

Instruction 106-5058  
01-04-13

Copyright © 2009 & 2013  
by S&S® Cycle, Inc.

All rights reserved.  
Printed in the U.S.A.

**S&S® Cycle, Inc.**

14025 Cty Hwy G PO Box 215  
Viola, Wisconsin 54664

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)



## Installation Instructions: S&S® Super Stock® and Special Application Crankcases for 1936-'99 Big Twin Engines

### DISCLAIMER:

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, 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.

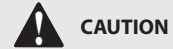
### IMPORTANT NOTICE:

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.



**Improperly supported main bearings may result in abnormal wear, bearing failure and/or damage to other internal engine components.**

1987 and later style pinion main bearings

1- Fitment method A - **Use Chart 1 on next page.**

- a- Refer to information tag on crankcases to determine final honed size of inside diameter of pinion shaft main bearing race.
- b- Measure pinion shaft bearing surface diameter.
- c- Cross reference pinion race inside diameter with pinion shaft bearing surface outside diameter to determine correct color code.

**EXAMPLE:** Pinion shaft bearing surface diameter measures 1.2499" and is between 1.2498 and 1.2500 in left "Pinion Shaft Bearing Diameter" column. Pinion bearing race inside diameter is 1.7510" and falls between 1.7509 and 1.7511 in middle "Bearing Race Diameter" column. Correct bearing color code where two columns intersect is "BLUE."

Selecting color where columns intersect provides proper fit for normal service. If looser fit is desired, select bearing color directly to right of color indicated from selection process. If color indicated from selection process is located in right color column, go to next row directly below and select color in left color column.

2- Fitment method B - **Use Chart 2 below.**

- a- Refer to information tag on crankcases to determine final honed size of inside diameter of pinion shaft main bearing race.
- b- Measure pinion shaft bearing surface diameter.
- c- Subtract pinion shaft bearing surface diameter from pinion bearing race inside diameter.
- d- Select range in left "Bearing Race Diameter minus Pinion Shaft Bearing Diameter" column where difference best splits high and low parameters of range. Corresponding color bearing set in right "Bearing Color Code" column provides proper fit for regular service.

**S&S® Pinion Shaft Main Bearing Fitting Charts**

For 1987 and later style bearings

Big Twin Bearing Race Diameter	Pinion Shaft Bearing Diagram	
	1.2498 - 1.2500	1.2500 - 1.2502
1.7511 to 1.7513	Red S&S® 31-4017 H-D® #24628-87	Blue S&S 31-4018 H-D #24643-87
1.7509 to 1.7511	Blue S&S 31-4018 H-D #24643-87	White S&S 31-4005 H-D #24626-87
1.7507 to 1.7509	White S&S 31-4005 H-D #24626-87	Green S&S 31-4016 H-D #24628-87

**Chart 1**

Bearing Race Diameter Minus Pinion Shaft Bearing Diameter	Bearing Color Code
.5005 to .5009	Green S&S® 31-4016 H-D® #24628-87
.5007 to .5011	White S&S 31-4005 H-D #24626-87
.5009 to .5013	Blue S&S 31-4018 H-D #24643-87
.5011 to .5015	Red S&S 31-4017 H-D #24641-87

**Chart 2**

**EXAMPLE:** Pinion bearing race inside diameter is 1.7510". Pinion shaft bearing surface diameter is 1.2499". 1.7510" minus 1.2499" is .5011". Difference of .5011" splits .5009" – .5013" range in third row exactly. Corresponding "BLUE" color code in right column should be used. Notice that .5011" fits in several range groups. Try to select group where difference falls closest to middle of range. If you are not sure, select color that corresponds with group closer to top of chart. This will provide slightly looser bearing fit and help prevent bearing seizure. Selecting next color up on chart may also be done if looser fit is desired for competition applications.

D- Stroker flywheels and connecting rods

- 1- Flywheels - S&S crankcases feature adequate flywheel crankpin nut to case clearance for strokes up to and including 5". Recommended clearance between flywheels and scraper is .008" - .010". Stock diameter flywheels are 8½"; standard small diameter flywheels 8¼". S&S crankcases can be ordered machined for either or specially machined for as small as 8" diameter.
- 2- Connecting rods - S&S crankcases feature adequate clearance for most brands of heavy duty connecting rods.

\*All reference to Harley-Davidson® part numbers is for identification purposes only. We in no way are implying that any of S&S® Cycle's products are original equipment parts or that they are equivalent to the corresponding Harley-Davidson® part number shown.

**NOTES**

- It is important to confirm flywheel diameter is correct for crankcases. Flywheels that are too large will not fit in crankcases. Flywheels that are too small will leave too large a gap between flywheels and oil scraper resulting in poor oil scavenging and possible oil consumption problems. If flywheel diameter is smaller than diameter crankcases were machined for, scraper should be built up to provide proper clearance at rim of flywheels.
- Clearances between crankpin nut - case and connecting rods - case must be checked by engine builder during assembly. Engine damage resulting from improper clearances is not covered under warranty.