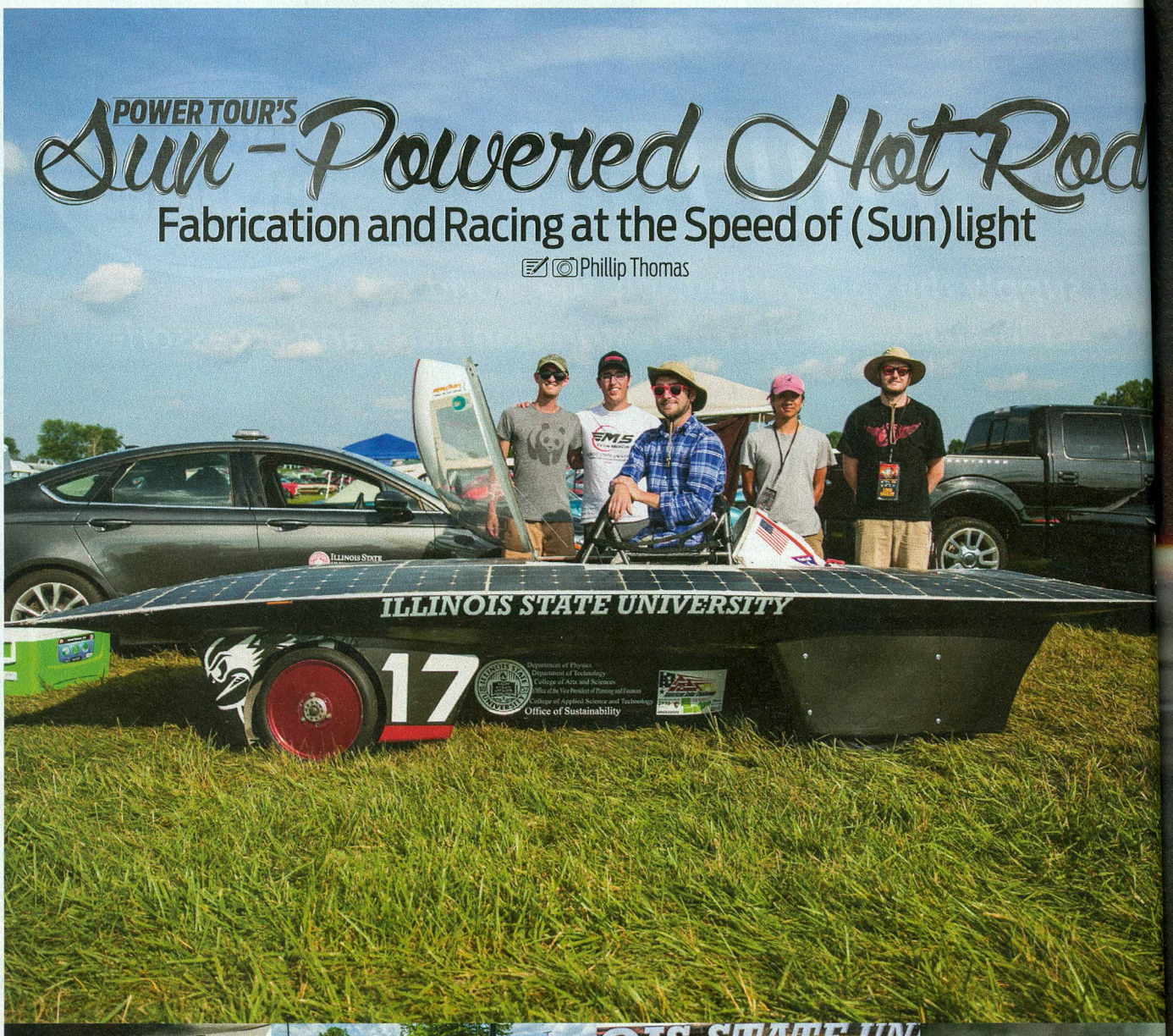
POWER TOUR'S

Sun-Powered Hot Rod

Fabrication and Racing at the Speed of (Sun)light

Phillip Thomas

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The Illinois State University's solar-car team is made up of hot rodders. Sure, they're only pushing road-legal speeds, but building and "ray-cing" a sun-powered machine from scratch is no easy task. A tube chassis supports the carbon- and Kevlar-fiber body, and the whole car weighs 544 pounds (minus the driver). The choice of Kevlar under the film-like solar cells is needed on the body, as carbon fiber is conductive and capable of causing accidental shorts.

The ISU team competes in the American Solar Car Challenge, Formula Sun Grand Prix, and Abu Dhabi Solar Car Challenge, where they compete in both long-distance road rallies over thousands of miles and in on-track endurance races. As a show of force, the team came out to Power Tour® with their Mercury 5S and ran the route with HOT ROD to Bowling Green, Kentucky.

The ISU solar-car crew is comprised of Nicholas Dorsett, Waffa Yakhlif, Bailey McNulty, Alex Moy, Brian Warner, Richard Pelphrey, Andrew Reed, Dan Eggena, Andrew Wodziak, Santiago Pinto, Nick Reichman, and advisor Jim Dunham and helper Lincoln Knight. HR

01] The hub-mounted motors provide about 6.5 hp apiece and are powered by 420 individual 26650-type lithium-ion cells for 5 kilowatt/hour of capacity.

02] Reducing drag is the name of the game in increasing efficiency, and the Jetsons-like shape of the Mercury 5S reflects the substantial engineering and composite-fabrication time. The cockpit is cozy but lacks air conditioning, and the space-age bubble canopy doesn't help comfort in the sun.

03] While ISU doesn't have a tailored engineering school, the Solar Car program is made up of a collective of departments to bring the right minds together on this project.

04] There's almost nothing off-the-shelf in ISU's solar car, including these CNC-aluminum uprights that were designed in-house.