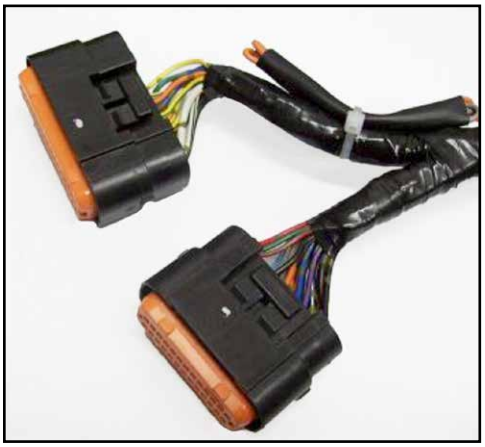
05-06 Kawasaki ZX6R Wiring Harness Connection Guide

This guide identifies the connectors and sensors of converted (salvaged) wiring harness for a 2005-2006 Kawasaki ZX6R.

Harnesses produced from 2022/2023 and are custom constructed using all new wiring with Raychem coverings and Deutch connectors. Newer harnesses do not follow this guide, and components are different or eliminated.

Please note that when referencing cylinder # designations, the outermost cylinder (left side of the car) is #1, the second one is #2, etc.

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 pack 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

The ECU 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.

STARTER RELAY CONNECTOR

Relays use low current to control items which require high current such as a starter motor. The Starter Relay Connector is a dark red color and is located in close proximity to the ECU Connectors. In most cases, the Starter Relay Connector has a rubber boot on its top to protect the wires from dirt and moisture. Be sure that this rubber boot securely covers the upper portion of the connector. The Starter Relay is black plastic and contains a 30AMP 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".

CHASSIS HARNESS CONNECTOR

The Chassis Harness Connector is used to connect the wires from the harness to the Chassis Harness and eventually to the switches through a neat and professional connection. Without a Chassis Harness, there will be a series of loose wires to be connected manually to the switches on the dash.

U6SA TECHNICAL INSPECTION RPM/TACHOMETER PLUG

On the same harness leg as the Chassis Harness Connector or Switch Wires, another optional item is the standardized U6SA RPM Plug. This connection contains provisions for a tachometer to be connected using a professional connector. Without a tachometer, the plug contains a "dead end" cap to prevent dirt and moisture contamination.

CRANKSHAFT POSITION SENSOR CONNECTOR

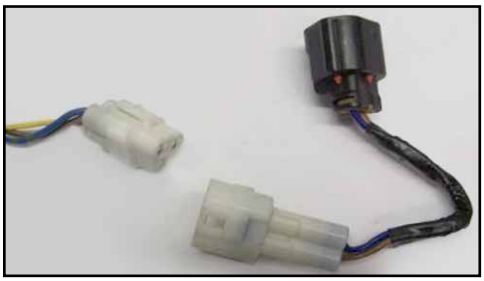
One of the smallest and most easily damaged connectors on the harness is the Crankshaft Position Sensor which sends information regarding the location of the crankshaft in its rotation. Without this critical feedback, the ECU will not provide ignition spark to the coils and spark plugs. The sensor is located on the right side of the engine (near the driver's legs) and uses a 12" wiring pigtail before reaching the location of the connector.

CHARGING SYSTEM/RECTIFIER CONNECTOR

This connector is the source of a large percentage of wiring short circuit faults. The Charging System Connector is un-insulated from dirt and water which contributes to its vulnerability. In addition to being un-insulated, the connector is typically located in a position among a variety of coolant lines and other wiring related items which make it difficult to see and keep clean. The Charging System wiring consists of two plugs, white/clear in color which converges at the pigtail leading from the Rectifier or Voltage Regulator. The second plug is similar in design as the one pictured but only has three terminals and it leads from the left side of the engine, past the starter and underneath the thermostat housing.

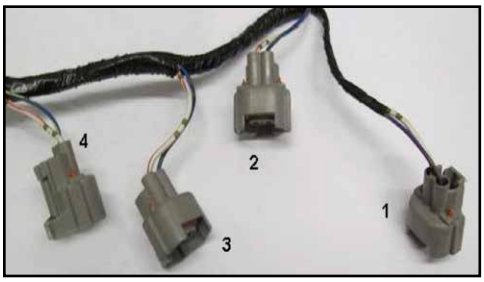
GROUND

Grounding is very important and often one of the most overlooked items on the car. The wiring harness has only one ground. We suggest grounding to the threaded bolt hole on top of the transmission directly beside the crankcase vent. Connect a ground cable from the negative battery post to this same bolt on top of the transmission. This location is a reliable grounding point for other accessories requiring ground.



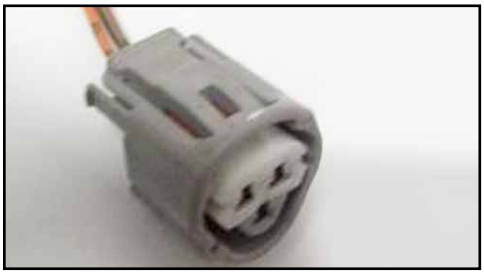
THROTTLE POSITION SENSOR CONNECTOR

The Throttle Position Sensor is located on the right side of the Throttle Bodies and just above the intake boots on the engine. Because the sensor is tucked away almost underneath the right side of the throttle bodies, it becomes very easy to overlook when hooking up electrical connectors. The sensor wiring exits the harness on a 6" pigtail into a white, triangular shaped connector. Its mating connector, also white in color, extends the 3 wires to a flat, black connector which will connect to the Throttle Position Sensor.



