

Cart Car Specs



CHASSIS

The chassis is the race car with only the suspension, four wheels and a steering system. There are only two companies in the world who manufacture them. The companies are Lola Cars and Reynard Motorsport.

ENGINE

The engine of a cart car is turbocharged, has a 2.65 litre (161 cubic inch) capacity and is about 750 horsepower. An engine is not purchased but is leased to a cart team for the year.



Question: If there are 19 cars at the starting line how many horses is that the equal to?



SPEED

A cart car can go from 0 to 60 miles per hour in 2.2 seconds and can go from 0 to 100 miles per hour in 4.2 seconds. The top speed is about 240 miles per hour. One mile is 1.609 kilometres.

Question: What is the top speed of a cart car in kilometres per hour? At this speed, how long would it take to go from your house to your school?



WHEELS

A chassis comes with four wheels but a typical cart team will go through over 10 *sets* of wheels per year. It costs roughly \$1500 for each rear wheel and \$1000 for each front wheel.

Question: If a team goes through 11 sets of wheels (not including the set that comes with the chassis), how much have they paid for wheels?

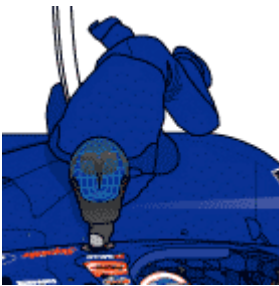
TIRES

For a road course like the Vancouver Indy, cart cars use radials that weigh 16-19 pounds per tire. The front tires have a diameter of 25.5 ± 0.5 inches and a width of $12 + 0.5$ to -1.0 inches. The rear tires have a 27.7 ± 0.5 inch diameter and a 16 ± 0.75 inch width. One car can use 28-48 tires per weekend at \$1200 per set.



Question: One inch is 2.54 centimetres. Assuming the tire and wheel make a perfect cylinder, what is the volume of one set of tires on wheels?

Question: Find the circumference of a front tire and of a rear tire. How many revolutions will the front tire make over one 1.802 mile lap? Over the entire course? What is the radial speed of a rear tire going at top speed? (There are 12 inches in a foot and 5250 feet in a mile.)



FUEL

A cart car uses methanol which is a fuel made from corn. This is used because a methanol fire can be extinguished with water while a regular gas fire cannot. Methanol is also a more powerful fuel. The tank on a race car holds 35 gallons and is sponge-like Kevlar bag. A typical car can go 2 miles on one gallon of methanol.

Question: The Vancouver Indy is a 100 lap race where each lap is 1.802 miles. How many gallons of gas are required to finish the race? How many times does the car have to stop to refuel?

WEIGHT

The minimum weight for a cart car for road courses is 1565 pounds.

HEIGHT/WIDTH

The maximum height allowed for a cart car is 32 inches. The maximum width is 78.5 inches.

