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Installation Instructions: S&S® Universal EFI Wiring Harness For Delphi® Style Modules

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.

The S&S Universal EFI wiring harness (P/N 550-0264) was designed as an easy solution for implementing electronic fuel injection for custom bike builders, racers, and as a replacement sub-harness for 2002-2005 Harley Davidson FL models. It can also be used to simplify carbureted to EFI conversion on just about any motorcycles using the HD® Delphi style (36 pin) ECM or any aftermarket Delphi replacement ECM. Minor modifications external to the harness assembly might be required for certain applications. This harness is a standalone system designed to control and run only the engine. It does not provide for lighting, instrumentation, etc. Any modifications required to adapt this harness to your particular application should be accomplished on the sub harness side and not on the main harness. Modification to the main harness without prior approval from S&S will void the warranty. Please contact S&S tech support prior to installation if you have any questions about this product or your application.

Kit Contents (Picture 1) :

- EFI main wire harness
- Interconnect sub-harness
- Instruction sheet

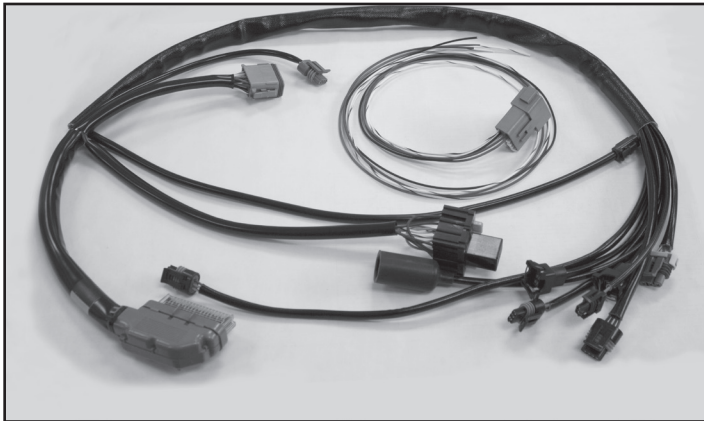
Tool Requirements:

- Crimping tools
- Wire stripper
- Zip ties

Additional Components (depending on application)

- Harley-Davidson® Bank Angle Sensor H-D® #32495-98
- Ignition Coils such as: S&S P/N 55-1576 or Harley-Davidson 1999-'05 (carbureted models) ignition coils.
- Closed Loop Option Kit for S&S Universal Harness S&S P/N 550-0477
- S&S Harness Injector Adapter Kit P/N 55-50744 (For Keihin Injectors)

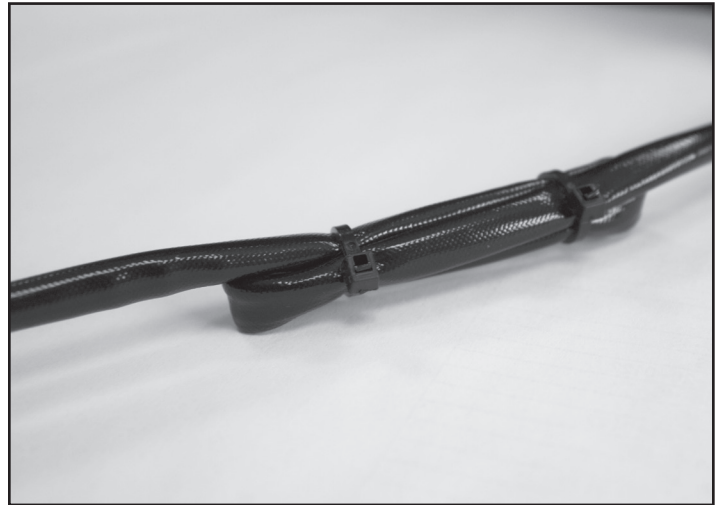
Installation



Picture 1

1. Begin by reviewing the harness layout & wiring diagrams in the back of these instructions. Understanding what all the connectors are used for and where they will go will be very beneficial in completing the installation. Pay close attention to the routing and location of the harness keeping the wiring away from extreme heat sources or sharp edges. The complete engine should be installed in the chassis and the fuel tank removed from the motorcycle. The battery should be disconnected (if installed) prior to installation.
2. Lay harness on top of engine and connect the Throttle Position Sensor (TPS), Manifold Absolute Pressure (MAP), Intake Air Temp (IAT), Idle Air Control (IAC) and Engine Temp (ET) sensor connectors to the correct sensor.
3. Connect the (labeled front or rear) fuel injector connectors to the front and rear fuel injectors verifying the front/rear labeling is correct.

