



## Case Study: Motorcycle Rear Wheel Torque Transducers

### The Technical Challenge

Our clients regularly conduct track testing of motorcycles where we can measure acceleration, speed and suspension movement but not the power produced at the rear wheel. Power is one of the most important parameters affecting performance. Power can be measured on a dyno but the results do not correlate to the actual on track real world, so a solution was needed.



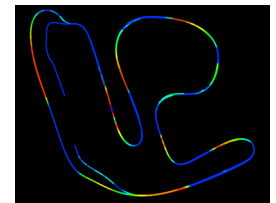
### Sensor Solution Development

We had to develop a sensor that could detect torque reliably in both drive and engine braking directions. The sensor had to transmit data to the data logger. The question of powering the sensor and mounting to the rear wheel also had to be overcome. So the sensor that we developed senses the relative movement of the Rear Wheel Cush Drive under load and features a wireless transmitter and built in rechargeable batteries to ensure a small compact unit. The unit is calibrated in a rig using the actual test wheel to ensure accuracy.



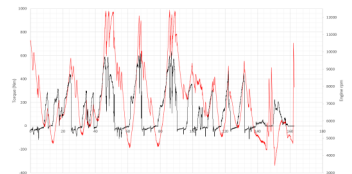
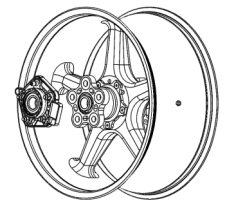
### Testing Development & Benefits

Testing was carried out at Rockingham circuit by Olie Linsdell on a race prepared Yamaha R6 and allowed a track map to show where power was used around the circuit in addition to linking to data to show power, engine speed and throttle position to provide a full picture. This data allows tuning of the engine to maximize where power is delivered as well as understanding where and how power is used to allow the most effective gearing selection to be used. The data also allows the rider to develop strategy for braking and accelerating through corners. The sensor allows real time analysis of where power is used ( equally where it isn't used ) to develop strategies for setup at individual circuits. Wheel spin and the tyre friction can be understood in a way that is impossible on a dyno.



### Solution

The Rear Wheel Torque Transducer has been built into a unit adaptable to suit the majority of Motorcycle Sprocket Carriers and Cush Drives, and proven to work with many race wheels. The Torque Transducers have been calibrated up to 1500Nm and feature a self contained power supply and wireless connection to a small chassis mounted receiver.



Please do not hesitate to contact us if you wish to discuss your requirements.

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