



Installation Instructions for S&S Induction Kit for the T143 Engine For 2008–'16 Harley-Davidson® Touring Models Equipped With Electronic Throttle Control Throttle Bodies

DISCLAIMER:

Many S&S parts are designed for high performance, closed course, 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. 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.

NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON ANY POLLUTION CONTROLLED MOTOR VEHICLE.

Not legal for sale or use on any EPA pollution controlled motor vehicle.

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.

Thank you for choosing S&S® Cycle's Induction System Kit for the T143 engine. This product is intended for use in the 2008-Up Harley-Davidson® Touring motorcycles originally equipped with an electronic throttle control throttle body. Please read the following steps to help guide you through the proper installation of the kit.

- **Before doing any of the following installation, be sure to disconnect the negative cable of your battery.** • **Consult an appropriate factory service manual for safety instructions on how to disconnect the fuel system from your motorcycle.**

WARNING

- **Gasoline is extremely flammable. Please be sure to work in a well ventilated area and do not have an open flame near the work area.**
- **The following installation should be only done by a qualified technician with the proper tools and training. If you are not certain of your capabilities or do not have the correct tools for this installation, S&S recommends you consult a shop to have it done for you. Improper installation of this product could result in damage to the motorcycle and motorcycle components.**

NOTE: You will have to transfer the following components from the stock induction module to the S&S® throttle-by-wire Throttle Hog throttle body. If this is a new installation or custom application, these parts will need to be sourced from a Harley-Davidson® dealer:

- **Temperature/Manifold Absolute Pressure (MAP) Sensor H-D® PN 32319-07**
- **Fuel Rail Assembly (including M5x.8 Torx head mounting screw, fuel line, fuel rail, and fuel rail plate) H-D® PN 61208-10 and H-D® PN 27721-08.**
- **Tuning required**

Tool Requirements:

- ¼" Allen Wrench
- ⅜" Allen Wrench
- ⅝" Allen Wrench
- ¼" Ratchet
- T25 Torx socket
- Torque Wrench
- Blue thread locker

Kit Contents:

- S&S 70mm Throttle Hog throttle body and Intake Seal and Flange kit
- S&S Stealth Air Cleaner kit

Throttle Body Installation

1. It is up to the end user to decide whether to install the Throttle Hog throttle body and Stealth air cleaner before or after the engine is installed in the chassis. In either case, assembly follows the same procedures.
2. Begin by installing the MAP sensor to the throttle body. Apply a small amount of blue thread locker to the supplied socket head button screw and torque to 84-108 in/lbs. **Do not over-tighten as this may damage the part and affect the operation of the sensor.**
3. Install the fuel injectors and fuel rail assembly to the manifold. Apply a small amount of blue thread locker to the provided M5x.8 T25 Torx screw and torque to 66-82 in/lbs.

Note: S&S 80 lb/hr red band fuel injectors supplied in the kit must be used. S&S PN 550-0603. Take special care when installing the injectors. They contain special o-rings that seal pressurized gasoline. If any of the seals are damaged during assembly, replace them immediately.

4. Next step is the installation of the breather system components. It will be necessary to shorten the supplied rubber hoses. **See Figure 1** below for dimensions.

