

**Instruction 51-1216
5-4-06**

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Because every industry has a leader

Installation Instructions: Billet Generator Style Electronic Timer for S&S® Super Stock® Ignition

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.



⚠ DANGER

Disconnect the battery of your motorcycle before attempting this installation.

! WARNING

Electrical connections are required to complete this installation. If you are unsure of your abilities to make these connections safely, please take your motorcycle to a qualified shop for the installation.

⚠ DANGER

This ignition system requires the use of VOES switch. If the VOES is inadvertently grounded, it will create an excess advance situation which could damage the engine in your motorcycle.

INSTALLATION

IMPORTANT NOTES:

- *If your ignition was installed at the factory in a complete engine assembly, do not adjust the module. Breaking the tamper resistant seal will void your warranty.*
- *Factory installed Super Stock® ignitions have a break-in rev limit feature. It will gradually raise the rev-limit over the first 24 hours of running time from 4300 RPM to the maximum of 6300 RPM. Avoid dangerous situations that could require full power maneuvers during this initial break-in period.*
- *The Super Stock ignition module comes pre-programmed from S&S® for a specific engine size and style. You cannot modify the ignition timing curve.*
- *This timer comes installed with a reverse rotation driven gear. Make certain you have a reverse turn drive gear installed.*
- *If your ignition was installed at S&S in a complete engine assembly, you should start at step 9.*

- 1- Preparation: Disassemble timer by removing 2 flathead screws holding the cap on, the two ignition standoff screws, and the 4 screws holding the ignition housing on.

NOTE: These screws are not properly torqued from factory.

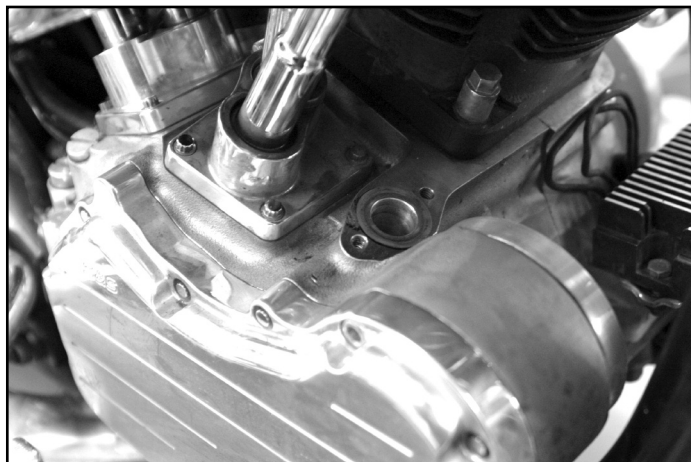


Picture 1



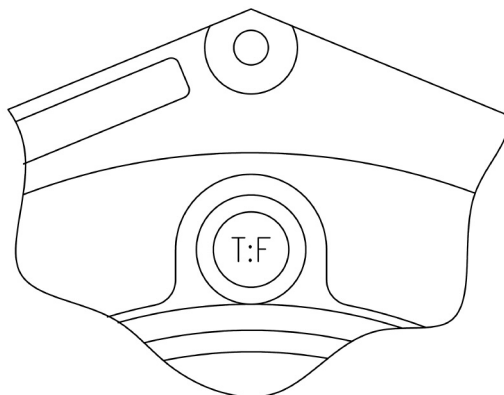
Picture 2

NOTE: You should start from this point-with no timer installed. See Picture 3.



Picture 3

- 2- Remove timing plug from crankcase and rotate the engine until the front cylinder is at TDC of its' compression stroke.



