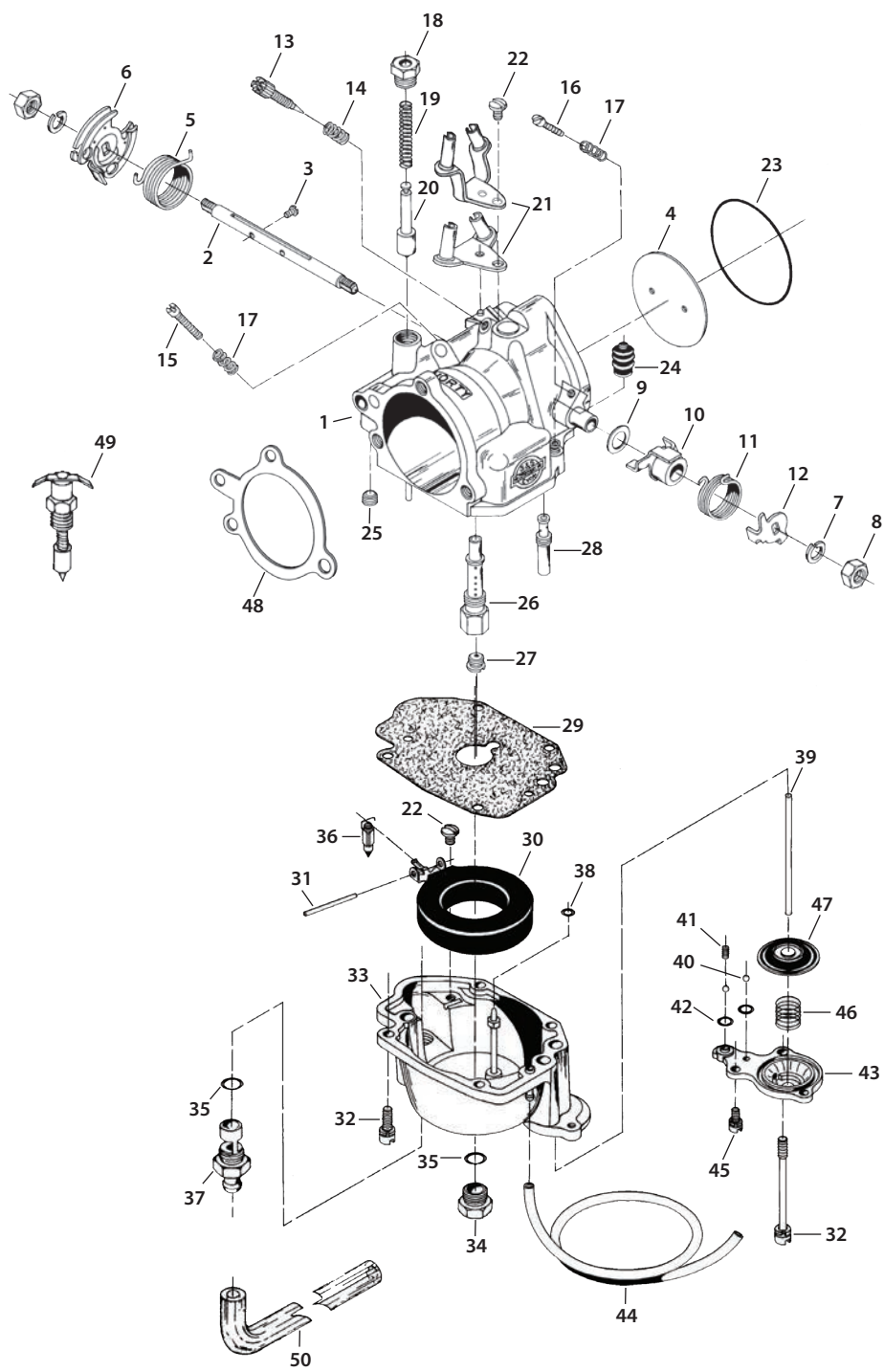
17-0445



NOTE: The line drawing is used for illustration purposes only. Not all of the parts shown are included and used in every carb installation. Parts followed by an N/A are no longer available. Those followed by an (NS) means parts are not shown.

