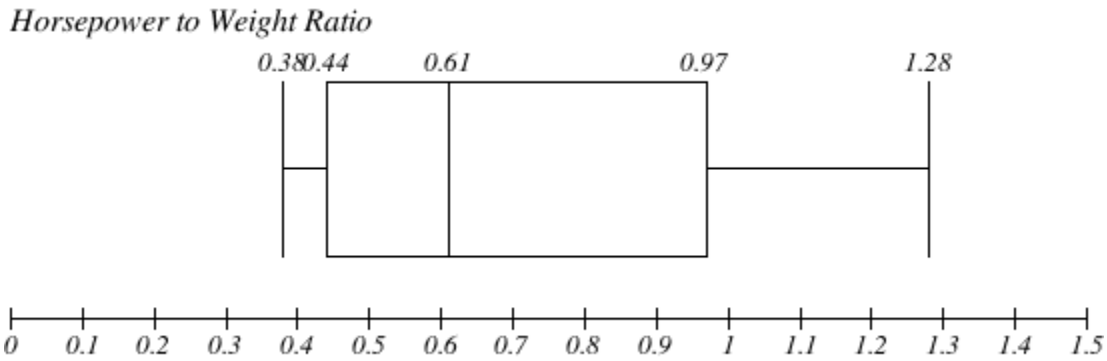
Question: Does the weight to horsepower ration affect the lap times at the Circuit of the Americas (COTA)?

Lap time to Horsepower/Weight ratio

Box Plot of the Horsepower to Weight Ratio



Histogram of the lap times

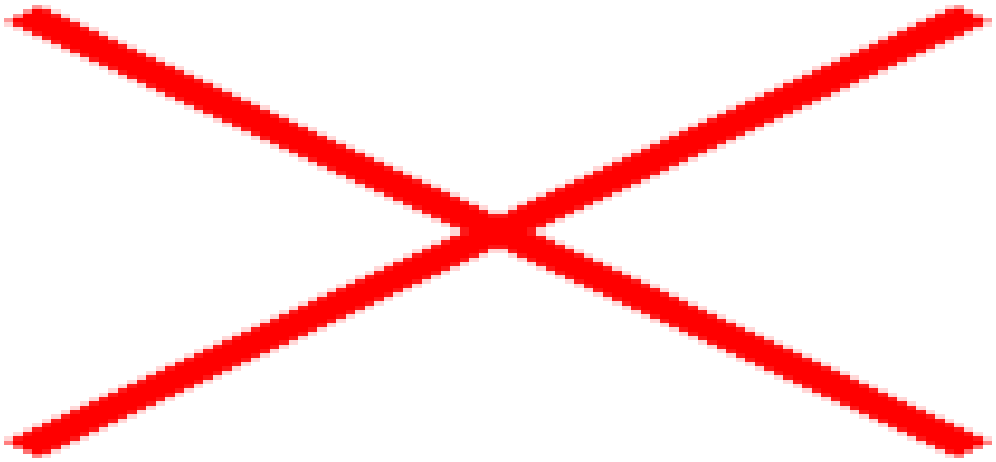
1.28 0.91 0.57 0.65 0.65 0.48 0.46 0.38

Y-Axis is the lap time in Minutes
X-Axis is the horsepower to weight ratio

Conclusion: The horsepower to weight ratio is a major factor in the lap time of a race car. The fastest car was the Formula One (F1), which was the only car that produced more horsepower than the weight of the car. It produces 950-1000 horsepower and weighs 743 kilograms. The slowest car was the GT3, which was the heaviest car at 1370 kilograms and produced 520 horsepower. For a majority of the cars, the horsepower to weight had a direct correlation to the car's lap time. The only anomaly was the LMP1. This car was in the middle of the horsepower to ratio scale, but was the second fastest of the cars examined. I fell this anomaly would be due to the aerodynamics of the car because it produces 175 less horsepower and weighs 136 kilograms more than the IndyCar, but is 2 seconds faster than the IndyCar.

Next Step: I could try to find out the amount of downforce produced by each car to see, if downforce plays a bigger role in lap times than horsepower to weigh ratio or if it is another function in the overall set up of a race car.

Links used for data gathering:



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