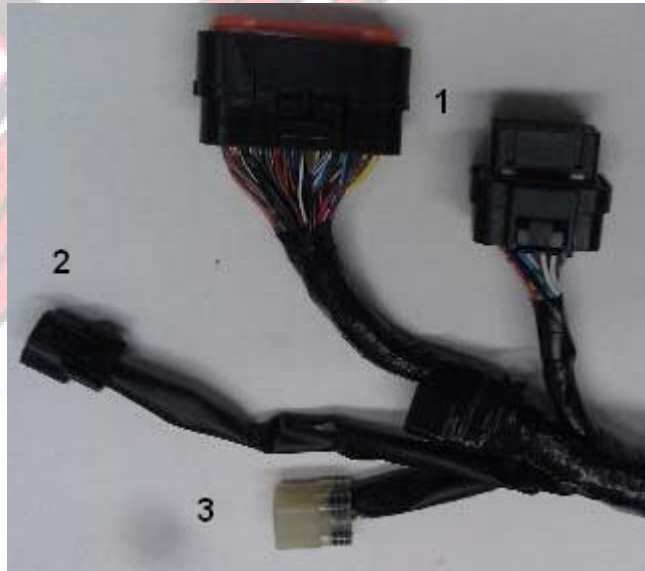


Whether you have recently received a freshly converted harness or are working with a more seasoned harness, you may find it useful to familiarize yourself with the harness and the different connectors that it is comprised of. This guide is focused on the wiring harness for a 2009 – 2011 Yamaha R1. Please note that when referencing cylinder # designations, the outermost cylinder (left side of the car) is #1. The second one is #2 and so on.

If the harness is installed into the racecar and has been used, remove it and place it onto a bench or table. This will allow you to easily identify any potential problems or other areas which may require attention. Start at one end of the harness and work towards the other, looking for areas of worn-through tape, broken wires or connectors and any signs of melting. If any of these conditions exist, gently peel back a section of tape to further assess the damage. Any areas where bare wires are exposed have potential to cause catastrophic damage to the harness and other electronic components of the car. It's best to consult a professional at Hyper Racing for repair instructions and services.



#### **ECU Connectors (1)**

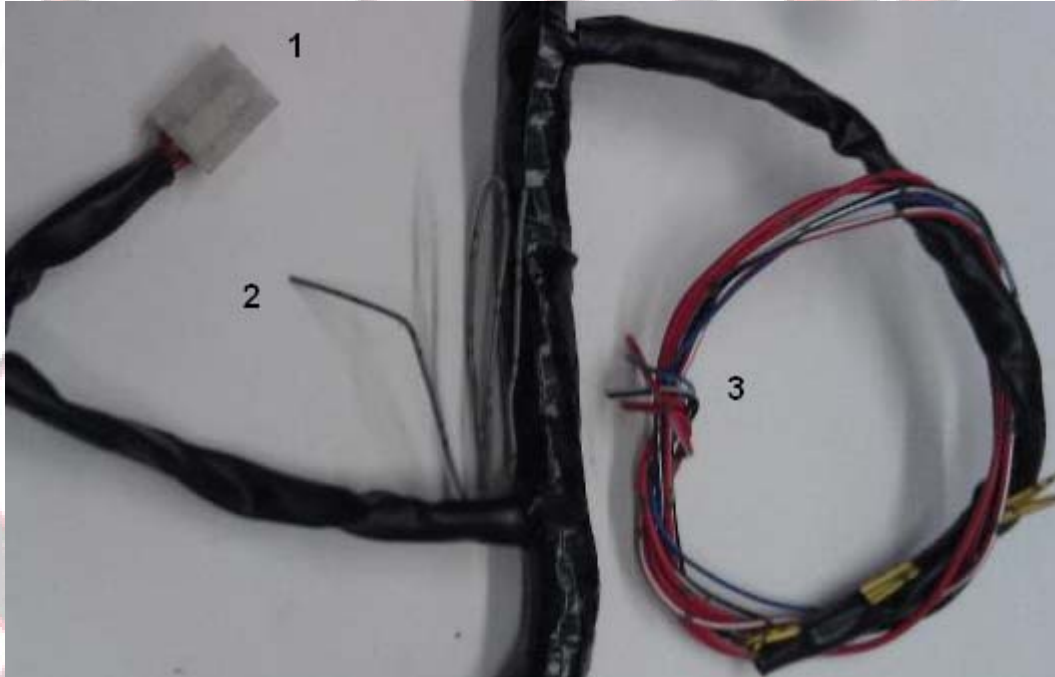
The ECU (Engine Control Unit) Connectors are some of the most identifiable because of the multitude of wires leading to them. These will be the largest and most populated connectors on the harness.

#### **Intake Air Temperature Sensor Connector (2)**

The Intake Air Temperature Sensor measures the ambient air temperature. It is important that this sensor is **not** in close proximity to a high heat source (i.e. radiator or engine).

