Instruction 51-1115
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Because every industry has a leader

Installation Instructions: S&S® 90-4915 Electric Compression Release

(US Patent No. 6,557,510)

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®, 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 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.

NOTES

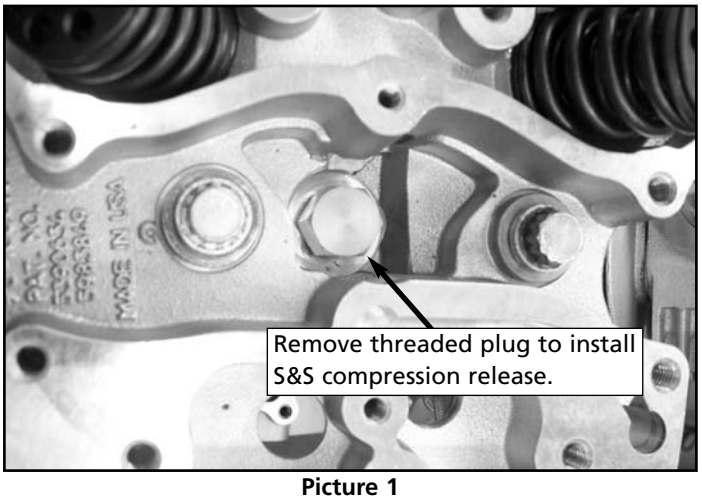
- *S&S® compression releases are intended to be installed only in cylinder heads machined specifically for S&S compression releases. Stock or other aftermarket cylinder heads may not have enough material in required areas to allow machining for S&S compression releases*
- *S&S electric compression releases can only be used in conjunction with S&S die-cast rocker covers or a similar rocker cover with a center hole or chimney. The chimney provides clearance for the solenoid which activates the compression release.*
- *Due to the overall length of the compression release assembly, variations in frames, and the limited space between the heads and the upper frame tube, it may be difficult to install the compression releases with the engine completely assembled in the frame. These instructions are written assuming there is enough clearance to allow an in-frame installation, however in some instances it may be necessary to install the compression releases with the lower rocker cover in place, or to remove the engine from the frame. It is suggested that if possible, compression releases be installed during engine assembly or before heads are installed on engine.*

A. Installing compression releases

1. Remove rocker covers.

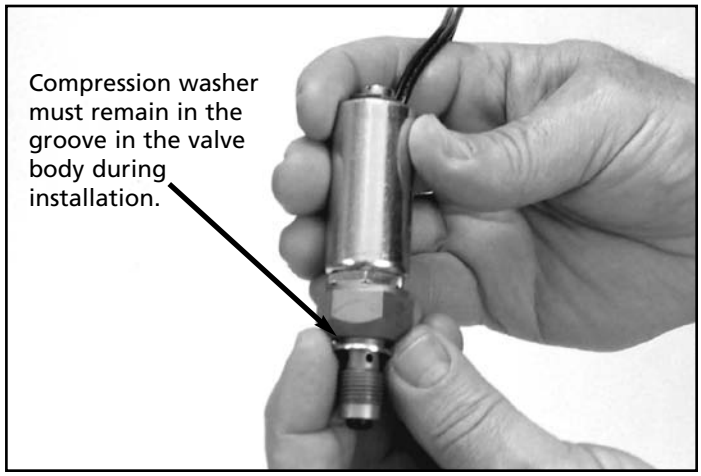
NOTE: *When engine is installed in the frame, there is normally enough clearance above the heads to install lower rocker covers with the electric compression releases in place. In some cases, depending on engine height and frame type, the lower rocker covers may need to be left on the heads, and compression releases installed with lower rocker covers in place. In cases of very limited clearance it may be necessary to remove the engine from the frame, and reinstall the engine after the compression releases are installed.*

2. Remove the supplied 14mm hex plug from the top of the cylinder head. Inspect the machined hole to make sure that it is clean and free of debris. **See Picture 1.**