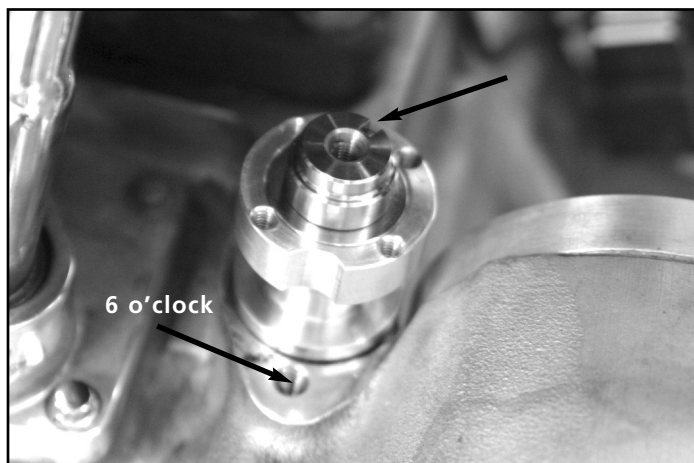
Crankcase Detail View

Figure A

- 3- Make sure the O-ring is in place on the driveshaft (**Picture 4**) and then install it with the index mark at approximately 3 o'clock (using the threaded hole as 6 o'clock)—it will rotate approximately 60-degrees to the 1 o'clock position since the gear is a helical design as shown in **Picture 5**.



Picture 4



Picture 5

- 4- Install the retaining bracket making sure not to rotate the driveshaft away from the 1 o'clock position. Align the cutout on the mounting plate with the $\frac{1}{4}$ " 12-point screw and hand tighten, using a drop of threadlock.



Picture 6

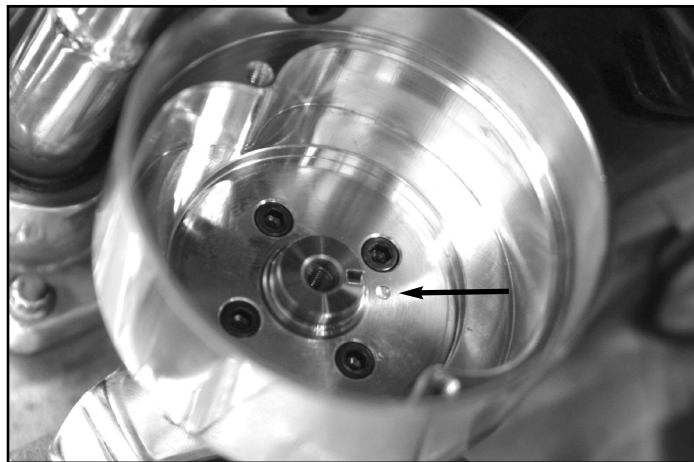


Picture 7

- 5- The screw holes on the cup are indexed with the mounting plate—it can only mount in one position. Install screws hand tight using threadlock. Once the cup is secure, rotate it until the dot aligns with the timing mark on the drive shaft. You can now tighten the retaining bracket screw 65-70 in-lbs and torque screws in cup 15-20 in-lbs.



Picture 8



Picture 9

NOTE: If you are not using S&S® Super Stock® Ignition, follow the manufactures instructions now.

- 6- Install the timing cup on the driveshaft with the alignment tab in the indexed position. Use the included brass screw with threadlock on it and tighten to 15-20 in-lbs.



Picture 10

- 7- Wrap the end of the wire sheathing with a small piece of electrical tape to make it easier to pass them through the rubber grommet in the timing cup.



Picture 11

- 8- Place wires through the grommet and install the Super Stock Ignition oriented with the S&S logo oriented towards the cylinder. Install the ignition standoffs hand tight.



Picture 12

- 9- Install wire clip on center case bolt and torque to 8 ft-lbs as shown in **Picture 13**. Route the wires along the back side of the pushrods, through the clip (**Picture 14**) and then along the frame. Be sure they do not contact any hot or moving parts.



Picture 13



Picture 14

- 10- Mount the VOES switch as close to the carburetor as possible using the included bracket. Note: There is no polarity on the VOES so either wire can be used for ground or signal.
- 11- Connect the VOES hose from the switch to the nipple in the manifold. Trim the hose to be as short as possible without stretching or kinking it.