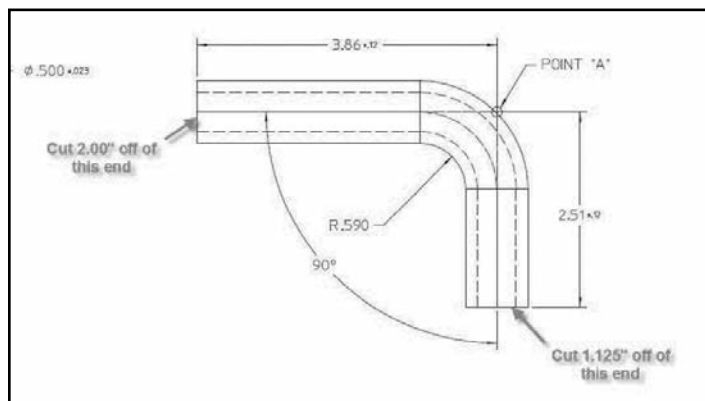


Figure 1

5. Install the supplied 90 degree fittings into the throttle body as shown in **Picture 1**.

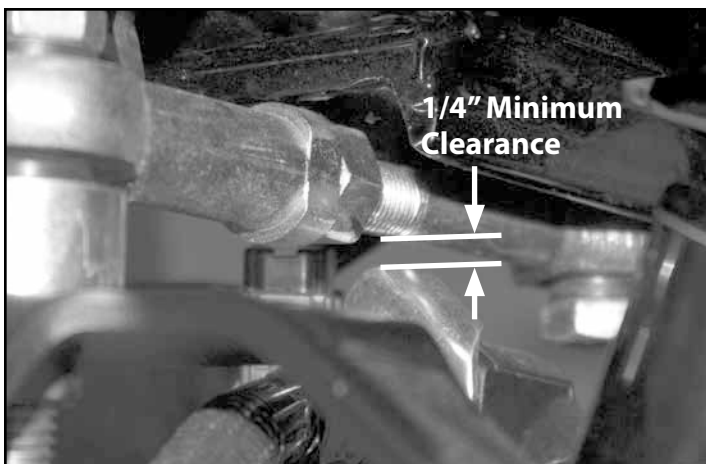


Picture 1

6. Place the intake manifold flanges on the manifold, the front and rear flanges are marked "F" and "R" respectively.
7. Install the manifold flange seals. Be sure that the tapered end of the seal is oriented towards the manifold and the flat side of the seal is facing the cylinder head.
8. Install the S&S throttle-by-wire Throttle Hog throttle body onto the engine using the provided mounting bolts. The ⅝" hex bolts and washers are used in the lower holes, the ⅜" socket head bolts are used in the upper holes. Apply blue thread locker and lightly snug all four manifold mounting bolts but **DO NOT TIGHTEN AT THIS TIME**.

Note: The Harley-Davidson service manual for your model will be helpful for more specific procedures during step

9. If installed on a Dyna® model, clearance between fuel rail and top stabilizer link must be checked. Keep in mind that the engine will move forward and backward in operation. Minimum clearance ¼" from the top of fuel rail tab to bottom of stabilizer link is required. Fuel rail tab may need to be modified for adequate clearance. See **Picture 2**.



Picture 2



Inadequate clearance between fuel rail and motor mount could cause contact during operation, resulting in a fuel leak.



Gasoline is extremely flammable. Leaking gasoline may result in a fire, which could cause personal injury or death.

10. Attach the rubber hoses to the fittings in the orientation shown in **Picture 1**. Use the provided pinch clamps to secure the hoses.

11. Connect all of the wiring harness connectors to the throttle body, excluding the cylinder head temperature sensor which will be done later.

Installing the S&S Stealth AC Kit

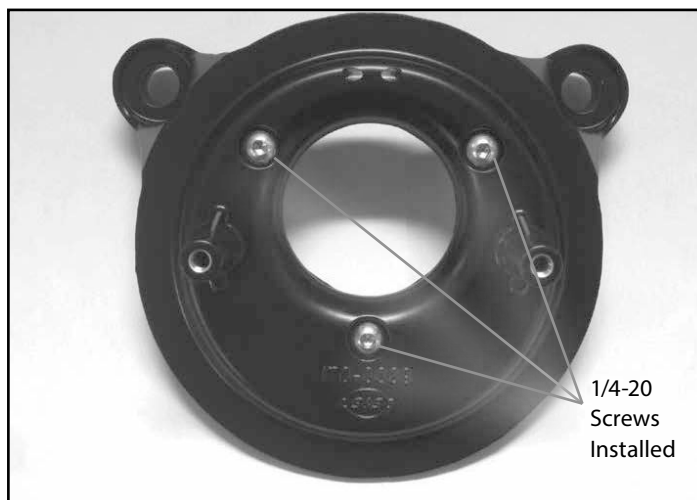
1. Locate the S&S Stealth backplate and the three backplate screws shown in **Picture 3**.