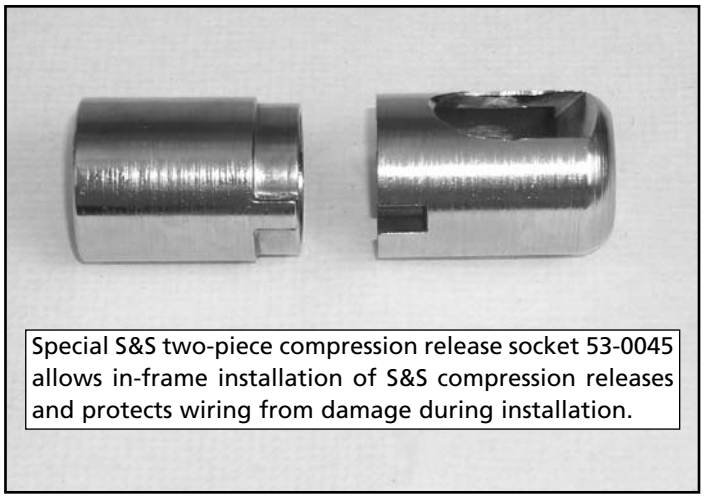
Picture 1

3. Apply a small amount of anti-seize type thread lubricant to the threads of the compression release. Compression releases are identical and can be installed in either cylinder head.
4. Make sure that the supplied compression washer is held in its groove in the valve body. The washer must remain in this position when the compression release is held in a vertical position. If it does not stay in position, a very small amount of white lithium grease between the washer and the valve body will hold the washer in place during installation. **See Picture 2.**



Picture 2

5. Thread the compression release into the pre-machined mounting hole. Hand tighten as far as possible. Make sure the compression washer remains in position until the compression release contacts the head.
6. Slide the bottom half of the S&S special socket 53-0046 over the lead wires and onto the compression release assembly. Position the socket so it is on the hex portion of the compression release. **See Picture 3.**

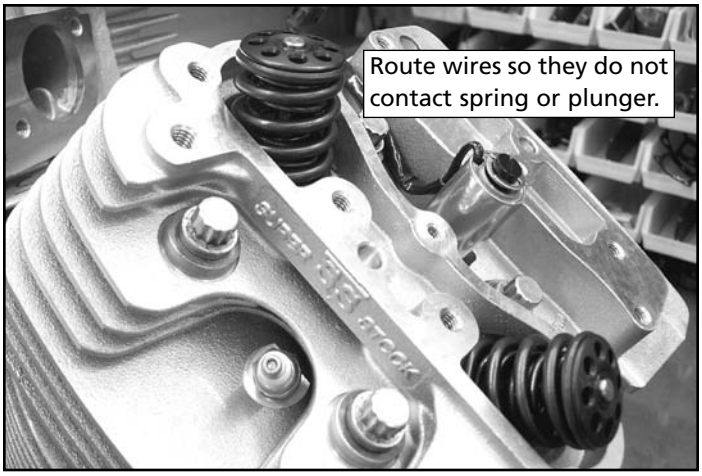


Picture 3

7. Slide the top half of the special socket 53-0047 over the lead wires and onto the bottom half of the socket so that it locks in place.
8. Make sure the compression washer is seated properly before final tightening is done. Torque the compression release to 32-37 ft/lbs.
9. Remove the socket halves carefully so the lead wire insulation is not damaged.

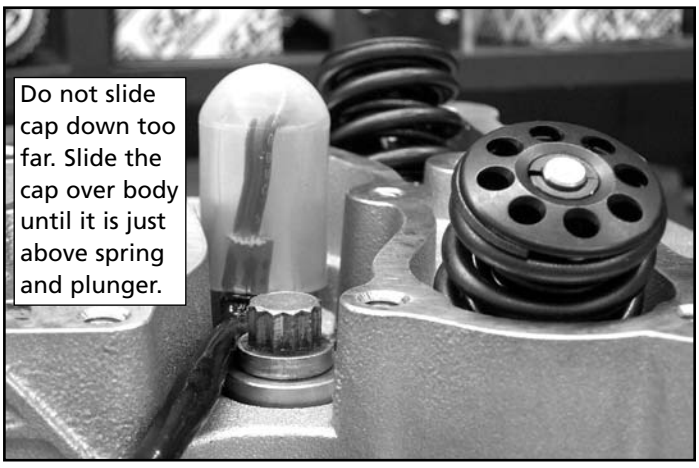
B. Route Wires And Install Protective Silicone Cap

