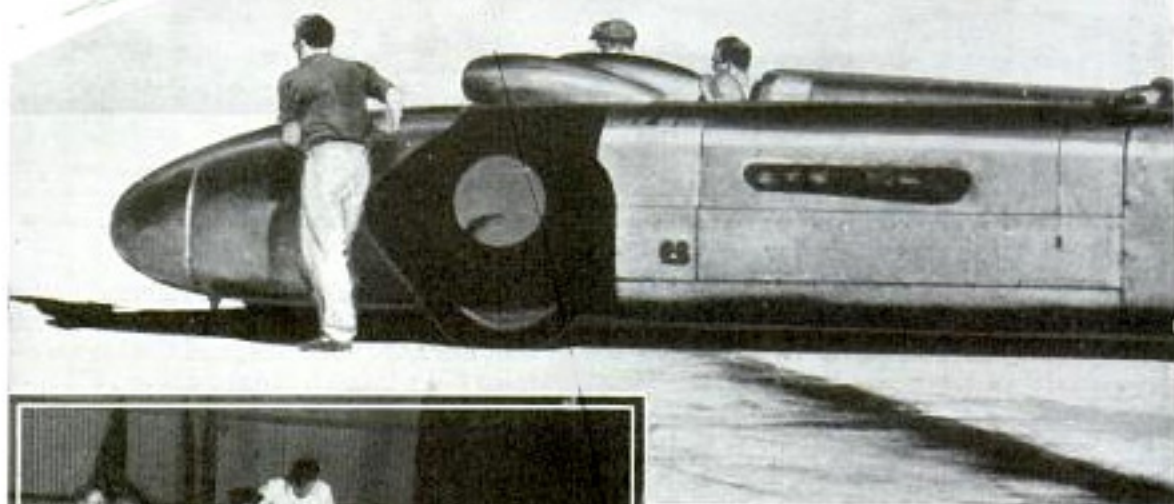


# DRIVING a



By  
Capt. George E. T. Eyston

**I**F YOU have ever "let out" your car to ninety miles an hour you have just the ghost of an idea how it feels to grip the wheel of the "Thunderbolt" at four times that speed.

That's about the speed of a cannonball, you know. Shoot a field howitzer parallel to that black line across the Utah Salt Beds and, within the measured mile that marks my top speed, I could theoretically lean out and pluck the shell right out of the air. At 528 feet per second Thunderbolt would even make a pretty good race against a .45-service revolver bullet with its muzzle velocity of 750 feet per second.

Last year, after I established a world's land record of 357.5 miles an hour, I said man would probably never travel much faster on



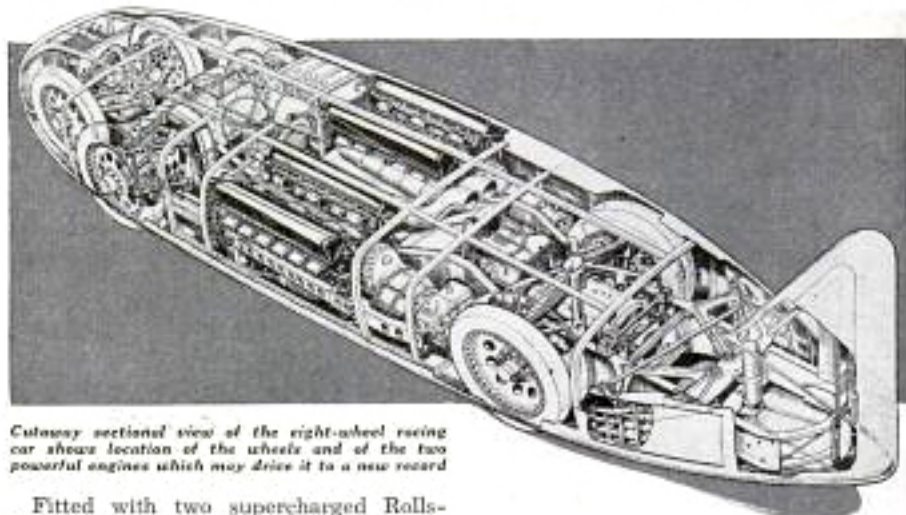
Top, pushing "Thunderbolt" to starting line; below, Captain Eyston watches alterations in makeshift garage near Salt Beds