4. Route the ignition coil lead and connector to the ignition coil and plug into the coil. The lead length was designed extra long to facilitate various coil mounting locations. Loop back and wire tie any excessive coil lead if necessary. **See Picture 2.**



Picture 2

5. Route the ECM connector to the ECM and plug into the connector. The ECM lead length might be extra long for your application. Fold back and wire tie the excess lead length if this is the case. Refer to the below picture. If the harness is too short to reach the ECM, then the ECM mounting location will need to be changed. **See Picture 3.**



Picture 3

6. Route the Crank Position Sensor lead in the most appropriate manner to the Crank Position Sensor connector. Some factory Harley Davidson sensors have very short lead lengths. If the S&S EFI harness will not reach the sensor connector (when properly routed) you will need to purchase a sensor with a longer lead length.
7. Find a suitable location and mount the fuse/system relay block. This can be wire tied in place or a sheet metal bracket can be fabricated as a mount.
8. If applicable, find a suitable location for mounting the Bank Angle Sensor (Harley-Davidson® bank angle sensor H-D® #32495-9). The mounting orientation of the BAS is very important for proper operation. **Refer to Figure 1, next page.**

9. If using the supplied sub harness, plug the sub-harness into the Vehicle Harness Interface (12 pin Deutsch) connector and connect the ground, constant power, switched power, fuel pump power and vehicle speed input wires to the correct locations for your application. If interfacing with an existing 12 pin Deutsch connector, it may be necessary to relocate the pin or socket locations to insure the color coding and/or function of the wiring matches. (All 12 wires might not be used depending on the application). Insulate any unused wires with heat shrink tubing if you have to remove them from the main harness side connector to free up terminal locations. It is highly recommended you refer to the factory wiring diagram for the motorcycle you are working on to insure the proper connections are made.
10. Double check the connections and harness routing. Use cable ties to attach the harness at suitable points.
11. Unplug the ECM and connect the battery. Verify constant power, switched power and ground at the correct pin locations on the 36 pin connector.
12. Disconnect the battery and plug in the ECM. Reconnect the battery.
13. Turn on ignition power. You should hear the system relay and the fuel pump energize for about 4 seconds.
14. Cycle ignition power one more time and then attempt to start the engine and check for any DTC's (trouble codes).