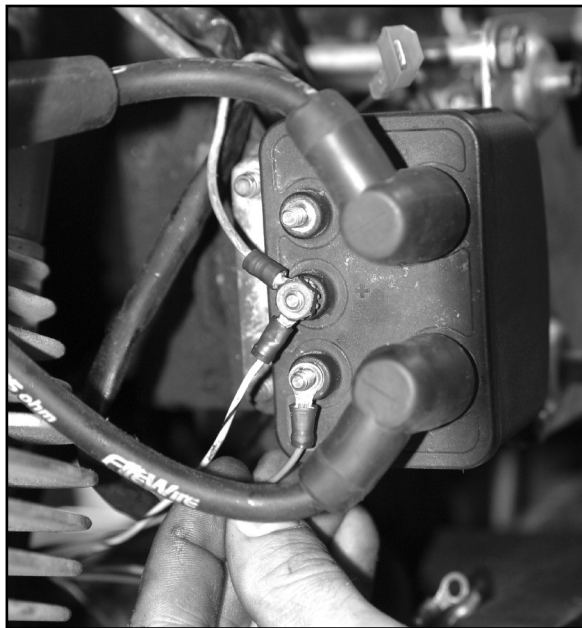
Picture 15

NOTE: The Super Stock® ignition is a single-fire design requiring a single fire coil with a minimum of 3.0 ohms resistance. Dual-plug engines will require two coils or a four-tower coil.

12- You will need to make some crimp connections once you trim the wires to their proper lengths. Then follow the wire connection chart below and Figure B on the next page to wire the system.



Picture 16



Picture 17

Wiring Connection Chart

| IGNITION MODULE | | |
|-----------------|----------------------------|------------------------------|
| White/Black | Switched 12-volt power | Small ring terminal |
| Pink | Front cylinder on coil | Small ring terminal |
| Blue | Rear cylinder on coil | Small ring terminal |
| Violet/White | VOES | Tab assembly (male) |
| Brown | Tachometer/Diagnostic Port | Tab assembly (male) |
| VOES SWITCH | | |
| Black | Ground | Large ring terminal |
| Black | Ignition module | Receptacle assembly (female) |