December, 1937

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POPULAR MECHANICS

## Eight-Wheel Racing Car Has Two Engines



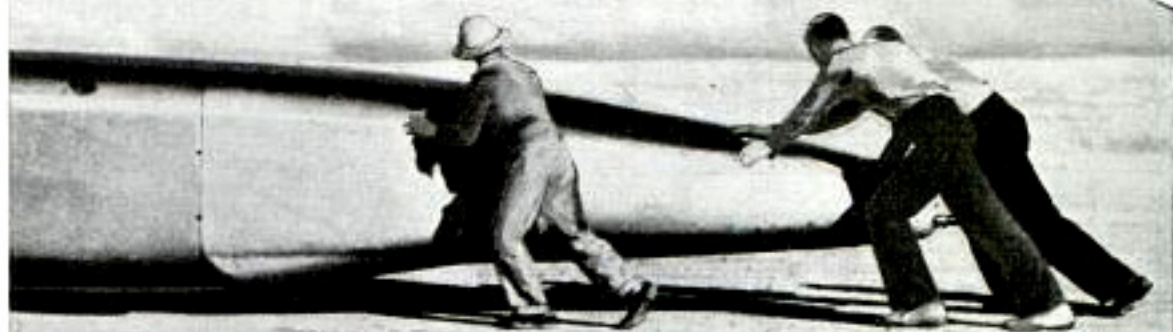
*Cutaway sectional view of the eight-wheel racing car shows location of the wheels and of the two powerful engines which may drive it to a new record*

Fitted with two supercharged Rolls-Royce engines, an eight-wheel racing car soon will be driven over Utah's salt beds in an attempt to break the world's land-speed record of 301.13 miles per hour. Steering is accomplished through the four front wheels. Tracks of the two sets of front wheels are different. The four rear wheels are installed side by side, dual fashion. A forty-gallon fuel tank is fitted

on the seven-ton monster. Ahead of the two giant engines, which are placed side by side in the center of the chassis, will sit the driver, Capt. George Eyston of England. With the power plant developing 3,250 horsepower and eight wheels giving increased traction, Capt. Eyston expects the machine to attain 400 miles per hour.



# BULLET *on* WHEELS



earth. I still believe that. Not that Thunderbolt has done her best yet; if my friend John Cobb is successful in attacking my record in Utah this year I am confident it will not be his for long. I am working on certain refinements of design, motors, brakes and tires that will produce an even faster Thunderbolt. What those changes are I am not ready to reveal. But even without this year's improvements my car has not reached the limit of its capabilities.

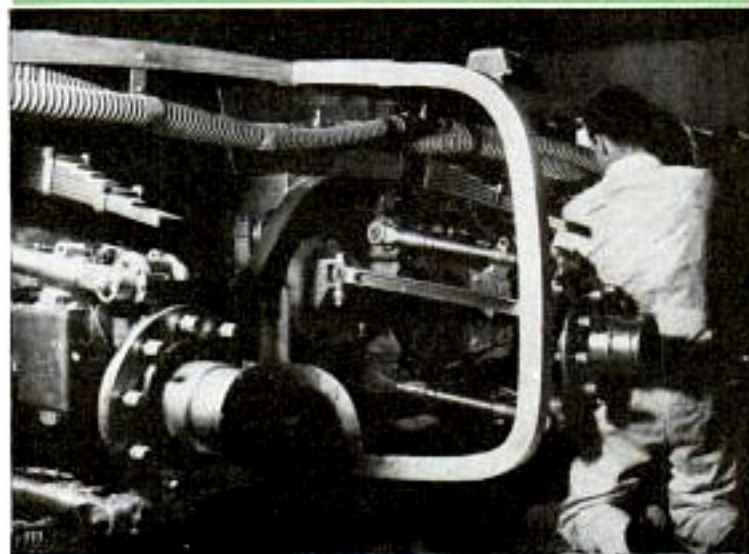
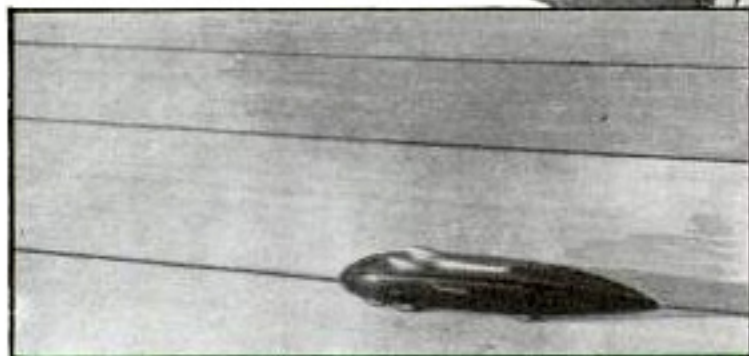
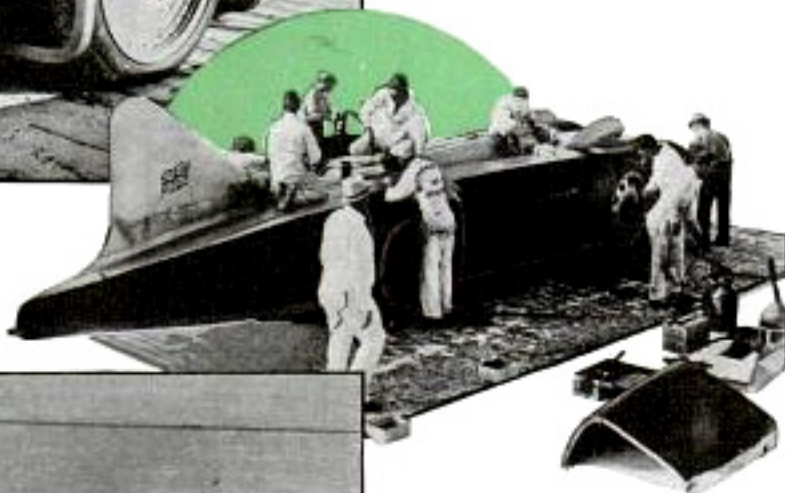
There is much more to superspeed driving than the designing of a powerful engine and stable vehicle. There is the human element. Nerves. Physical condition. Eyes that can sight along that guiding