BANK ANGLE SENSOR
MOUNTING ORIENTATION
HD® #32495-98

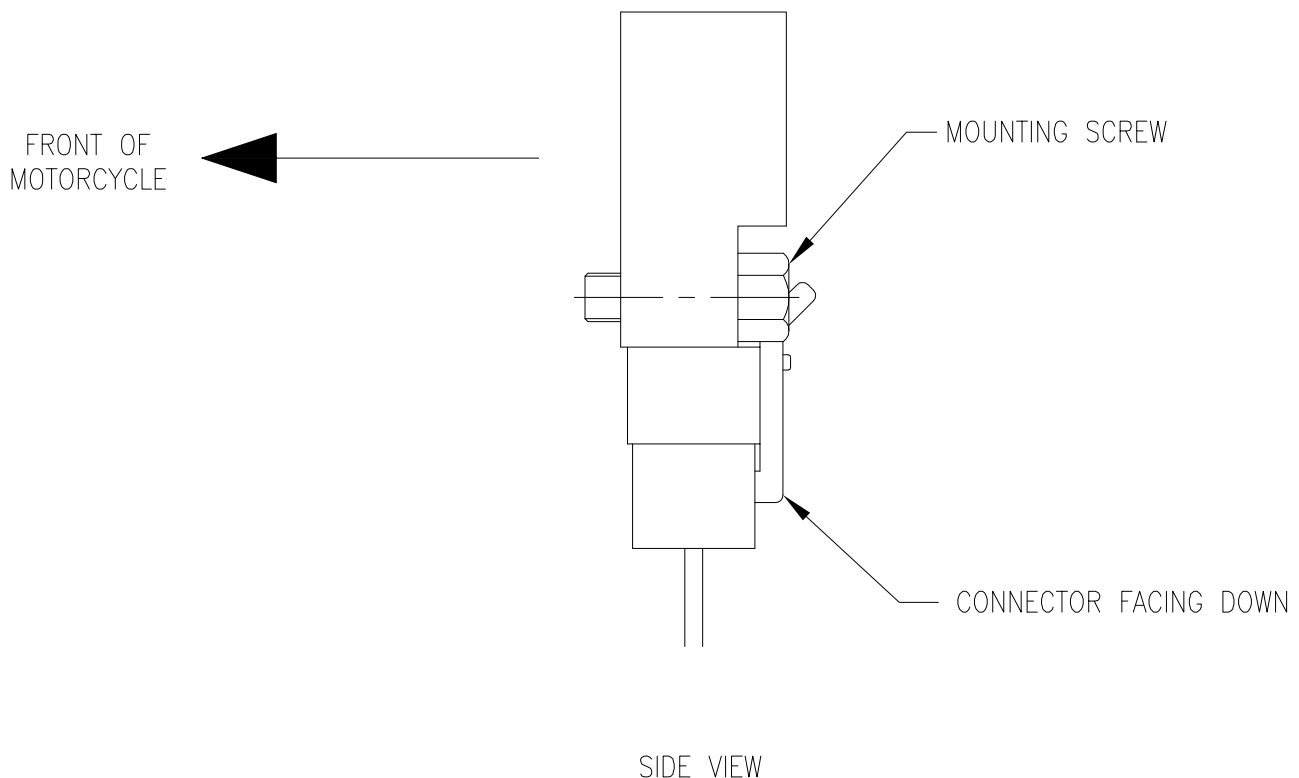
