

The Motorsport Sensor Manufacturer and Specialist

** Case Study - Motorcycle Rear Wheel Torque Transducers **

The Technology 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.

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 thus providing a full picture. This data allows tuning of the engine to maximize where power is delivered, in addition to understanding where and how power is used to allow the most effective gearing to be selected.

The data also allows the rider to develop strategy for braking and accelerating through corners. The sensor allows real time analysis of used power (equally where it isn't used) to develop strategic setups for individual circuits. Wheel spin and the tire 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.

Conclusion

Greater efficiency and faster lap times.



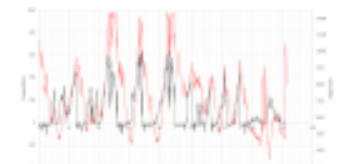
Complete Sensor



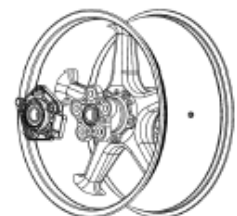
Unit replaces sprocket carrier



Example Power Usage Data



Data logging graph



Wheel fitment