#### **Tip-Over Sensor Connector (3)**

The Tip-Over Sensor must be disabled. If you have sent this sensor along with your harness to be converted, we will disable the sensor for you. Otherwise call or email the shop for instructions.



#### **Starter Relay Connector (1)**

Relays use low current to control items which require high current such as a starter motor. The Starter Relay Connector is white in color and is located in close proximity to the ECU Connectors. The Starter Relay is black plastic and contains a 15AMP standard automotive fuse. Also, on the Starter Relay, the positive battery cable should be connected to the post labeled "B" and the starter motor cable should be connected to the post labeled "M".

#### **Throttle Position Signal for Power Commander (2)**

This single Gray wire is for use with a Power Commander in order to monitor throttle position. Connect this wire with the gray wire on your Power Commander harness.

#### **Switch Wires (3)**

This bundle of wires connects to your switches and controls the power flow through the harness. Consult the switch wiring diagram for specific instructions.



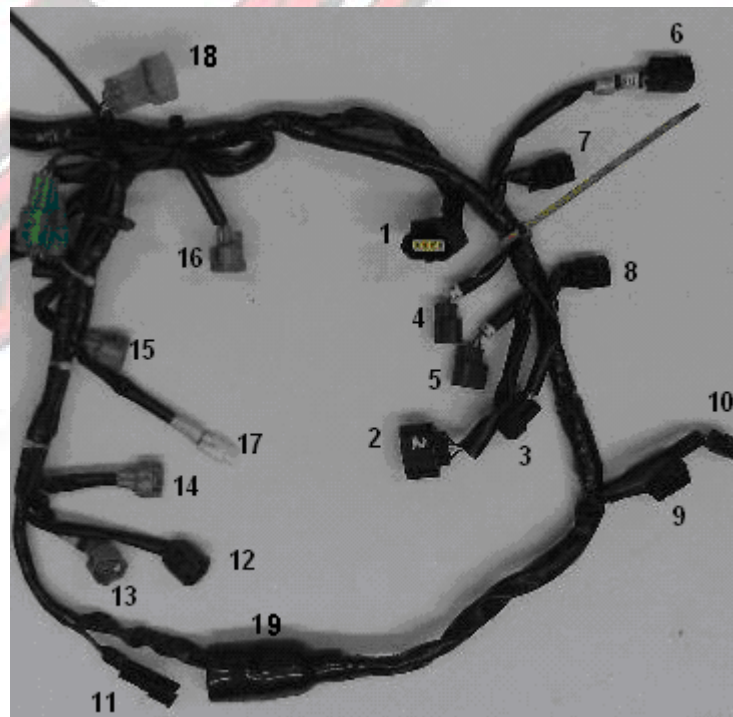
#### **Rectifier/Voltage Regulator Connector**

The Voltage Regulator is a large aluminum piece with cooling fins on top. This Black connector, along with a similarly shaped Gray connector leading from the left side of the engine, connects to the Voltage Regulator.



### Wiring Harness Ground

This is the only source of ground for the harness and should be connected to the engine case with a bolt. The negative battery cable should extend from the same bolt to the negative terminal of the battery.



### Engine Controls and Sensors.

#### Accelerator Sensor Connector

This connector (4pin black) connects to the sensor on the throttle bodies closest to where the throttle cable connects to the body. This sensor measures the amount of throttle input which is being applied by the driver.

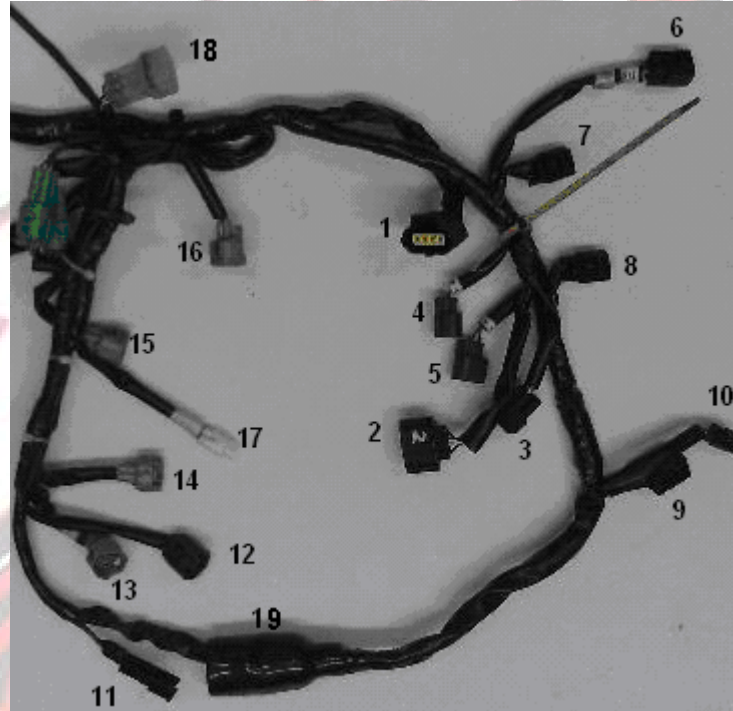
#### Throttle Position Sensor Connector (2)

This connector (4pin black) is visually similar to the Accelerator Sensor (1) but is located on the right side of the throttle bodies opposite of the Accelerator Sensor.

