

**Instruction 51-1153**  
**04-21-15**

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## **Installation Instructions: S&S® IST® Ignition System** **for 2004-2006, Carbureted Harley-Davidson® Models** **(51-1136 Supplement)**

### **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.

**⚠ WARNING**

This is a supplement to instruction 51-1136. The 51-1136 sheet details installation on 1999-'03 motorcycles equipped with Harley-Davidson® Twin Cam 88® engines. If you did not receive that sheet in your packaging, please visit the S&S® website, [www.sscycle.com](http://www.sscycle.com) to download a copy. You can contact the S&S Tech Department to get a copy by calling (608) 627-8324.

**⚠ CAUTION**

You must disconnect the battery prior to doing this work. Serious damage to the motorcycle and yourself can occur if the engine turns over during this installation.

Do not use a dual fire coil with the S&S ignition module.

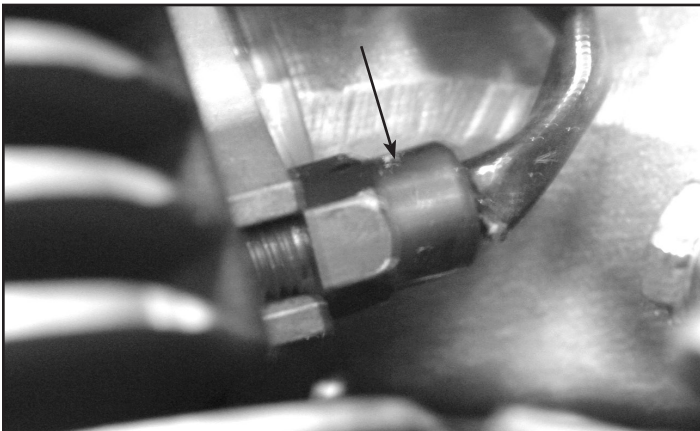
This kit will NOT work with vehicles equipped with flat slide carbs, open primaries, and dry clutches. If you want to use IST with these configurations contact S&S, we can help set up IST.

- 1- Disconnect the battery. Do not work on electrical components with the battery connected.
- 2- Remove the stock ignition module as outlined in your motorcycle's service manual.
- 3- Install the Cylinder Head Temperature Sensor in the front cylinder as described in Instruction 51-1136. It may be easier to access the Cylinder Head Temperature Sensor mounting point by removing the horn first. **See Picture 1.**

Install the Cylinder Head Temperature Sensor in place of the left side intake manifold bolt on the front cylinder for Sportster® installation. **See Picture 2.**



**Picture 1**



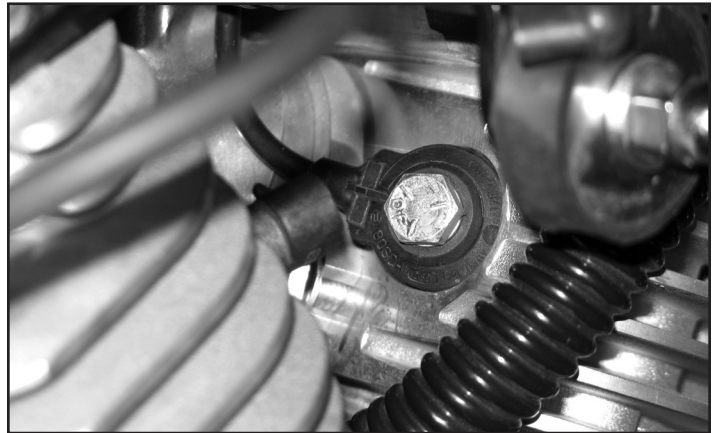
**Picture 2**

- 4- Now install the Knock Sensor on the rear cylinder as outlined in Instruction Sheet 51-1136. **Pictures 3 and 4 show the alternate mounting locations for the knock sensor described in the 51-1136 instruction sheet.**

**⚠ CAUTION**

Knock Sensor must be mounted to the rear cylinder for correct operation.

Mounting the Knock Sensor on the front cylinder will provide an incorrect signal.



