Ford F-150 takes 'tough' to new level via aluminum

June 2 2014, by Nancy Owano

Some auto engineers are focused on next-gen luxury car projects designed for urban drivers, but engineers who have been part of the 2015 F-150 pickup truck effort from Ford have had special fish to fry. Namely, the team has been making good on a goal of bringing out a truck to represent nothing less than a great leap forward in truck technology. In brief, the 2015 F-150 is ditching the conventional all-steel

body on frame construction and instead are creating an all-aluminum body and bed along with a steel frame. How much of the F-150 will be aluminum?

Ford said the answer is body panels and cab walls, one unstressed crossmember in the frame and various internal parts. The rest of the frame will be steel, mostly high-strength steel. Ford has presented several videos that show the rigorous testing that has been involved in readying the car for the market; Ford said they subjected prototypes to bashing terrain, temperature swings from 20 below to 120 above, and climates thick with salt. "We wanted to build the toughest, most capable F-150, while making it as much as 700 pounds lighter," said Pete Reyes, Ford F-150 chief engineer. "We challenged the team to torture the truck harder than any F-150 before it."

Ford's decision to go with aluminum has contributed to Ford's ability to "lightweight" the truck. The word has taken on verb status and the results have been beneficial. The 2015 F-150 is up to 700 pounds lighter than the outgoing model. The use of aluminum has been a key contributing factor to the weight savings, which will translate into better fuel efficiency. (In April, a peer-reviewed Oak Ridge National Laboratory report presented at the 2014 Society of Automotive Engineers World Congress reported that the use of aluminum in new vehicles to boost fuel economy offers the smallest total carbon footprint among competing materials. Also, as MLive explains. "Aluminum is an extremely low-dense metal that resists corrosion and rust, and can provide significant weight savings for a vehicle over traditional steel. Aluminum alloys are already used in aerospace, commercial transportation, energy and many other demanding industries.")

In an interview with Forbes, Reyes was asked what kind of aluminum is going into the 2015 F-150. Reyes said that "The majority of the truck body is 6,000-series alloy aluminum, which is a heat-treatable alloy

aluminum."

Ford said that the high-strength, military grade, aluminum alloy in the new F-150 does not produce red rust like steel. "We've gone to great lengths to develop coatings that will inhibit corrosion." Also, according to Ford, they standardized the chemistry of the aluminum alloy used in construction of the 2015 F-150 body and bed to facilitate recycling. "Our aluminum scrap can be reclaimed and sent back into the manufacturing process to minimize waste."

More information: * Ford 2015 F-150: www.ford.com/trucks/f150/2015/ … al&searchid=61287426|5775347106|63878115426&ef_id=U2IyfwAAAF5YyTuo:2014052318

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www.aluminum.org/news/aluminum%E2%80%99s-environmental-superiority-automotive-reaffirmed-oak-ridge-national-laboratory#sthash.JiyBeSyc.dpuf

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