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**S&S® Cycle, Inc.**

235 Causeway Blvd.

La Crosse, Wisconsin 54603

Phone: 608-627-1497 • Fax: 608-627-1488

Technical Service Phone: 608-627-TECH (8324)

Technical Service Email: [sstech@sscycle.com](mailto:sstech@sscycle.com)

Website: [www.sscycle.com](http://www.sscycle.com)



Because every industry has a leader

## Head Breathing Groove Change for S&S® Super Sidewinder® Plus (SSW+) and S&S Heads for Harley-Davidson® Twin Cam 88® Models S&S Technical Bulletin

### 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 inhaled. 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 inhaled. 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 suspected 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.

This change affects S&S® heads for Harley-Davidson® Twin Cam 88®, and SSW+ heads only. This bulletin does not apply to S&S cylinder heads for Evolution® models.

As of late 2002, these S&S cylinder heads are no longer manufactured with the OEM style head breathing groove machined into the rocker box gasket surface. These S&S cylinder heads are now manufactured with a shorter groove in place of the OEM style groove. This change affects both the front and rear cylinder heads. See Pictures 1 & 2.

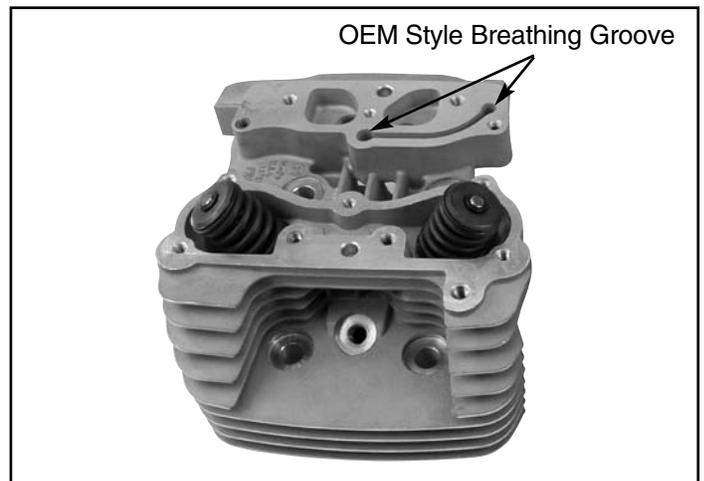
*The revised groove as shown in picture 1 is still used for engine breathing, but is no longer compatible with Harley-Davidson® rocker boxes or aftermarket rocker boxes that use stock style breathing passages. Cylinder heads with the short breathing groove must use S&S rocker boxes. The breathing groove change does not affect rocker box gasket selection. Both cylinder heads with either style of breathing groove still use OEM style rocker box gaskets.*

Twin Cam 88® style and SSW+ engines must breathe through the connection between the cylinder head and rocker box. The engine breathing function is vital to engine operation, and cannot be by-passed.

Because of the time required to phase this change into production, cylinder heads with both early and late style head breathing grooves are being sold during the changeover period. Heads are sold in matched pairs with either the short or long groove, and should be installed as a matched pair. Rocker boxes for each type of head must be selected per the information on the following page.



**Picture 1 - S&S® Cylinder Head**



**Picture 2 - OEM Style Cylinder Head**

- All S&S® cylinder heads with the head breathing groove placed in the new style as in Picture 1 must use S&S rocker boxes to maintain the engine breathing function.

*NOTE: S&S rocker covers provide superior breathing with maximum air/oil separation inside the rocker cover. S&S rocker covers are designed fit both stock Harley-Davidson® cylinder heads as well as S&S T-Series cylinder heads.*

**⚠ CAUTION**

If Harley-Davidson® rocker covers, or any aftermarket rocker covers that use the OEM style breathing arrangement are installed on S&S heads with the groove machined as in Picture 1, excessive oil consumption and damage to engine oil seals will result.

- All S&S cylinder heads with the head breathing groove placed OEM style as in **Picture 2** may use S&S, OEM, or aftermarket OEM style rocker boxes.

*Compression Release Notes:*

*The cylinder head breathing groove change also affects rocker box selection when using optional S&S Compression Releases, both electric and manual. Listed below are the two types of cylinder head machining and the rocker boxes that can be used with each.*

**Cylinder heads with S&S style breathing groove: See Picture 1.**

Electric Compression Releases: Must use S&S rocker covers only. In addition to requiring a center hole for clearance, this style of head must use S&S rocker covers for engine breathing.

Manual Compression Releases: Must use S&S rocker covers only. Even though a center hole is not required for clearance, this style of head must use S&S rocker covers for engine breathing.

**Cylinder heads with the OEM style breathing groove: See Picture 2.**

Electric Compression Releases: May be used with any S&S or aftermarket rocker covers as long as they have a center hole or "chimney" for clearance of the compression release body.

Manual Compression Releases: May be used with Harley-Davidson®, S&S, or aftermarket rocker covers. Manual releases do not protrude past the rocker box base, and do not require a center hole for clearance.

***NOTE: S&S does not approve of welding, cutting, grinding, machining, or any other modification to the head breathing design of S&S heads. Any failures determined by S&S to have occurred due to head breathing modifications will not be covered under warranty.***



**Picture 1 - S&S® Cylinder Head**



**Picture 2 - OEM Style Cylinder Head**



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