Head-on view of world's fastest automobile with Captain Eyston in cockpit. Drawing compares its speed with that of bullet from army pistol. Target was painted on side of car above front wheels to interrupt photoelectric beam on cloaking device



Above, **mechanics** check car under canopy before test run. Right, refueling between runs. Below, airplane view of record dash—notice tail fin was removed as unnecessary weight—and "pit" scene showing front wheel hubs



ribbon across the desert and still watch the measuring posts and the dials on the instrument board. Hands steady enough to hold the wheel true as a gunsight for thirteen miles, and a steady foot on the accelerator.

I scarcely need mention that you need a clear head for split-second decisions.

I should not be writing this had I not acted quickly in my last record dash. My dial showed I was doing 360 miles an hour as I was leaving the measured mile. I had but six miles to stop or hurtle over the railroad, and that would be disaster. Dozens of alternatives flashed through my mind. Decelerate too quickly and I would lose control; apply the brakes too heavily and I would go into a dangerous skid. The only safe alternative was to swing into a wide circle, let the power diminish gradually and start braking.

I knew Thunderbolt was sprung correctly; I knew her steering was properly aligned; I knew

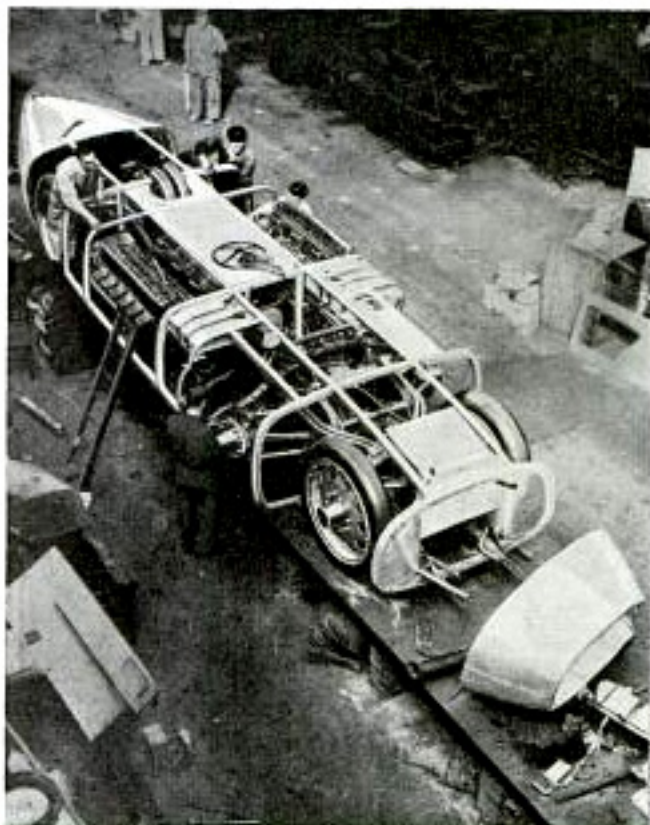


her tires were fit. I gripped the wheel tighter, pulled her around into a wide loop and completed ten circles before I could safely bring the car to a stop.