Picture 3

NOTE: The backplate has interference threads tapped into it so the screws will thread in with some force.

2. Install the three screws in the backplate as illustrated in **Picture 4**



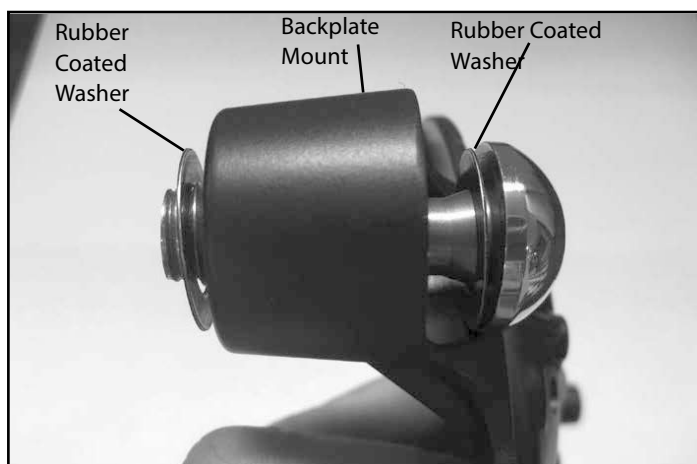
Picture 4

3. Slide the supplied gasket over the screws as illustrated in **Picture 5**.



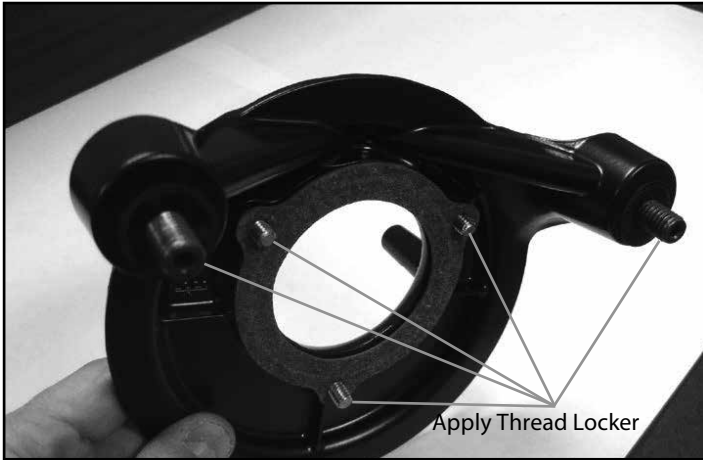
Picture 5

4. Locate the two 3/8" X 16 breather bolts and the eight rubber coated washers. Put one washer on each breather bolt and pass through the backplate mounting holes. Install another rubber coated washer onto each breather bolt. As illustrated in **Picture 6**



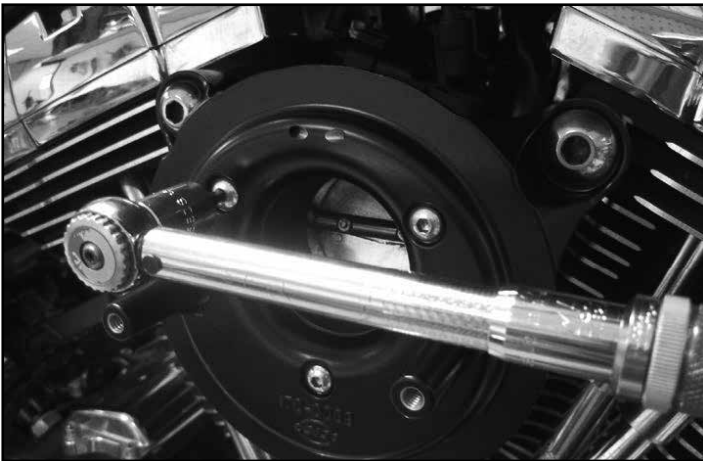
Picture 6

5. Apply a drop of 243 blue Loctite® to the threads of each screw breather bolt. **Picture7** illustrates all five fasteners that require 243 blue Loctite.



