FIVE THINGS YOU NEED TO KNOW ABOUT THE WORLD'S FIRST COMMERCIAL COMPRESSION IGNITION ENGINE

MAZDA'S SKYACTIV-X CHALLENGES CONVENTION

SKYACTIV X World's First Ignition Compression Engine Mazda

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Even after more than 100 years of internal combustion engine technology, Mazda believes there's plenty of progress still to be made. That's why engineers at Mazda have spent decades working toward developing an internal combustion engine that has the power and efficiency of a diesel but can run on much-more-common gasoline.

To that end, Mazda recently unveiled their breakthrough SKYACTIV-X engine, the world's first commercially available compression-ignition gasoline engine.

To better understand this leap in engine technology, here are five things you should know about the SKYACTIV-X engine.

1. Relentless Innovation
The SKYACTIV-X engine is the world's first commercial gasoline engine to use compression ignition. What does that mean? Instead of an engine relying solely on a spark to ignite the fuel, the SKYACTIV-X engine uses extreme pressure to ignite the fuel (like in a diesel engine). It combines learnings from more than three decades of Mazda technologies (Mazda's supercharged Miller Cycle engines from the 1990s and SKYACTIV Technology from the 2000s and 2010s among them) in a refined, torque-rich package. Because compression-ignition needs very specific conditions to operate efficiently – usually under very light loads — Mazda's SKYACTIV-X breakthrough is to use a traditional spark plug to begin the combustion process, using the pressure rise from the resulting flame kernel to trigger compression ignition in the remainder of the cylinder. This enables the engine to operate on air/fuel ratios exceeding 30:1, rather than the conventional 14.7:1. And of course, less fuel injected into the engine means less fuel used, which is why this engine delivers 20-30 percent better fuel economy than even Mazda's own SKYACTIV-G 2.0-liter engine, itself one of the world's most efficient gasoline engines.

2. Best of Both Worlds
With high efficiency across a wide spectrum of engine speeds and engine loads, this revolutionary engine provides drivers with the exhilarating driving performance they expect from a Mazda with the superior fuel economy they deserve, operating more efficiently whether cruising along or being used in higher-performance driving scenarios.

3. Less is More
Imagine an engine the size of Mazda's SKYACTIV-G 2.0-liter, the power of Mazda's 2.5-liter engine, and with efficiency greater than Mazda's European-market 1.5-liter SKYACTIV-D diesel engine. All of that said, the SKYACTIV-X spark-controlled compression-ignition engine will continue Mazda's proud tradition of excellent throttle response and best-in-the-business fuel efficiency. SKYACTIV-X will offer fuel efficiency 20-30 percent greater than today's engines.

4. Refinement, Refinement, Refinement
As the "Mazda Premium" brand direction continues to evolve, a huge amount of focus centers around keeping our engines hushed while delivering power across a broad range of speeds. Coupled with Mazda's next-generation platform, Mazda is looking to make its cars luxury-car smooth and quiet, yet they'll still deliver the spirited driving dynamics for which Mazdas are known.

5. Method Behind the Madness
Mazda has announced that it will be creating hybrid and electric technologies as markets and regulations continue to evolve. But rather than stick an electric motor onto any old gas engine, Mazda's engineers felt it was necessary to "max out" the gasoline engine. As Mazda has done for decades upon decades, its mighty team of engineers continue to tinker with technologies, improving when others give up and never tiring of challenging convention.

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