WIRING DIAGRAM

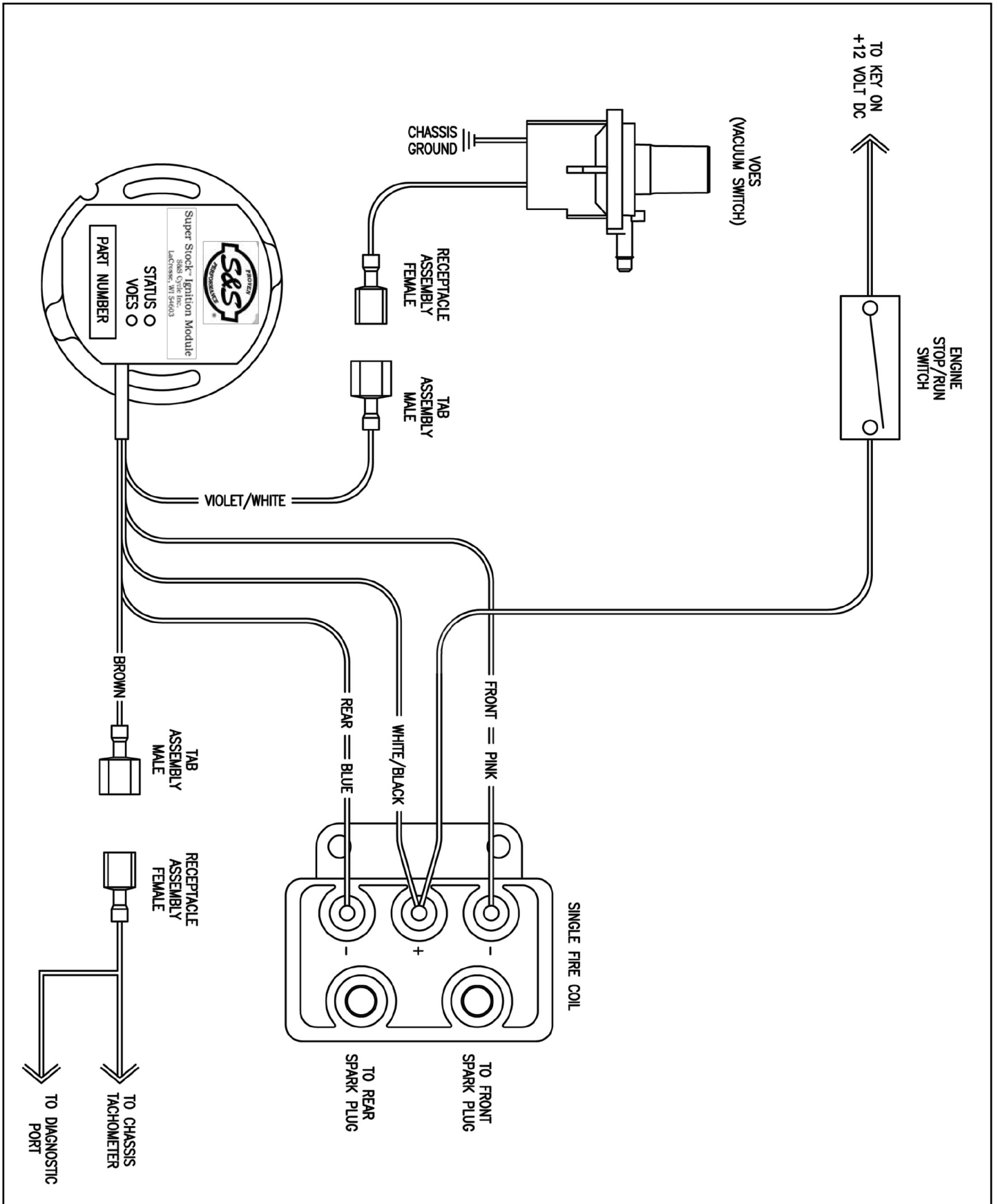


Figure B

NOTE: If your ignition was installed at S&S® in a complete engine assembly, timing was set at the factory. Do not adjust timing. Breaking the tamper resistant seal will void your warranty. You can now connect the negative battery, and are finished with the installation procedure. Please see the next page for general system notes.

SETTING STATIC TIMING

- 1- Use test plugs or jumper wires to ground the spark plug wires. Then connect the negative battery cable again.
- 2- Turn on the ignition switch and confirm the engine cut off switch is in the run position. Rotate the ignition module back and forth SLOWLY until the red LED turns on. Once the light is on, rotate the module CLOCKWISE until the light just goes out. The light goes out when the module is at TDC.



Picture 18

- 3- Turn on the ignition switch and confirm the engine cut off switch is in the run position. Rotate the ignition module back and forth SLOWLY until the red LED turns on. Once the light is on, rotate the module CLOCKWISE until the light goes out. The light goes out when the module is at TDC.
- 4- Use blue threadlock and tighten the standoffs (12-20 in-lbs) to secure the module in its proper timing position. Turn the ignition off and put the spark plugs in.
- 5- Install the cover with the included screws with threadlock and tighten to 12-15 in-lbs.



Picture 19

GENERAL SYSTEM NOTES:

