A white jeep parked in front of a blue wall

Description automatically generated with medium confidence

**Week 3.1:**

* How much mechanical work can be done with your system?
  + If your specs are in HP or Watts, convert it to mechanical Work/Torque based on a specified or assumed time the system runs. Show your calculations.

**190 HP x 550 ft-lb/sec = 104,500 ft-lbs/sec  
104,500** ft-lbs/sec \* 1 sec = **104,500** ft-lbs **104,500 ft-lbs / 3,600lbs = 29ft  
  
29ft/sec is only about 20mph, I guess that’s without any special gears  
The max torque is 104,500 ft-lbs**

* + Based on the mechanical load of the system, what is the work or torque required?

**let’s say I want to move the 3,600lb Jeep 50 feet in 10 seconds  
3,600 \* 50 = 180,000 ft-lbs  
180,000 ft-lbs / 10 sec = 18,000 ft-lbs/sec  
18,000 ft-lbs/sec / 550 ft-lbs/sec = 3.27HP**

**The torque required is 18,000ft-lbs.**

* + What is the % difference in these values?

**If 104,500 ft-lbs is 100% power then 18,000 ft-lbs is about 17% power.**