S&S® SUPER E AND G CARBURETOR REPLACEMENT PARTS

1. Carb body assembly		
1 ⁷ / ₈ " E	11-2381	
2 ¹ / ₁₆ " G	11-2390	
2. Throttle shaft		
1 ⁷ / ₈ " E (Includes 2 plate screws)	11-2383	
2 ¹ / ₁₆ " G (Includes 2 plate screws)	11-2483	
3. Throttle plate screw - 2 required (10 Pack)	50-0064	
4. Throttle plate		
1 ⁷ / ₈ " E	11-2055	
2 ¹ / ₁₆ " G	11-2355	
5. Throttle return spring (5 Pack)	11-3502	
6. Throttle spool	11-2385	
7. Throttle shaft lock washer 2 required (10 Pack)	50-7073	
8. Throttle shaft nut - 2 required (5 Pack)	11-2363	
9. Throttle shaft nylon washer (10 Pack)	50-7072	
10. Pump actuator lever	11-2376	
11. Actuator spring (5 Pack)	11-3501	
12. Pump actuator arm	11-2377	
13. Idle mixture screw (5 Pack)	11-2378	
14. Idle mixture screw spring (10 Pack)	11-2060	
15. Idle speed screw (10 Pack)	50-0150	
16. Pump adjustment screw (10 Pack)	50-0146	
17. Idle speed/pump adjuster spring (10 Pack)	11-2053	
18. Plunger nut (10 Pack)	11-2372	
19. Plunger spring (10 Pack)	11-2359	
20. Fast idle plunger	11-2343	
21. Cable guide assembly		
For use with butterfly style cables	11-2339	
For use with CV cables (Constant velocity style)	11-2338	
22. Cable clamp/float pin screw (10 Pack)	50-0062	
23. O-ring 1 ⁷ / ₈ " E (10 Pack)	50-8094	
2 ¹ / ₁₆ " G (10 Pack)	50-8093	
24. Bellows seal (5 Pack)	11-2279	
25. Bowl vent plug (10 Pack)	50-0151	
26. Main discharge tube	11-2085	
27. Main jet — state size	See Dealer Catalog	
28. Intermediate jet — state size	See Dealer Catalog	
29. Bowl gasket (10 Pack)	11-2387	
30. Float	11-2187	
31. Float pin (5 Pack)	11-2370	
32. Bowl screw (10 Pack)		
10-24 x ³ / ₄ " - 3 required	50-0034	
10-24 x 2 ³ / ₈ " - 1 required	50-0061	
33. Carb bowl assembly	11-2388	
34. Bowl plug (5 Pack)	11-2092	
35. Seat o-ring* (Required w/11-2465 and 11-2466 only when replaces 360° style fuel inlet) (5 Pack)	50-8095	
36. Needle		
1 ⁷ / ₈ " E & 2 ¹ / ₁₆ " G	11-2195	
Racing only	11-2197	
37. Seat		
1 ⁷ / ₈ " E & 2 ¹ / ₁₆ " G — (Replaces 11-2347)		
Uses 11-2195 needle	11-2465	
Racing only — (Replaces 11-2348)		
Uses 11-2197 needle	11-2466	
Racing only — threaded fuel inlet, .157" ID for Super E or G		
Uses 11-2195 needle	11-2395	
Racing only — threaded fuel inlet, .235" ID for Super E or G		
Uses 11-2197 needle	11-2396	
38. Ejector nozzle o-ring (10 Pack)	50-8096	
39. Pump pushrod (5 Pack)	11-2393	
40. Ball check - 2 required (10 Pack)	50-8125	
41. Ball check spring (5 Pack)	11-2392	
42. Pump cap o-ring - 2 required (10 Pack)	50-8100	
43. Pump cap assembly	11-2389	
44. Overflow hose per 24" (5 Pack)	19-0263	
45. Pump cap screw 8-32 - 2 required (10 Pack)	50-0098	
46. Diaphragm spring (10 Pack)	11-2278	
47. Diaphragm	11-2282	
48. Gasket, back plate (10 Pack)	17-0383	
49. Enrichment device (Use with air horn only)	11-2084	
50. Fuel line w/90° bend* 19" (Use w/11-2465 or 11-2466.)	19-0475	