#### Throttle Control Motor Connector (3)

The Throttle Control Motor connector (2pin black) is located in the center of the throttle bodies. It controls the opening and closing action of the throttle blades. Do not confuse this with the connectors for the ignition coils (6,7,8,9) or catastrophic ECU damage may occur. The wires leading to this sensor are Yellow and Green.





**Intake Vacuum Sensor Connector (4)**

A blue, 3 pin connector that connects to the vacuum sensor which is connected to a vacuum hose on the front of the throttle bodies. This sensor measures intake vacuum.

**Atmospheric Pressure Sensor Connector (5)**

A blue, 3 pin connector that connects to the vacuum sensor which is placed into the factory airbox. The sensor measures ambient air pressure. Do not connect this sensor to any vacuum hoses.

**Ignition Coil Connectors (6,7,8,9)**

This set of four, black, 2pin connectors plugs into each ignition coil independently.

**Camshaft Position Sensor Connector (10)**

This black, 3pin connector is triangular in shape and connects to the Camshaft Position Sensor pigtail located on the top of the engine camshaft cover. This connection is critical for engine operation. The Camshaft Position Sensor works in conjunction with the Crank Sensor to provide the vital first ignition cycle to the engines spark plugs.

**Crankshaft Position Sensor Connector (11)**

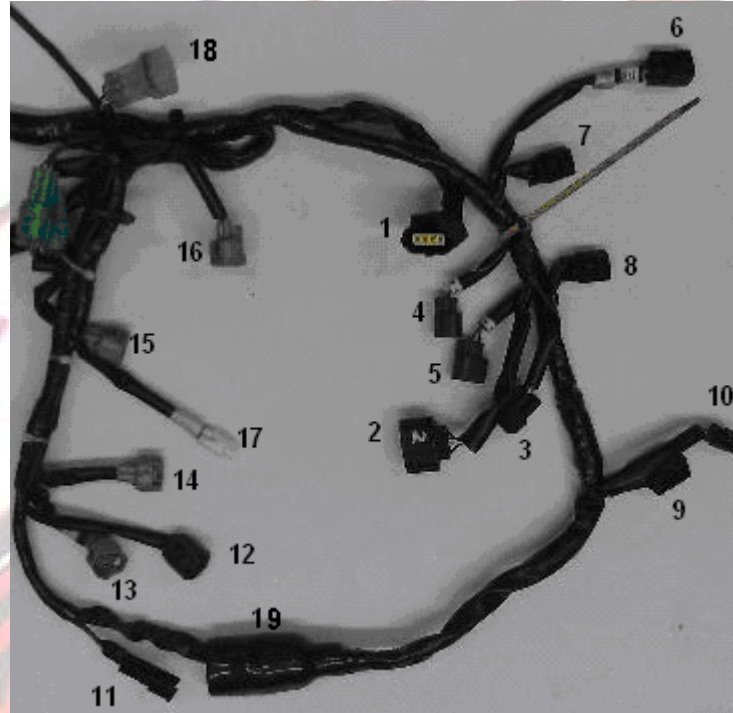
This black, 2 pin connector plugs into the Crankshaft Position Sensor pigtail extending from the right side lower cover of the engine. Without this critical feedback, the ECU will not provide ignition spark to the coils and spark plugs. The sensor is located on the right side of the engine and uses a 12inch wiring pigtail before reaching the location of the connector. Because of its size and location it is often damaged and overlooked upon assembly.

**Engine Coolant Temperature Sensor (12)**

An extension to the lower fuel injector harness, this Green, 2pin connector connects to the Engine Coolant Sensor which relays vital information about the engines operating temperature back to the ECU. The Engine Coolant Temperature Sensor is located just below the #1&2 fuel injectors.

**Lower Injector Connectors (13,14,15,16)**

These 4 gray, 2pin connectors plug into the lower injectors located in the throttle bodies.



**Variable Velocity Stack Motor Connector (17)**

A white, 2pin connector which connects to the pigtail from the velocity stack motor inside the factory airbox.

**Secondary Injector Sub-Harness Connector (18)**

This connector (6pin white) connects the upper injector sub-harness to the main wiring harness. The sub-harness contains the connectors for the individual upper injectors

**Ignition Coil Sub-Harness Connector (19)**

This large black connector connects the ignition coil sub-harness to the main wiring harness.