Picture 7

6. Fit the backplate to the throttle body and the cylinder heads. Start the threads of all the screws and tighten evenly until the backplate is snug.
7. Now that the backplate is positioned, finish torque the 1/4" X 20 fasteners to 72 in.-lbs. as illustrated in **Picture 8**.



Picture 8

8. Check between the cylinder head and the backplate for air gaps

*NOTE: A feeler gauge works well for determining the amount of gap, if any, between the head and the backplate as illustrated in **Picture 9**.*



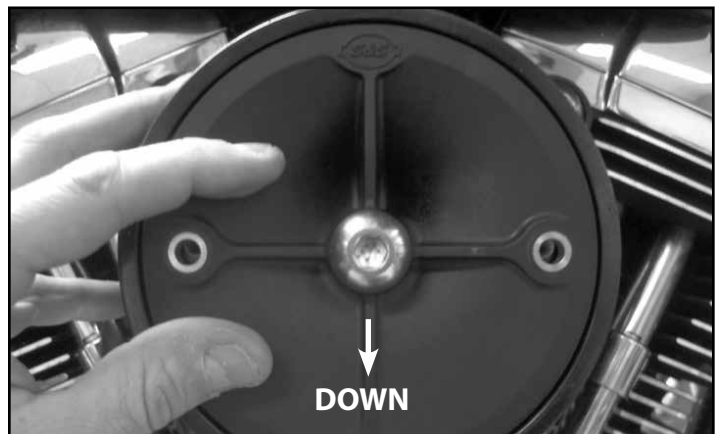
Picture 9

9. If a gap less than the thickness of a rubber coated washer is present, torque the breather bolts down 10-12 ft.-lbs. If a gap of more than the thickness of a rubber coated washer is present, determine how much and select the appropriate number of rubber coated washers needed to take up the gap.
10. If more than one rubber coated washer is needed between the head and backplate, back out the breather bolts and install the correct number of rubber coated washers.
11. Install the breather bolts and torque breather bolts to 10-12 ft.-lbs.
12. Locate the filter, plastic filter top plate and the two 1/4" X 20 flanged head fasteners as illustrated in **Picture 10**.



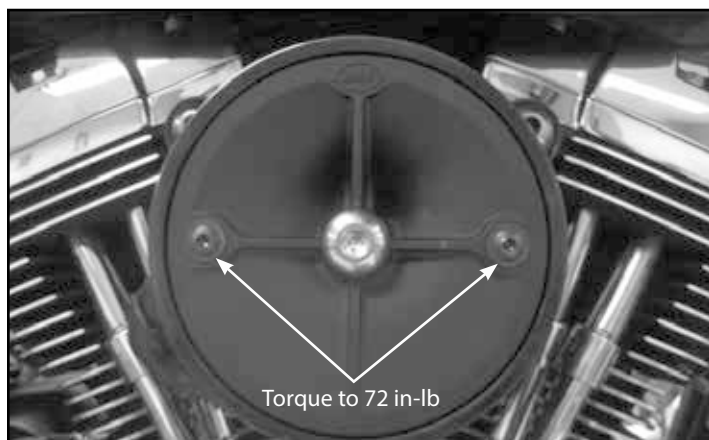
Picture 10

13. Apply a drop of 243 blue Loctite® to the threads of each 1/4" X 20 flanged head screw and set aside.
14. Hold the filter on the backplate and put the filter top plate on top of the filter making sure that the word "Down" is facing down and sitting flat on the filter and locked into the groove as illustrated in **Picture 11**.