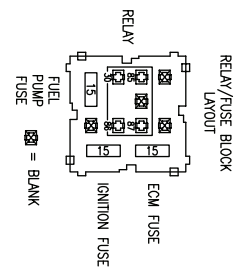
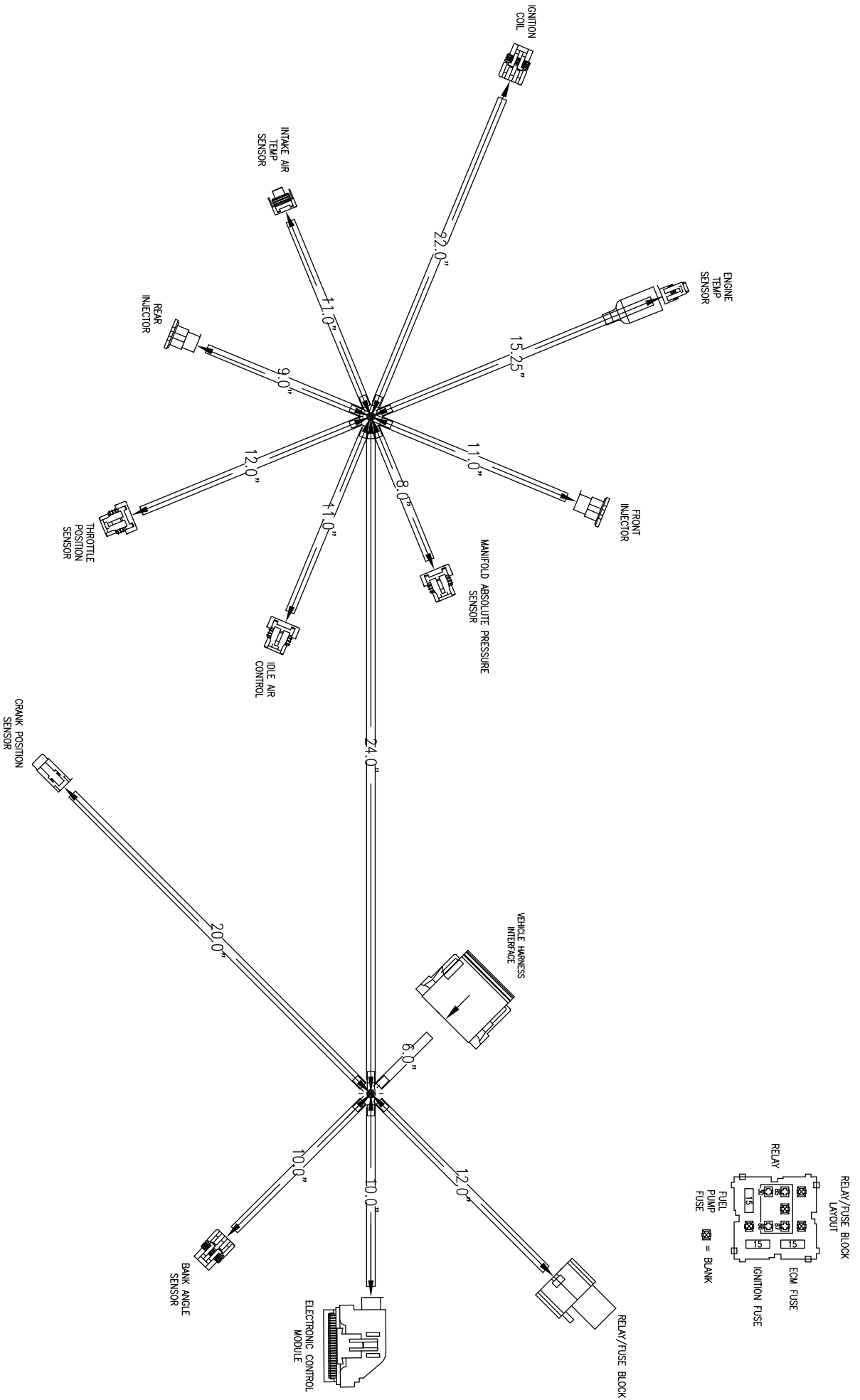
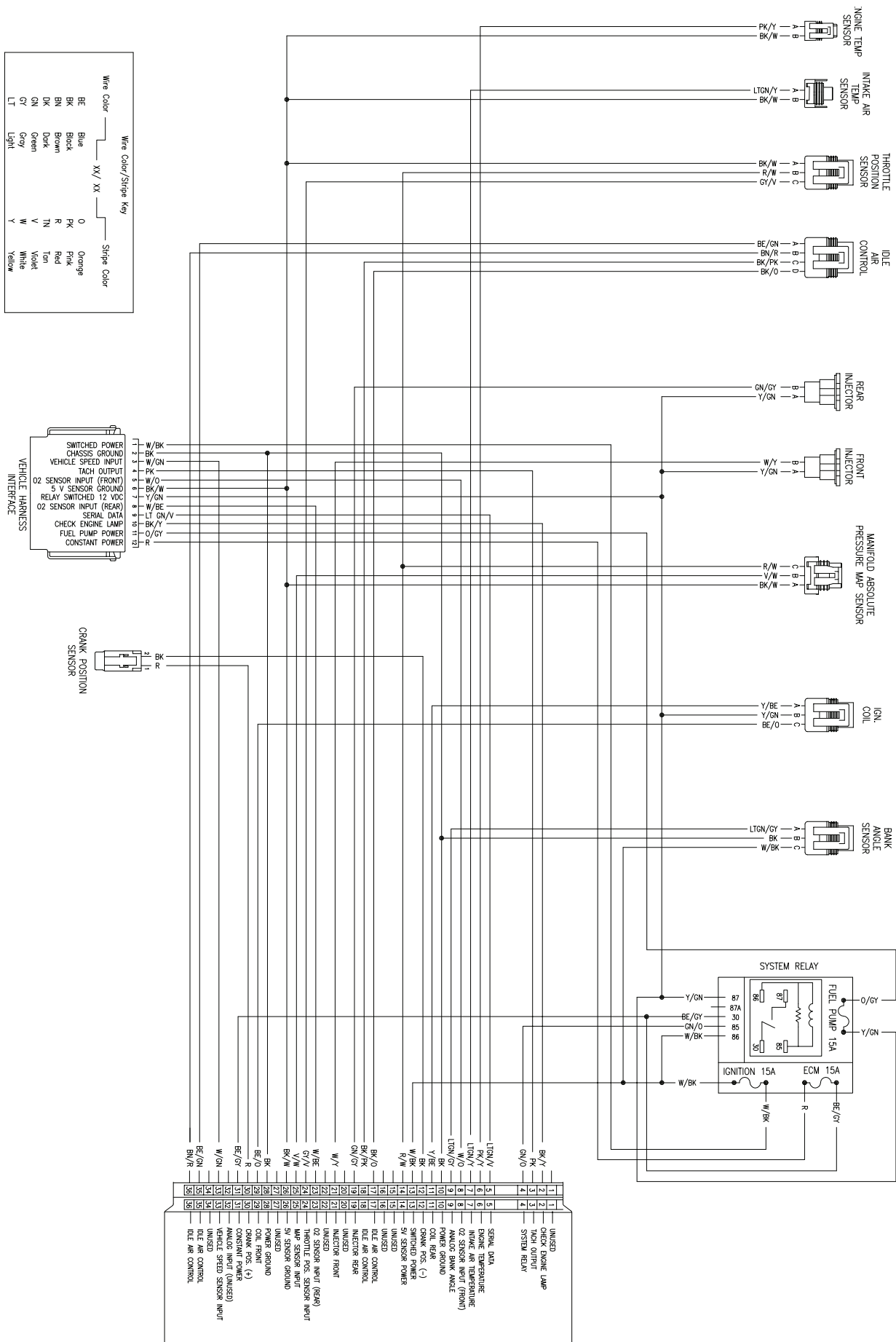