**Picture 3 - Knock Sensor Mounted to Rear Cylinder Head**



**Picture 4 - Knock Sensor Mounted to Rear Motor Mount Bolt Bracket**

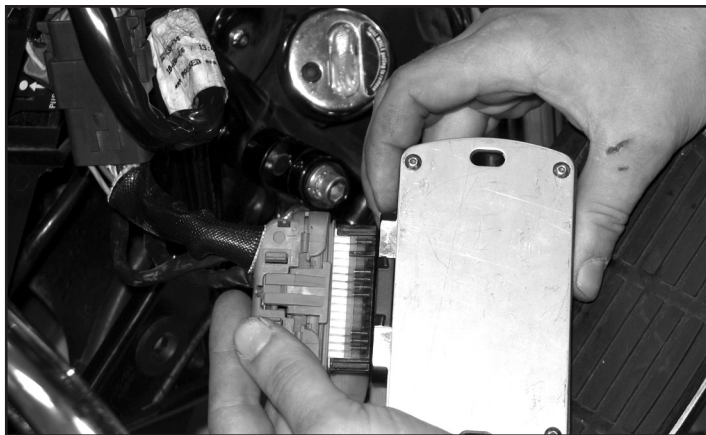
- 5- Position the large gray 32-pin connector (Packard-style) close to where the original module was mounted.

**⚠ WARNING**

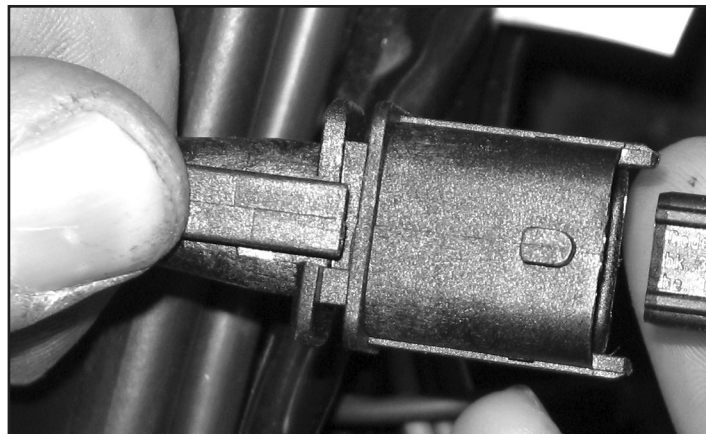
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- 6- Starting from this point, route the Cylinder Head Temperature sensor wiring harness to the sensor. Make sure it does not contact any moving or hot parts. Use wire-ties to secure the harness along its routing.
- 7- Next, route the Knock Sensor wiring harness in the same way. Be sure to use wire-ties to secure the harness along its routing.
- 8- Connect the 32-Pin connector to the module as shown in **Picture 5**. Listen for an audible click to confirm the connection. Next, with the wiring harness run to the sensors, connect the Knock and Cylinder Head Temperature sensors. The Knock sensor connector is shown in **Picture 6**. Again, listen for an audible click when they connect.



**Picture 5**



**Picture 6**

- 9- Now connect the 12-pin connector from the IST harness to the stock Harley-Davidson® harness as shown in **Picture 7**.



**Picture 7**

- 10- Use the included spacers as necessary and install IST module in place of the O.E. unit. See below for specific model instructions.

#### A- Touring Models

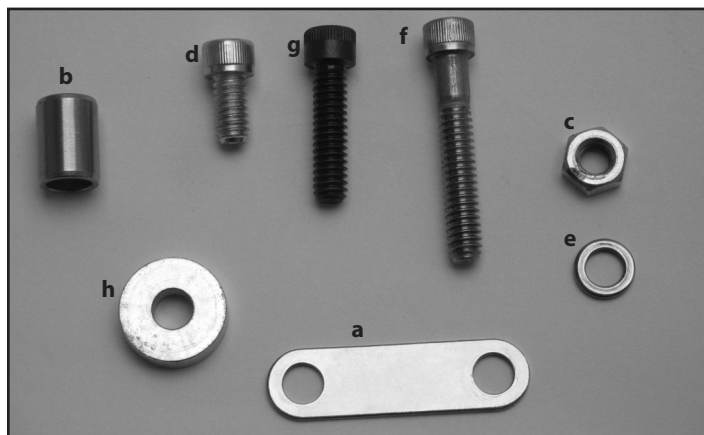
- 1- You will need to use two (2) 0.200" spacers (included in the IST hardware kit) between the module and its mounting position to allow clearance for the 32-pin Packard connector.