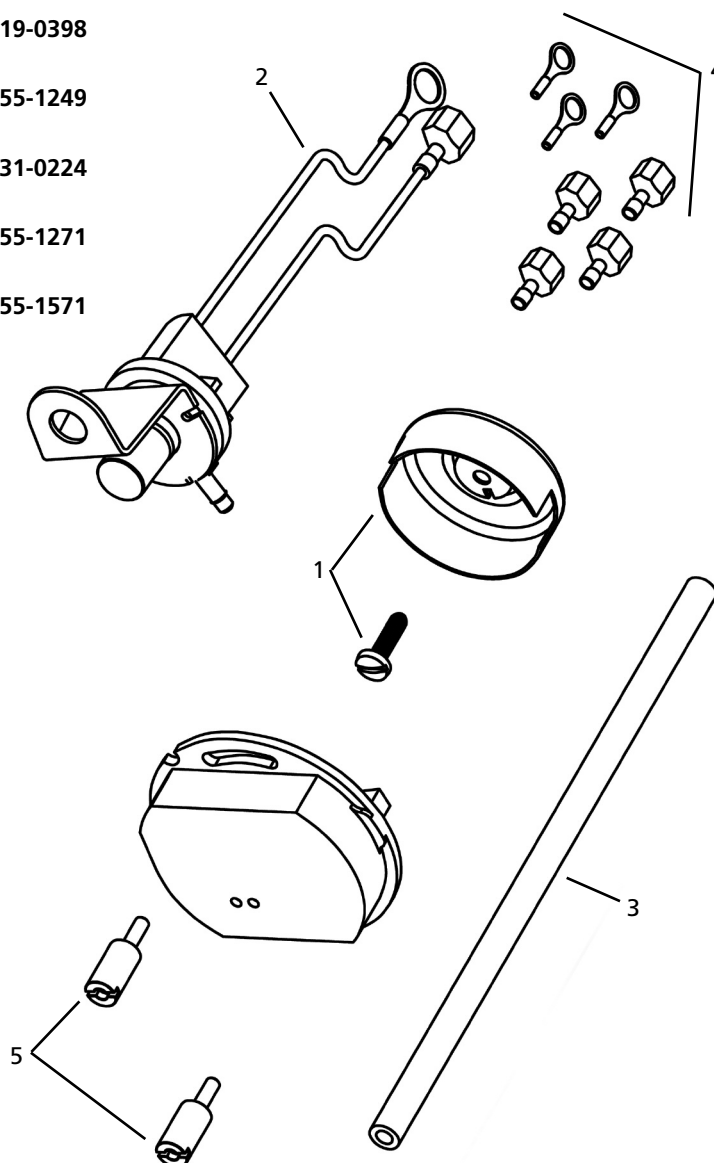
- 1- The S&S® Super Stock® Ignition requires the use of a 3 OHM single-fire coil like the S&S coil p/n 55-1571.
- 2- S&S recommends spiral core spark plug wires. Do not use solid copper or non-resistor plug wires.
- 3- S&S recommends Champion RN12YC (14mm) spark plugs gapped at .038" to .042".
- 4- The VOES must be installed and wired for proper installation. When the VOES is activated, the green LED light in the module will illuminate.
- 5- Dealer software for engine diagnostics is available through the S&S website, www.sscycle.com or through your customer service representative.
- 6- S&S recommends using 91 or higher octane fuel.
- 7- Ignition systems for shovelhead style S&S engines are kick start compatible.

This chart may be used to ensure your module is correct for the application, and may be used to order replacement modules and kits.