But there are other factors besides the human element, and chief among them is rubber. A car can go only as fast as its tires. You people who drive sixty miles an hour on the highways are always in mortal danger of a blowout that might send your automobile careening against another car or a culvert. Yours are four or six ply, low-pressure tires, heavy and well-made, but the danger is there. Then think of me, riding six times as fast on treadless tires less than a half inch thick, inflated to 120 pounds air pressure!

The amazing thing to me is that these tires last as long as they do. Much thinner than yours, they take a terrific pun-

(Continued to page 120A)



Top, assembling the twenty-four-cylinder giant. The engine is behind cockpit and there are four wheels forward and two at rear. Below is a view of instrument board from driver's seat



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## Driving a Bullet on Wheels

(Continued from page 351)

ishment in their one ride. Consider the weight they carry—seven tons, more than a ton on each of six tires. Consider the centrifugal throw, with the wheels revolving forty-six times per second and the outside of the tire traveling nearly 700 miles an hour. The headwind alone would cut the tires to pieces if not well shielded.

One of the odd things about riding this bullet on wheels is the trouble I have in getting out of the seat at the end of the run. I am actually locked in by the heat! When I designed Thunderbolt I particularly stressed construction of the seat. I made certain I could see clearly and far. I wanted to fit snugly, with all controls in easy reach. Although I am in the car only six minutes for the two-way run, correct posture and physical comfort are essential to ward off fatigue—and that applies to



*View from behind windshield toward race course*

you, too, when you are on a long automobile trip. Thunderbolt's seat is built to fit my body exactly, and it has pneumatic cushions. During the speed run the heat from the twenty-four cylinders causes my body and the pneumatic cushions to swell until I am stuck fast, and at the finish I must cool off before I can extricate myself.

My instrument board is not like yours. I have no room for radio and cigar lighter—I haven't even a speedometer. How can I tell when I hit 360 miles an hour? By the tachometer reading. Top reading on the dial is 4,000 revolutions per minute. At six miles a minute the revolution counter should show 3,450. Actually, the speed is a little more than estimated from the tachometer, because of tire expansion, an unknown quantity.

One dial is a shift indicator. Because you cannot "back-shift" to a lower gear



and because there is a long interval between shifts, I must have a dial to tell what gear I am in. I shift from first into second at seventy miles an hour and into third at 200 miles an hour.

The other dials are oil-pressure and water-temperature gauges for each engine; oil-temperature gauges, and pressure gauges for the mechanical brake oil line and for the air brakes. By air brakes I mean the two fins which are projected from each side of the car to increase wind resistance.

It's not easy to describe the sensation of traveling at six miles a minute. The time is too short to think of your own feelings. Probably if you had time to think, you'd be conscious of screaming engines and almost suffocating heat, a sense of pressure in the enclosed cockpit, and ahead a white blur split by that black line on which your eyes are glued.

Spectators have told me they scarcely see Thunderbolt until the car is opposite them. There is a swift, dark blur, then a flashing broadside glimpse, and I am almost out of sight again before the peak of the engine's roar reaches the watchers a quarter mile or more from the course. Thunderbolt travels half as fast as sound.

Six months before my attempts to set world speed records I go into training, following the rules of an athlete gearing up for football or track. I refrain from alcoholics, cut down on my smoking, and drink quantities of milk. I have acquired the faculty of relaxing at will. Sometimes in the late afternoon I lie down for a nap and in fifteen minutes am up, perfectly refreshed. It would pay anyone to develop that ability to relax. Even a brief midday rest during a long automobile trip might prevent an accident caused by fatigue.

The night before a record run I retire about seven o'clock and set the alarm for one. When it rings I hustle, see that my crew has hot coffee, that each man is doing his task, and then make a final checkup on the car myself. The track has been scraped smooth with heavy iron rails and the black guide line checked with surveying instruments. I breakfast on hot cakes, a slice of bacon and coffee, don the helmet and fresh-air mask which is essential in the cockpit, and when all is ready I pull the sliding roof over my head and give the signal. I'm off for the races!

## "I GET SORE WHEN YOU KISS ME"

—said the farmer's daughter

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