#### B- Softail® Models

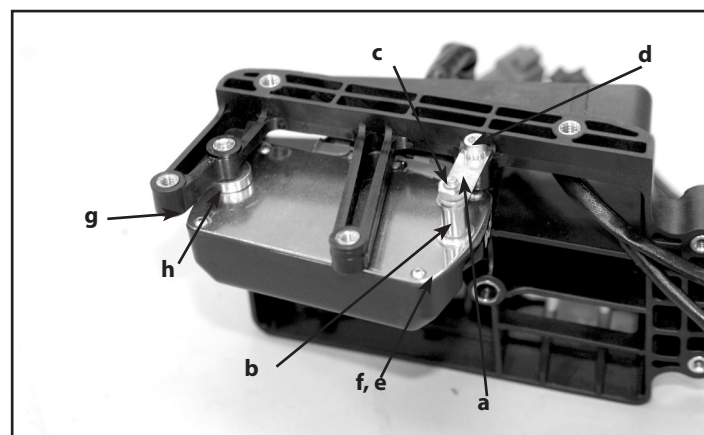
- 1- You will need to use two (2) 0.200" spacers (included in the IST hardware kit) between the module and its mounting position to allow clearance for the 32-pin Packard connector.

#### C- Dyna™ Models

- 1- The webbing on the electrical caddy interferes with the IST module. The hardware and a bracket to offset the mounting position are included in the installation kit and are detailed in **Picture 8**.
- 2- Be sure to connect the 32-pin Packard connector to the module before you install it in the electrical caddy.
- 3- **Picture 9** illustrates how to mount the module in the electrical caddy.



**Picture 8**



**Picture 9**



## WARNING

This is a supplement to instruction 51-1136. The 51-1136 sheet details installation on 1999-'03 motorcycles equipped with Harley-Davidson® Twin Cam 88® engines. If you did not receive that sheet in your packaging, please visit the S&S® website, [www.sscycle.com](http://www.sscycle.com) to download a copy. You can contact the S&S Tech Department to get a copy by calling (608) 627-8324.

- a- Bracket
- b- 0.600" spacer
- c- 1/4-20 nut
- d- 1/4-20 x 1/2" cap screw
- e- 1/4" lock washer
- f- 1/4-20 x 1.5" cap screw
- g- 1/4-20 x 1.0" cap screw (from stock module mount)
- h- 0.200" spacer

### D- Sportster® models

- 1- The module will mount directly in place of the stock ignition module. Pay close attention to harness routing, as space is very limited.

12- See Instruction Sheet 51-1136 for starting instructions.

13- Calibration of the gear factor may be necessary for proper speedometer operation if your gearing has been changed. This is possible with the use of Guardian™ Diagnostic System (P/N 55-5075). Contact an S&S® Dealer or see [www.sscycle.com](http://www.sscycle.com) for details on Guardian.

14- The method of counting flash codes on the check engine light for advanced troubleshooting, as noted in section G of instruction 51-1136, is not supported on model year 2004 and up vehicle harnesses. Using a temporary jumper to connect IST pin 12 to ground will enable diagnostics with the check engine light. You can use H-D® terminal part number 72076-00 to make this jumper wire. Diagnostics of the IST system may still be performed using the S&S® Guardian system.

**NOTES:** Before purchasing the S&S IST Guardian™ Diagnostic System (P/N 55-5075) note that the software is only compatible with Windows® 2000/XP/ Vista/7 32-bit systems. It will not work on 64-bit operating systems.

Also, be aware that the Guardian system is only compatible with the S&S IST ignition module. It will not work with stock Harley-Davidson® or other aftermarket modules.

