

Instruction 510-0708

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Installation Instructions: S&S 750cc and 865cc Big Bore Kits & 650cc High Compression Pistons for Royal Enfield® (part#s 920-0143, 920-0144, & 920-0145)

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.

The name Royal Enfield® is used in reference only. S&S Cycle is not associated with Royal Enfield and we in no way are implying that any of S&S Cycle's products are original equipment parts.

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.

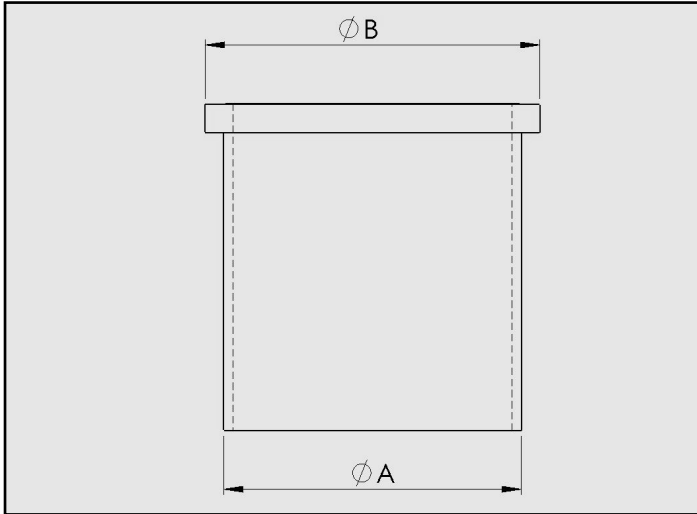
ADDITIONAL WARRANTY PROVISIONS:

- (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.

1. Disassemble the top end (head, cylinder, pistons) of your engine following the Royal Enfield® service manual.

NOTE: The sleeving process takes special equipment and a skilled technician/machinist. If you are not comfortable or capable of sleeving, boring and honing of your stock cylinder please call S&S or take it to someone who is capable.

2. Measure the outside diameter of the new S&S cylinder sleeve at the two points shown in **Picture 1**.

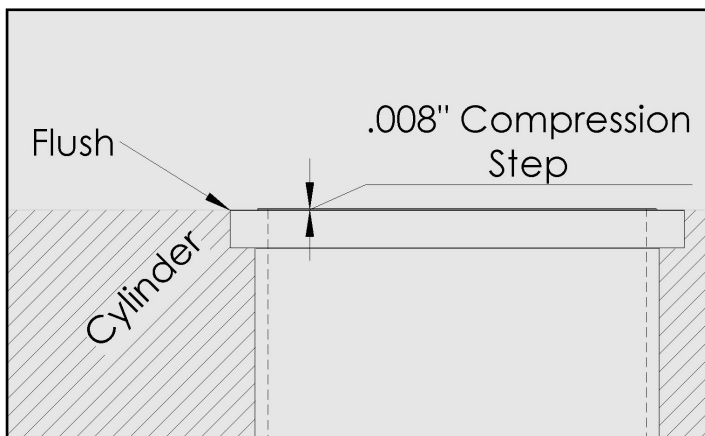


Picture 1

3. In area "A" you want to achieve .003" press fit.
4. In area "B" you want to achieve .001" press fit.
5. Bore and counterbore your cylinder so that both sleeves can be installed at the same time.

NOTES: Measure the height of the flange on the liner and counterbore your cylinder accordingly. The top flange of the liner should sit flush with the aluminum cylinder once installed. **See Picture 2.**

There is a compression step that sits proud on the liner. This step aids in sealing to the copper gasket. **See Picture 2.**



Picture 2

6. Once your cylinder is bored, deburred, and washed, heat an oven to 350° Fahrenheit. Put cylinder in oven for 30 minutes. The heat aids in swelling the cylinder so the liners will drop in.

7. Clean both liners to ensure they are clean of oil and debris and put in freezer. Freezing the liners helps shrink them.

NOTE: A hydraulic press and fixturing is needed to hold the cylinder and hold the liners in place once the liners are dropped in the cylinder.

8. Pull the cylinder from the oven and place on the hydraulic press.

9. Pull the liners from the freezer and drop them both in the cylinder.

10. Apply pressure from the hydraulic press to the liners, holding them down and in place. Let the cylinder completely cool before taking the pressure off of them. This may take up to an hour for the cylinder to completely cool.

11. Measure piston and bore/hone cylinder accordingly.

- 650cc High compression piston to wall clearance = .003"-.0035"
- 750cc Big bore piston to wall clearance = .003"-.0035"
- 865cc Big bore piston to wall clearance = .003"-.0035"

12. See ring instruction, included in the piston kit ring box, for ring end gap and fit rings accordingly. These instructions can also be found on our website: sscycle.com/tech-info/instruction-sheets

13. Assemble piston, rings, pin, clips etc. following practical engine builder procedures.

14. For 750 and 865 kits, use a coppercoat or approved copper gasket sealer on the supplied head gasket and continue to assemble motor and install into motorcycle.

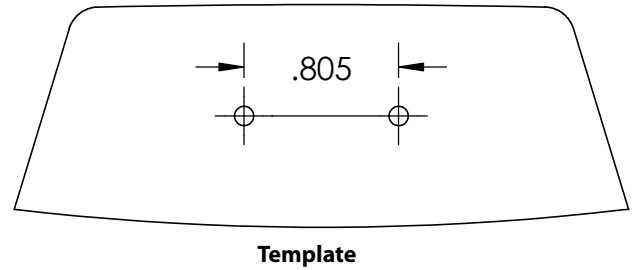
For the 650cc High-compression kits, you must replace head and base gaskets with OEM gaskets.

Installation of Cylinder Head Badge

1. Using the template that is printed on this instruction sheet, cut it out and place it on the cylinder head as illustrated in **Picture 3**.



Picture 3



Template

2. Drill two holes $.057''$ diameter and $.250''$ deep into the fin of the cylinder head.
3. Remove the film from the back of the badge to expose the adhesive.
4. Using the supplied drive screws, tap the screws into place to hold the badge on. See **Picture 4**.



Picture 4

Replacement Parts:

920-0143: Royal Enfield 650 High Compression Kit *contains:*

Single Piston Ring Set...Wiseco® part # 7800XX
Wrist Pin (*each*).....Wiseco part # 787-2050-14-93C
Circlips (*pair*)Wiseco part # CW20

920-0146: Royal Enfield 750 Kit *contains:*

Single Piston Ring Set...Wiseco part # 8350XX
Wrist Pin (*each*).....Wiseco part # 787-2050-14-93C
Circlips (*pair*)Wiseco part # CW20

920-0147: Royal Enfield 865 Kit *contains:*

Single Piston Ring Set...Wiseco part # 9000XX
Wrist Pin (*each*).....Wiseco part # 787-2050-14-93C
Circlips (*pair*)Wiseco part # CW20