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## Installation Instructions: S&S Tappet Cuffs for 2017-2018 Harley-Davidson® Milwaukee-Eight® Engines

### 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.

### 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 an 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.

## Installation

1. Mount motorcycle on a lift and secure with straps. Remove the battery ground cable.

*NOTE – If you wish to reuse the stock pushrods, follow the procedure outlined in the factory service manual for pushrod removal. However, due to the amount of labor involved in that procedure, we recommend that the stock pushrods be cut out and replaced with S&S Quickee adjustable pushrods. If removing the pushrods per the factory procedure skip, to step 7.*

2. Remove the spark plugs, and Jack the rear end of the motorcycle up so the rear wheel is off the work surface. Shift the transmission into high gear. The rear wheel will be used to turn the engine.
3. Remove the pushrod cover keepers, and slide the pushrod covers up so the pushrods are visible.
4. Turn the rear wheel until either cylinder is at TDC compression. Both valves will be closed, and both tappets will be at the lowest point of travel. There should be no valve spring force on the pushrods and it should be possible to turn them with your fingers.
5. Use a bolt cutter to cut the pushrods, and remove them from the engine. If using the S&S Quickee pushrod and cover kit, save the stock pushrod cover caps, springs and washers for reuse.



**Do not cut pushrods with a saw or grinder. Metal particles will be generated which may cause serious engine damage that is not covered under warranty.**



**Do not attempt to cut pushrods while they are under compression from the valve springs. Pushrod segments may be forcibly ejected from the engine, possibly causing personal injury.**

6. Repeat steps 4 and 5 for the other cylinder.
7. Using a  $\frac{3}{16}$ " Allen driver, remove the four screws holding the tappet covers, and remove the covers. Use caution when removing the factory tappet cover screws, they are secured with thread locker. New screws and gaskets are provided in the kit.
8. Using a  $\frac{3}{8}$ " hex socket, remove the screws securing the stock tappet anti rotation brackets, and remove the brackets.

*NOTE – Tappets may easily be replaced at this time if desired.*

9. Inspect pushrod cover o-rings for damage. Replace as needed. Clean stock parts to be reinstalled with solvent.
10. S&S Tappet Cuffs are marked F and R for front and rear. Install cuffs in the correct position.
11. Apply blue threadlocker to the new retaining screws and install screws.
12. Starting with the rear cylinder, insert a .002" feeler gauge between the tappet and cuff to prevent the cuff from rotating and binding on the tappet when the screw is tightened as shown in **Picture 1**.



**Picture 1**

13. Tighten the screw to 100 in-lb and remove the feeler gauge. Repeat for front cylinder.
  14. Turn engine two complete rotations to ensure that the tappets move freely and do not contact the cuff or bind at any point.
  15. Reinstall the tappet covers and gaskets.
  16. Tighten tappet cover screws to 140 in-lb.
  17. If reusing stock pushrods, reinstall pushrods and covers, and reassemble pushrods tubes and rocker covers per factory procedure. If using S&S Quickee pushrods, skip to the next step.
  18. If necessary, turn the rear wheel until either of the cylinders is at TDC compression. Both tappets will be at the lowest point of travel.
- NOTE - tappet covers on M8 engines are quite tall and it can be difficult to see position of the tappets. Placing the short ends of cut off stock pushrods in tappet cover holes makes it easy to observe tappet movement.*
19. Install new o-ring seals in tappet cover and rocker cover. Assemble pushrod covers using stock pushrod cover caps, springs, and washers, and the o-ring provided in kit.
  20. Install Quickee pushrods and S&S pushrod covers according to instructions provided in the kit.

### NOTES

- S&S or similar pushrod covers must be used with Quickee Pushrods. Stock covers are too short to allow for pushrod adjustment.
  - The tappet covers on Milwaukee-Eight engines are quite tall, and care should be taken not to allow the lock-nut to drop to the bottom of the adjuster when installing Quickee pushrods. It is suggested that the  $\frac{1}{4}$ " wrench be applied to the adjuster screw with the nut above it until the adjuster is screwed out of the pushrod, and the nut can be threaded onto the adjuster screw.
21. Adjust pushrods according to the instructions provided with the pushrod kit. Close the pushrod covers and install the supplied S&S pushrod cover keepers.
  22. Repeat steps 18 through 21 for the other cylinder.
  23. Reattach battery ground cable, and reinstall spark plugs.