1. Slide protective sleeve over compression release wires. If compression releases are being installed with rocker boxes installed, it may be easier to install the protective sleeve after the wires have been routed.
2. Route the lead wires down the side of the compression release and under the rocker box. Pull the wires towards the area between the cylinder heads.
3. The lead wires must be positioned so they do not contact either the spring or plunger on the top of the compression release. **See Picture 4.**



Picture 4

4. Spread a very thin layer of oil on the inside bottom ½" of the silicone cap. This will greatly aid in assembling the cap over the compression release.
5. Slide the silicone cap over the compression release and lead wires. It may be necessary to use a screwdriver to push the cap into position if the lower rocker cover is in place. **CAUTION: Do not puncture the cap during installation.** The cap should be pushed over the compression release and lead wires until the bottom of the cap is below the level of the rocker box base. All exposed areas of the lead wires should be covered, either by the silicone cap or the protective sleeve. Do not slide the cap on so far that the top of the cap is in contact either the spring or plunger on the top of the compression release. **See Picture 5.**



Picture 5

⚠ CAUTION

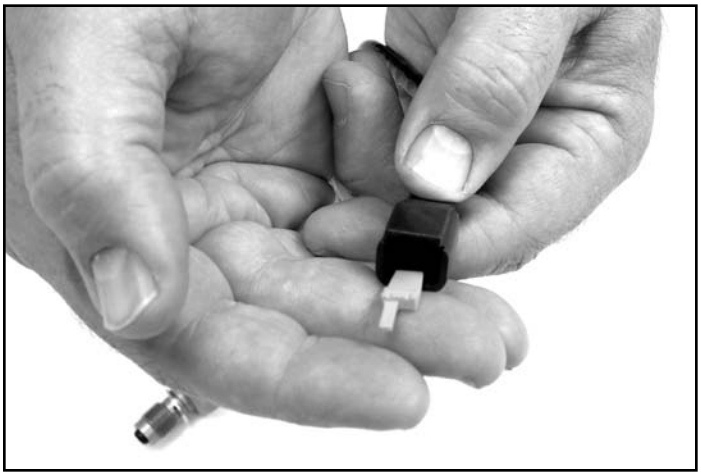
Failure to cover the lead wires as directed may result in damage to the lead wires, which will reduce the life of the compression release.

6. Connect the lead wires to the Deutsch connector. Push the wires into the connector until they click into place. Either wire can go in either hole in the connector. Firmly pull on the wires and connector to make sure they are locked into position. **See Picture 6.**



Picture 6

7. Position the orange connector wedge into the open area next to the pins, and push until it clicks into place. **See Picture 7.**



Picture 7

8. Repeat procedure for the other compression release.

C. Install Wiring Harness

1. Connect the compression release solenoid lead wire connectors to the wire harness connectors. Either compression release connector may be plugged into either connector on the wire harness. The green wire of the wire harness will be the *powered* wire and the black wire will be the *ground* wire.

2. Slide the supplied 4-foot black sleeve over the wire harness until it reaches the connectors. Note that in future steps you will need to cut the sleeve to allow access for a fuse holder.
3. Position the harness so the compression release lead wires are not being pulled tight. Once the best position is found, zip-tie the connectors and end of harness securely to the frame to prevent movement.
4. Using relay circuit diagram in **Figure 1**, locate on your motorcycle, the wiring connection point shown on the diagram. This will be between the starter relay and the starter solenoid.