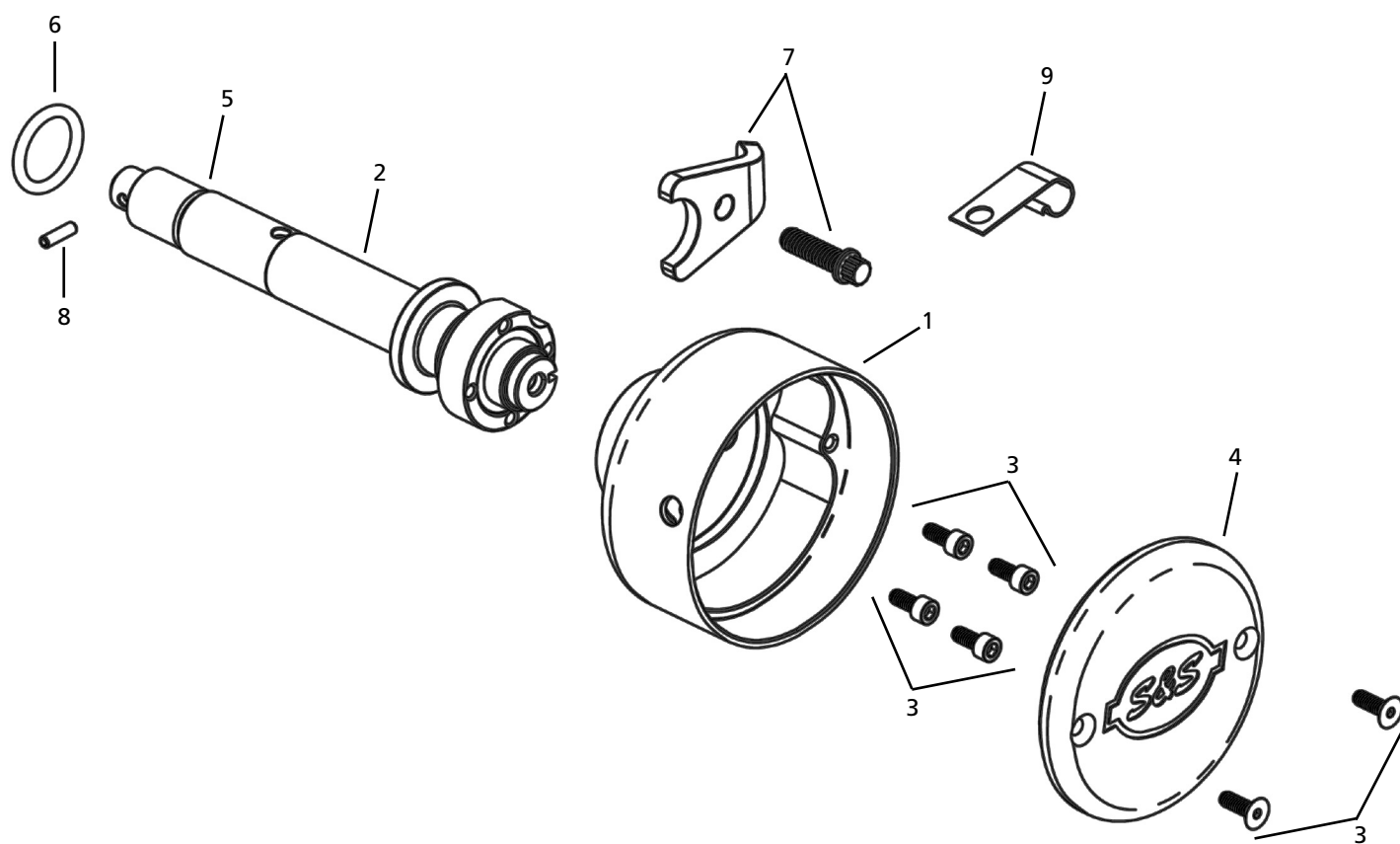
| S&S® SUPER STOCK® IGNITION KITS AND REPLACEMENT PARTS FOR S&S AFTERMARKET ENGINES | | | |
|---|----------------|--------------------|---------------|
| Application | Factory Module | Replacement Module | Ignition Kit* |
| S&S 80" Alternator/Generator shovelhead | 55-1240B | 55-1240 | 55-1250 |
| S&S 93" Alternator/Generator shovelhead | 55-1241B | 55-1241 | 55-1251 |
| S&S 93" HC Alternator/Generator shovelhead | 55-1242B | 55-1242 | 55-1252 |
| S&S 103" Alternator/Generator shovelhead | 55-1243B | 55-1243 | 55-1253 |
| S&S 96" V96 | 55-1244B | 55-1244 | 55-1254 |

Kits contain S&S Super Stock® module with hardware, pick-up cup and mounting screw, VOES switch with hardware, connectors, and instructions. Replacement modules do not have break-in rev limiter activated.

1. Pick-up Cup and Mounting Screw 55-1247
2. VOES Switch with Hardware. 55-1248
3. VOES Hose, 12" (5 pack) 19-0398
4. Connector Kit. 55-1249
5. Stand-Off Screw. 31-0224
6. Super Stock Diagnostic Cable (*Not Shown*) 55-1271
7. S&S Single Fire Coil (3.0Ω) (*Not Shown*). 55-1571



1. Ignition Housing (Polished) 55-1228
2. Drive Shaft Housing Assembly (Polished) 55-1230
3. Timer Cap and Housing, Hdwr. 55-1232
4. Timer Cap (Polished) 55-1267
5. Thrust Washer Assortment (.045" - .055") *packet*. 50-0365
6. O-rings (-116) for Drive Shaft Housing Assm. *5 pack* . 50-7956
7. Hold Down Timer Clamp (Pol) 55-1216
8. $\frac{1}{8}$ " roll pins. *10 pack* 50-8140
9. Ignition Wire Clamp (J Clamp) 50-0376





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