



ANALYSIS: IMPACT OF TRUCK TIRE PRESSURE ON STREET SURFACE SINGLE AXLE vs DUAL

By: Houston Ratledge

STUDY ONE

Formula 4000 - 18 cubic yard body
Typical RT chassis, International 7400 conventional cab configuration with single rear axle.
Tires, front, 315/80R22.5 w/ 88 "2 patch x 2 = 176 "2 total
Tires, rear, 11R22.5 w/ 75 "2 patch x 4 = 300 "2
Laden weight total = 35,300 # @ 750 #/Y3
Laden weight @ front axle = 10,000 # (5,000 # / tire) = 56.82 #/ "2 each tire
Laden weight @ rear axle = 25,300 # (6,325 # / tire) = 84.33 #/ "2 each tire
(56.82)(2) + (84.33)(4) ÷ 6 = 75.16 #/ "2 each tire

STUDY TWO

DuraPack 5000 - 25 cubic yard body
Typical RT chassis, Mack MR cab-over-engine configuration with tandem rear axle.
Tires, front, 425/65R22.5 w/ 119 "2 patch x 2 = 238 "2 total
Tires, rear, 11R22.5 w/ 75 "2 patch x 8 = 600 "2
Laden weight total = 59,500 # @ 1,000 #/Y3
Laden weight @ front axle = 18,100 # (9,050 # / tire) = 76.05 #/ "2 each tire
Laden weight @ rear axle = 41,400 # (5,175 # / tire) = 69.00 #/ "2 each tire
(76.05)(2) + (69.00)(8) ÷ 10 = 70.41 #/ "2 each tire

CONCLUSION

Study one - single rear, Study two - tandem rear
Front tire patch = 56.82 #/ "2 each tire 34% greater ~Front tire patch = 76.05 #/ "2 each tire
Rear tire patch = 84.33 #/ "2 each tire ~22% greater Rear tire patch = 69.00 #/ "2 each tire
Overall average = 75.16 #/ "2 each tire Overall average = 70.41 #/ "2 each tire

The conclusion is obvious. The single rear tires have a greater detrimental impact on the road surface, whereas, the tandem axle chassis front tires have a greater impact on the road surface. Overall, the tandem exerts the lowest average load per tire on the road surface.

Signature of Houston Ratledge