# Braking Torque:

**Test Specifications:**

* Braking distance @ 60 mph (26.8224 m/s) = 119 ft (36.2712 m) [[Source](https://www.napletonellwoodcity.com/research/chrysler-pacifica-vs-kia-sedona.htm#:~:text=Pacifica's%20braking%20system%20is%20appropriately,Call%20it%20a%20wash.)]

**Equation:**

[[Source](https://calculator.academy/braking-force-calculator/#:~:text=Alternatively%20known%20as%20Brake%20Power,measured%20in%20newtons%20%E2%80%9CN.%E2%80%9D)]

[[Source](https://www.buybrakes.com/help/what-is-brake-torque/#:~:text=Brake%20torque%20is%20a%20way,to%20come%20to%20a%20stop.)]

**Parameters:**

* Mass () = 2262.065 kg
* Velocity () = 26.8224 m/s
* Braking Distance () = 36.2712 m
* Brake Disk Radius () = 0.5\*330 mm = 0.165 m

**Value:**

Braking Force = 22434.0886 N

Braking Torque = 3701.6246 Nm

# Automatic Transmission

**Test Specifications:**

* Test data available in attached **Pacifica\_Transmission\_Map.xlsx** file. [[Source](https://www.pacificaforums.com/threads/trans-wont-shift-to-last-gear.4274/page-2)]

**Equation:**

**Parameters:**

* Velocity () = velocity in miles per hour (MPH)
  + converts velocity from mph to inch per second
* Tire Circumference = 91.428 in
  + , where is radius of tire (18’’ tire dia)
* Final Drive Ratio () = 3.25
* Current Gear Ratio () = int{1,2,3,4,5,6,7,8,9}