Figure 1





PINOUT

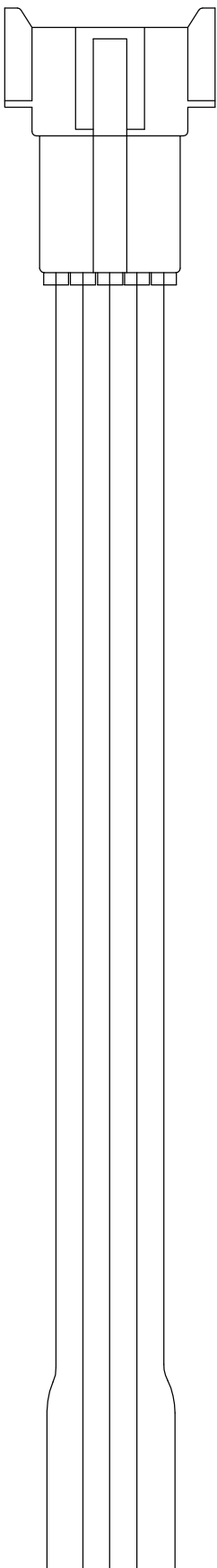
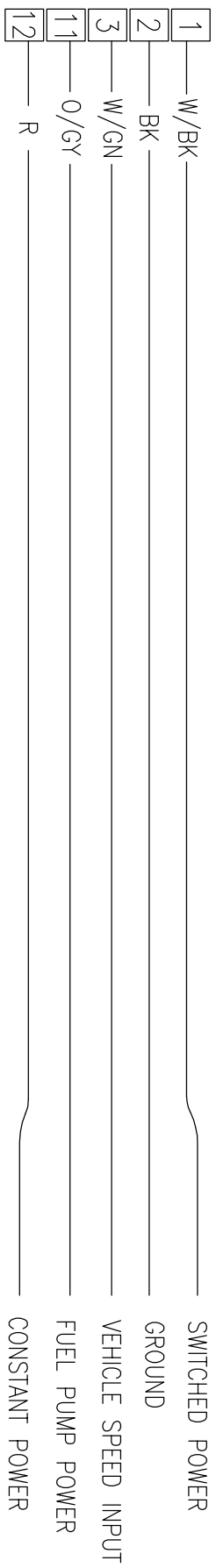


Table 1: Wire Color/Stripe Key

Wire Color	XX/XX	Stripe Color
BE	Blue	O Orange
BK	Black	PK Pink
BN	Brown	R Red
DK	Dark	TN Tan
GN	Green	V Violet
GY	Gray	W White
LT	Light	Y Yellow