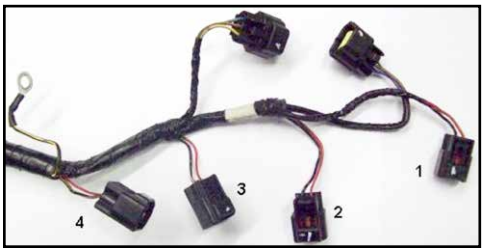
LOWER FUEL INJECTOR CONNECTORS

These 4 connectors extend on their own leg from the main wiring harness.



ENGINE COOLANT TEMPERATURE SENSOR CONNECTOR

An extension to the lower fuel injector harness, this sensor 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.

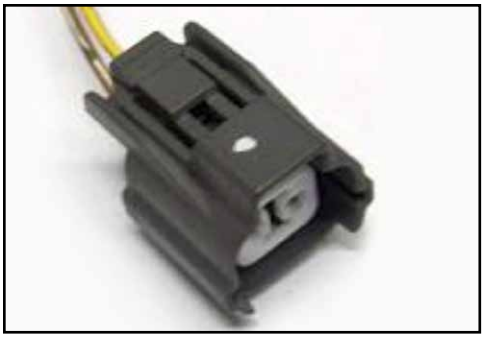


IGNITION COILS & AIR PRESSURE SENSOR CONNECTORS

The (4) two wire connectors in the photo above connect to the ignition coils of the engine. The connector farthest from the ECU is designated for the #1 cylinder. The other cylinders descend sequentially.

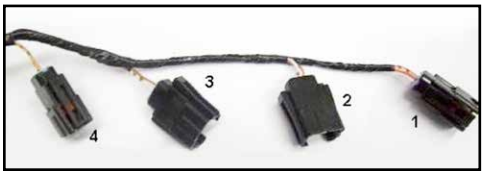
The Intake Air Pressure and Barometric Pressure Sensor Connectors also extend from this same harness leg. The pressure sensors are located on the front of the throttle bodies. The Intake Air Pressure Sensor must be connected to a vacuum hose leading to the throttle bodies. The Barometric Pressure Sensor should remain open to the atmosphere. These sensors may be interchanged, they are also identical in appearance and construction and are very rarely the source of a problem.

A small black wire with a yellow stripe will be observed exiting the harness near the #4 coil connector. This wire should be connected to the grounding post on top of the valve cover. This is not a suitable grounding location for any other component. The purpose of this wire is to absorb any RFI voltage flowing throughout the valve cover, preventing the coils from firing at undesired intervals.



CAMSHAFT POSITION SENSOR CONNECTOR

The Connector for the Camshaft Position Sensor Connector extends from the harness just before the connectors for the Ignition Coils. Located on the front of the engine, just below the valve cover and above the exhaust ports, the Camshaft Position Sensor works in conjunction with the Crank Sensor to provide the vital first ignition cycle to the engines spark plugs. After the engine is running, the Camshaft Position Sensor serves little purpose but its proper operation is required upon every startup.



UPPER FUEL INJECTOR CONNECTORS

The Upper Fuel Injector Connectors plug into the Fuel Injectors located on top of the airbox. These connectors must be changed from stock form to accept our methanol injectors. The connector at the end of the line, farthest from the ECU is for cylinder #1.

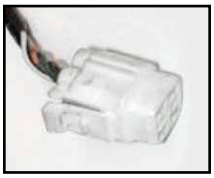
INTAKE AIR TEMPERATURE SENSOR

Some injection designs use a rubber grommet inside the airbox to locate the sensor. This sensor needs to be exposed to the air charge entering the airbox. We have found that fastening the sensor to the upper injector wiring harness is sufficient for its proper operation.

*The following connectors and their respective components are **not** part of the standard Hyper Racing wiring conversion as of January 2011. These components may remain on any harnesses converted prior to this date. Other vendors performing fuel injection conversions for the 05-06 ZX6R may also retain these items.*

SECONDARY THROTTLE VALVE ACTUATOR & SENSOR

This view from the right side (inside) of the Throttle Bodies shows the STVA & Sensor in factory configuration. These components control the Secondary set of throttle plates housed within the throttle body bores. The primary function of this system is to control intake air velocity and intake noise. After experiencing numerous failures to these components we began removing the actuator and sensor along with the secondary throttle plates. As a result, we have enjoyed an increase of reliability with no sacrifice to power output or throttle response.



SECONDARY THROTTLE VALVE ACTUATOR CONNECTOR (left)
SECONDARY THROTTLE VALVE SENSOR CONNECTOR (right)

Throttle Bodies retaining the STVA Sensor and Actuator will require these connectors to operate correctly. A preferred option would be to remove the Actuator, Sensor and Secondary Throttle Valves.

SECONDARY THROTTLE VALVE ACTUATOR & SENSOR REMOVED

This photo shows a set of throttle bodies with the STVA removed. In this view, the Throttle Position Sensor is clearly visible.