Physics of Roller Coasters

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KC-135 Flight Path

Altitude (Thousand Feet)

Seconds

1.8-2.0 g’s  0 g’s  1.8-2.0 g’s
Apollo’s Chariot Camelback
Griffon Drop
Alpengeist High G Force
G Force

1 + \frac{v^2}{rg}

Bottom
Extreme Physics

G Force

Time (sec)

Apollo's Chariot (8th Row)

First

Camelback

Spiral Up

Camelback
Non Extreme Physics

Elevator Force Factor

Time (seconds)

Force Factor
Griffon 1st Row

- Hill Bottom #1
- Hill Bottom #2
- Hill Bottom #3
- Hill Bottom #4

G Force

- 1st Drop
- Immelman #1
- 2nd Drop
- Water Brake
- Turn Around
- Camel Back
- Little Camel Back

Time
Space Shuttle Liftoff

G Force

Time (seconds)
Apollo 8
Saturn V ascent acceleration

G force

Acceleration, m/s²

Seconds since Liftoff

S-IC

S-II

S-IVB

1

2

3

4

5

6

7

8
Loch Ness Loops
Loch Ness Monster