

John Targett has spotted this engineering teaser.

Engineering question

Conditions:

A backhoe weighing 22 tons is on top of a lowloader trailer and is heading east on Interstate 70 near Hays, Kansas. The extended shovel arm is made of hardened refined steel. An approaching overpass is made of commercial grade concrete, reinforced with 1 inch steel rebars spaced at 6 inch intervals in a criss-cross pattern layered at a 1 foot vertical spacing.

Solve:

When the shovel arm hits the overpass, how fast do you have to be going to slice the bridge in half? Assume no effect for headwind and no braking by the driver.

Extra credit:

Solve for the time and distance required for the entire rig to come to a complete stop after hitting the overpass at the speed calculated above. Yes, you can neglect friction.



John says "I couldn't solve it either . . . but who cares; the pictures are great!"

PS - the driver was reported to have been on his cell phone at the time!"