

WORK-ENERGY-POWER

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December 4, 2015 by Tom Voelk



HONDA PILOT 2016

INTRODUCTION: The statistics below are for the new 2016 Pilot. **(((The 2015 Pilot was heavier (4300 lb.), had a less powerful engine (250 HP), and went 0 – 60 mph in 7.6 seconds.)))** Stats from Caranddriver.com

The purpose of this application is to compute the efficiency of the 2015 vs the 2016 Honda Pilot.

$$\text{Efficiency} = X = P_{\text{OUT}} / P_{\text{IN}} , P_{\text{OUT}} = W_{\text{OUT}} / t$$

W_{OUTPUT} goes into useful kinetic energy = $\frac{1}{2} m V^2$

$$\text{Thus: } X P_{\text{IN}} = [1/2 m V^2] / t$$

QUESTIONS: Find X efficiency of 2015 vs 2016 Pilot?

HINTS: 60 mph = 88 ft./s. , 1 HP = 550 ft. lb./s. ,
Mass m = weight/g , g = 32 ft./s.² ,

Honda Pilot Is Useful Like a Van, but No Longer Square

No longer looking like the box it came in, the new Honda Pilot totes the family with more refinement. Taking cues from its sibling, the popular CR-V, the Pilot now sports more curves. SINCE its debut as a 2003 model, the [Honda Pilot](#) has pretty much **looked like the box it was shipped in**. But now, [Honda](#) throws a curve with the third generation — there's no square anywhere. Slightly larger but some **(((240 pounds lighter now(2016 weight = 4054 lb.)))**the Pilot is quick. On dry pavement, the dash **(((from 0 to 60 miles an hour should take about seven seconds.(actually according to Honda site 6.1 seconds)))** And while the outgoing Pilot suffered from road noise, this new generation is much more hushed. Every Pilot gets a smooth 3.5-liter **(((280 horsepower)))** Fuel economy is up by about 2 miles per gallon, according to the Environmental Protection Agency, which rates the all-wheel-drive models with the 9-speed at a combined 22 m.p.g.

In 2015 the Pilot was rated at 18/25 and in 2016 now 19/27.

ANSWERS: $X_{2015} = \sim 49.8\%$, $X_{2016} = \sim 52.2\%$

COMMENT: The 2016 Pilot despite having a larger HP engine (280 vs 250) achieved more efficiency compared to the 2015 model. The weight was trimmed about 7%. The weight reduction seemed to have a great effect on efficiency. The engine is not a turbo, but a direct gasoline injection type engine. The increased efficiency can be seen in the EPA mileage ratings (city vs highway miles/gallon) increase 2015 to 2016 of 18/25 up to 19/27.