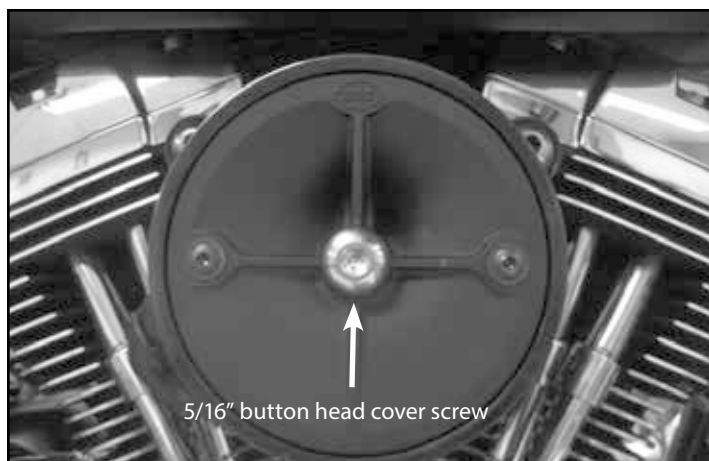
Picture 11

15. Pass the 1/4" X 20 flanged head screws through the plastic top filter plate, thread in and tighten down evenly until snug and then finish torque to 72 in.-lbs. as illustrated in **Picture 12**.



Picture 12

16. Remove the 5/16" button head screw from the plastic top filter plate. **Picture 13** illustrates the button head screw.



Picture 13

17. Attach an S&S air cleaner cover or the stock Harley-Davidson® Twin Cam 88®, 96™ and 103™ air cleaner cover to the stealth air cleaner kit by installing the 5/16" button head screw with 243 blue Loctite applied to the threads and torque to 10 ft.-lbs.
18. Once the backplate has been secured in place, finish tightening the four manifold bolts to 96-144 in/lbs.
19. Install the cylinder head temperature sensor and connect the sensor to the wire harness.
20. Reinstall any components removed for the installation of this product.
21. Place the handlebar Run/Off switch in the "Run" position then cycle the master ignition key switch 5 times. Be sure to wait at least 20 seconds between each on and off cycle. This allows the computer to learn the new throttle plate position. During each "On" cycle clear all codes associated with the throttle body switch-over
22. Begin tuning the motorcycle. In some cases, it may be necessary to adjust IAC warm-up steps in the tuning software utilized such that the after start idle speed is reduced.

NOTE: Following the installation of this product, the fuel system must be recalibrated using an appropriate tuning device.



Failure to appropriately tune the motorcycle after installing this product may result in severe component damage and/or damage to other components of the motorcycle. If you are not certain of your tuning capabilities or do not have the correct tools, S&S recommends you consult a shop to have it done for you.



Replacement Parts

1. Screw, SHCB, 5/16-18 X .500", polished stainless	500-0051	12. Clamp, hose, pinch style	50-0378-S
2. Screw, SHC, Button Flanged, 1/4-20 X 1"	500-0092	13. Hose, oil line, 90°, .500"	50-8291
3. Plate, top, Air filter	170-0026	14. Gasket, throttle body, 58-72mm, throttle by wire	160-0035
4. Spacer, air cleaner. 1.625", zinc, steel	50-009-S	Not Shown Manifold Hardware	
5. Filter, tapered pleated, cotton	170-0081	15. Fuel injector, 80 lb/hr, red band, (two pack)	550-0603
6. Screw, SHCB, 1/4-20 X .825"	500-0059	16. Flange set, manifold, B3 heads (includes seals)	160-0091
7. Screw, backplate vent, SHCB, 3/8-16 X 1-1/2"	170-0045	17. Seal, manifold, B2/B3 heads (each)	16-0246-S
8. Backplate, air cleaner, throttle by wire, stealth	170-0247	18. Bolt, HH, Gr5, 5/16-18 X 1", zinc	50-0108
9. Washer, flat, 7/8" X .380 X .021"	50-7054	19. Screw, SHCS, w/flat washer, 5/16-18 X 1", zinc	50-0125-S
10. Screw, PH, 10-24 X 1/4", zinc, steel	50-0041	20. Washer, flat, .344" X .688" X .065" zinc, steel.....	50-7034
11. Fitting, 90°, barbed, 1/4-18 NPT	500-0298		