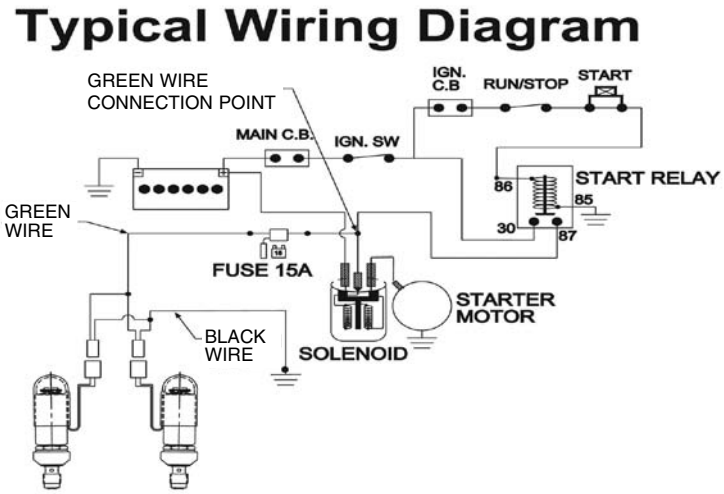


Figure 1

5. With one end of the wire harness already secured to the frame, work out a routing position for the remaining portion of the wire harness. Make sure the wires will not be positioned where they may be crushed, cut, abraded, or otherwise damaged by operation of the motorcycle. The black wire will need to be routed to a ground, and the green wire to power.
6. Find a suitable place to splice the supplied fuse holder into the green wire of the harness. The fuse holder should be mounted as close to the power source as possible.
7. Once the position of the fuse holder has been determined, cut the sleeve at that position. Be careful not to damage the insulation of wires inside sleeve. Save the cut off part of the sleeve to protect the wires leading from the power connection to the fuse holder after the fuse holder is spliced to the wire harness.
8. Cut the green wire of the harness where it meets the fuse holder lead wire.
9. Slide one of the supplied pieces of shrink-wrap onto the wire harness lead wire.
10. Strip the green wire and one wire from the fuse holder. Connect together with supplied butt connector. After making sure the wires are held firmly, position the shrink-wrap over the joint. Heat the shrink-wrap until the joint is sealed.
11. Repeat the last two steps to connect the remaining green wire to the other end of the fuse holder, if fuse holder is not to be connected directly to power connection.
12. Install the small piece of sleeving over the green wire or fuse holder wire until it touches the fuse holder.
13. Attach the green wire or fuse holder wire to the power connection point shown on **Figure 1**. Use either the supplied ring terminal or a connector of your choice.
14. Locate a ground connection for the black wire. Cut and strip the black wire and attach either the supplied ring terminal, or a connector of your choice.
15. Connect the black wire to ground.
16. Once all connections are made, use zip-ties to firmly hold the wire harness and fuse holder in place. Again make sure the harness has not been positioned so that it can be cut, crushed, abraded, or otherwise damaged by any operation of the motorcycle.

D. Operation

When the starter button is pressed, current is supplied to the compression releases, which causes them to open. As long as the starter button is depressed, the compression releases will receive current and remain open. When the starter button is released, current is no longer supplied to the compression releases, which causes them to close. When compression releases are open they bleed off cylinder pressure and make it easier to turn the engine during starting. When the compression releases close, cylinder pressure is contained in the combustion chamber, and the engine will run normally.

Replacement Parts

- 90-4915 Release kit, compression
- 90-4914 Release assembly, compression, electric
- 50-7094 Washer, compression, 14mm
- 55-1009 Cap, solenoid, silicone
- 55-1010 Harness, wiring, compression, release
- 55-1502 Connector, Deutsch, male - DTM06-2S-E004
- 55-1503 Wedge, connector locking – Deutsch #WM-2S
- 55-1504 Socket, Deutsch
- 55-1508 Connector, Deutsch female – DTN04-2P-E004CH
- 55-1509 Wedge, connector, locking- Deutsch #WM-2P
- 50-0045 Kit, compression release, socket
- 50-0046 Socket, compression release, bottom
- 50-0047 Socket, compression release, top