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Because every industry has a leader

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## Installation Instructions: S&S<sup>®</sup> Rocker Arm Rebuild Kit for 1966-1984 Big Twin Engines

### 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<sup>®</sup>, Harley-Davidson<sup>®</sup>, H-D<sup>®</sup>, Sportster<sup>®</sup>, Evolution<sup>®</sup>, 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<sup>®</sup> 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

Start each rocker arm service by doing a visual inspection and then measuring the bushings to determine their wear. Specification is .0007"-.0018" clearance between the rocker arm shaft and bushing. Their wear limit is .0035". Check each bushing in two directions, up and down, and side-to-side. Use the larger dimension for calculating clearance.



Picture 1

## REBUILD

1- It is important to note that rocker arm bushings reamed to size after installation. There are a number of tools on the market for this operation and depending on which one you select will determine the order of the next few steps. The photo illustrates the parts you need to rebuild a roller rocker arm.



Picture 2

2- Remove the old bushing by fitting it with a  $\frac{9}{16}$ -18 tap and using an arbor press or using a bushing removal tool.



Picture 3

3- Install the bushings.

**NOTE:** Use assembly lube on bushings and rocker arm bore during the press procedure.



Picture 4

- a. Install the 90-4308-S bushing on the roller end of the rocker arm. The recess end of the bushing should be aligned with rocker arm. **See Picture 5.** (The recess at end is to allow oil to flow behind it and into the oil hole in the rocker arm). Use an arbor press or vice and install the bushing so that the outside edge of the bushing is .005"-.015" recessed into the end of the rocker arm. A socket with a slightly smaller OD than the bushing will work as a driver.
- b. Install the 90-4014 bushing on the push rod end of the rocker arm. One end of the bushing has a lead-in chamfer. Align rocker arm and bushing. **See Picture 5.** Use an arbor press or vice and install the bushing so that the outside edge of the bushing is .005"-.015" recessed into the end of the rocker arm. A socket with a slightly smaller OD than the bushing will work as a driver.

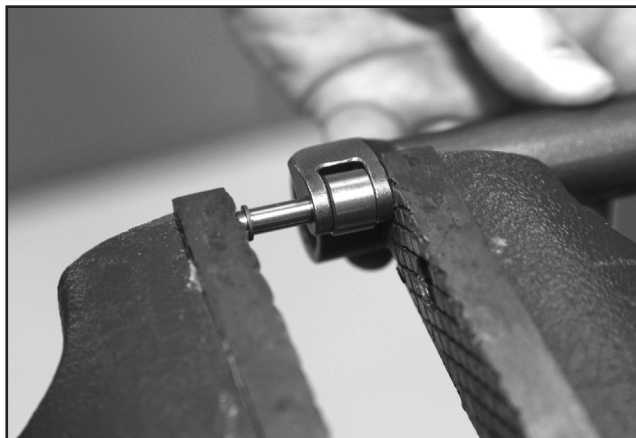


Picture 5



**Picture 6**

- 4- Now finish size the bushing with a ream to .5546" - .5559".
- 5- Repeat this operation for the other arm bushing and move onto the three other arms. When you have all of the machining done, be sure to thoroughly wash the rocker arms.
- 6- To replace the roller, start by carefully grinding the end of the roller pin flush with the retaining clip—be sure not to nick the rocker arm.
- 7- The pin is a press fit, so use an appropriate sized driver to carefully push it out.
- 8- Apply assembly lube to the new roller and position it in the arm fork.
- 9- Now press the new pin into place with either an arbor press or a bench vise.



**Picture 7**

- 10- Installing the clip is a two-part operation. First, position the rounded edge of the clip against the pin. Second, with a small socket aligned to the clip, use vise jaws to press it securely and squarely into place.



**Picture 8**