15- The adapter harness schematic, shown in **Diagram 1 on the next page**, may be helpful for installation and troubleshooting.

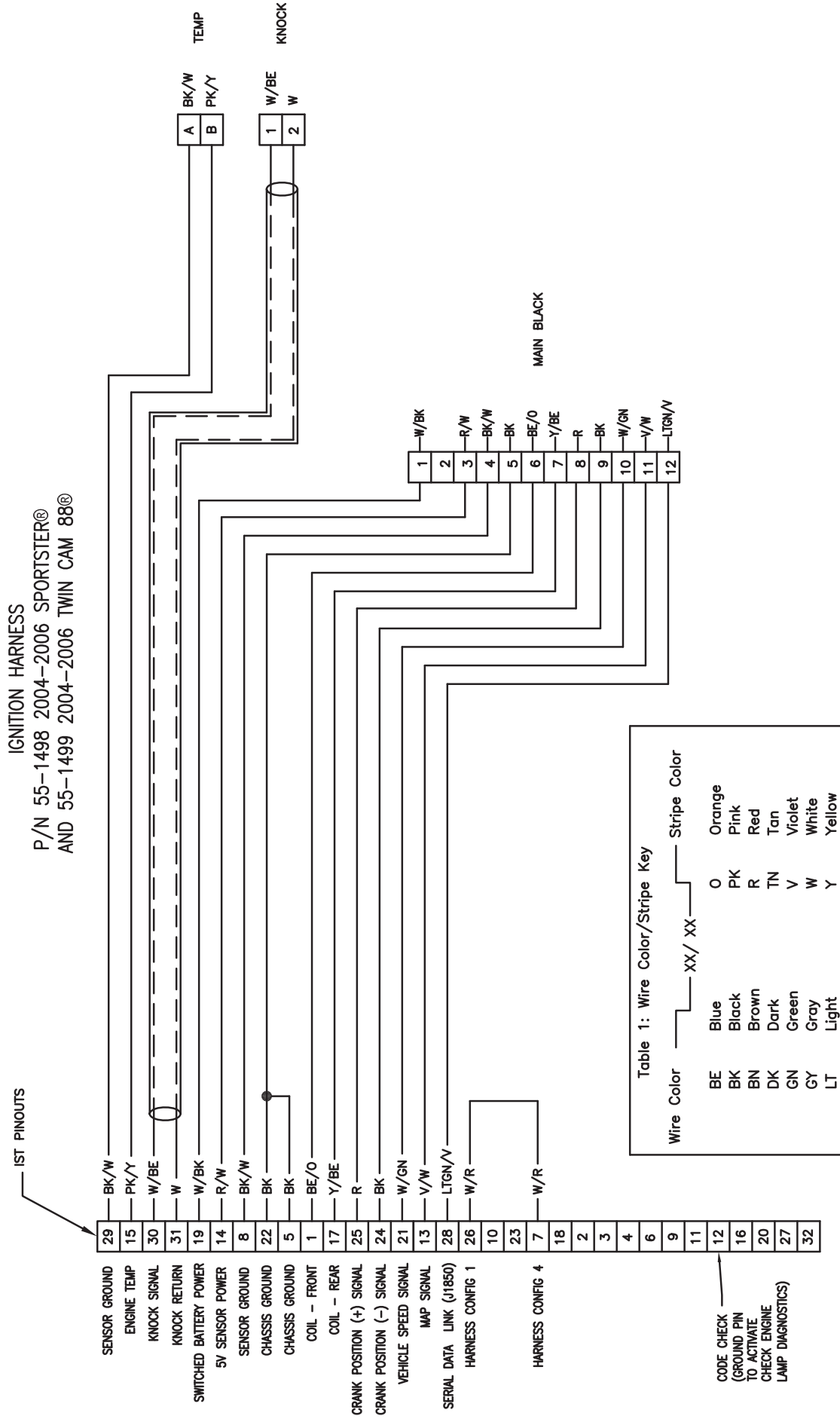


Diagram 1