REPLACEMENT MANIFOLD PARTS

1. Restrictor plate (*not shown*) **16-0489**
2. Intake manifold for 1986-2006 Harley-Davidson® Sportster® **16-1620**
3. Intake manifold for
 - 1999-2005 big twin **16-1718**
 - 1984-1999 big twin **16-1628**
4. Manifold bolts (*10 Pack*)
 - $\frac{3}{8}$ "-16 x 1" **50-0186**
 - $\frac{3}{8}$ "-16 x $1\frac{1}{4}$ " **50-0177**

(Use in bottom hole with 16-0096 or 16-0471 bracket or in top and bottom holes with 16-0491 or 16-0492 insulator block.)

 - $\frac{3}{8}$ "-16 x $1\frac{3}{8}$ " (*5 Pack*) **50-0178**

(Use in bottom hole with 16-0096 or 16-0471 bracket and 16-0491 or 16-0492 insulator block.)

 - $\frac{3}{8}$ "-16 x 2" (*5 Pack*) **50-0185**
 - $\frac{3}{8}$ "-16 x $2\frac{1}{4}$ " (*5 Pack*) **50-0180**
 - $\frac{3}{8}$ "-16 x $2\frac{1}{2}$ " (*5 Pack*) **50-0188**
5. Manifold o-ring - 1955-'78 BT & Sportster
(*10 Pack*) **50-8132**
6. Manifold rubberband - 1979-'85 BT & Sportster (*10 Pack*) **16-0245**
7. Manifold o-ring - 1984-up big twin & 1986-up Sportster
Stock cylinder heads (*10 Pack*) **16-0236**
S&S cylinder heads (*10 Pack*) **16-0235**
8. Manifold clamps
O-ring pre 1979 **16-0230**
Band 1979 to '85 **16-0231**
9. Manifold Flanges 1984-'06 BT & 1986-'06 Sportster
Front mounting flange (*5 Pack*) **16-0600**
Rear mounting flange (*5 Pack*) **16-0601**
10. Carb mounting bracket - 1948-'65 BT (*not shown*) **16-0096**
11. Carb mounting bracket assembly **16-0471**
(Includes 1 each 2-piece bracket 17-0104, 17-0245, 17-0321)
12. Support bracket bolt — $\frac{5}{16}$ "-18 x 1" **50-0108**
13. Flat washer — $\frac{5}{16}$ " x $\frac{1}{16}$ " **50-7034**
14. Lock nut — $\frac{5}{16}$ "-18 **50-5021**
15. 1" Aluminum spacer blocks
 - For $1\frac{7}{8}$ " Super E **16-0057**
(Includes 1 each 1" spacer block & 50-8013 o-ring)
 - For $2\frac{1}{16}$ " Super G **16-0357**
(Includes 1 each 1" spacer block & 50-8015 o-ring)
16. Insulator blocks
 - $1\frac{7}{8}$ " Super E — All big twins **16-0491**
(Includes 1 each insulator block & 50-8016 o-ring)
 - $2\frac{1}{16}$ " Super G — All big twins **16-0492**
(Includes 1 each insulator block & 50-8015 o-ring)
 - $1\frac{7}{8}$ " E — for Sportster (Manufactured after 6-15-01) **16-0497**
(Includes 1 each insulator block & 50-8016 o-ring)
 - $2\frac{1}{16}$ " — for Sportster (Manufactured after 6-15-01) **16-0498**
(Includes 1 each insulator block & 50-8015 o-ring)
17. Manifold O-rings
 - For $1\frac{7}{8}$ " E carb body & insulator block (*10 Pack*) **50-8094**
 - For $1\frac{7}{8}$ " spacer block (*10 Pack*) **50-8102**
 - For $2\frac{1}{16}$ " G carb body, insulator block, & spacer block (*10 Pack*) **50-8093**
18. VOES tubing - 12" piece (*5 Pack*) **19-0351**

