

# COLLIER'S

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# Wing Talk

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**A**T THE start of the war, the combat radius of our fighters was about 150 miles; they could fight 150 miles away from base and still get home. But when unescorted American bombers were knocked down on their first deep penetration raids into Germany, the Army Air Forces replied with high-speed modifications for increasing our fighters' combat radius to as much as 800 miles, permitting escort to and beyond Berlin. That was still a short haul by Pacific standards. Out there, B-29s were scheduled to fly missions much longer than any in Europe.

So the AAF asked Republic Aviation Corporation engineers to increase the P-47 Thunderbolt radius, giving them 60 days in which to do it. In 55 days, the first plane, designated the P-47N, was in the air. Its existence can now be revealed and it has gone into production.

"Republic came up with more than the requested radius, and in less than the time allowed to produce it," says Major Ralph S. Foulger, project officer on P-47s at Wright Field, Ohio. Fuel range has marked significance for Major Foulger. In October, 1942, while flying from India to join Chennault's China Air Task Force, his Curtiss P-40 went dry. He made a belly landing on the Burma Road and broke his back. Rescued by Chinese peasants, he spent seven months in hospitals and nearly a year off flying status, but he's flying fighters again.

"Increasing a fighter's combat radius," he says, "is a tough assignment. You can increase range, the maximum distance a plane will fly, as in ferrying, by hanging external fuel tanks under the wings and belly. With such tanks, the P-47N will fly several thousand miles. But a plane must drop its external tanks before fighting; they would be torn off by combat maneuvers. So combat radius, the distance a plane can fly home after fighting, is measured by the capacity of its built-in fuel supply.

"The P-47's internal capacity had already been increased by 65 gallons for the European missions; that's why the job was harder. Fighters are packed with ammunition, guns, landing gear, radio and oxygen equipment. But Republic's engineers redesigned the wing, adding a section near the fuselage, and clipped the tips squarely, somewhat like those of a P-51 Mustang.

"In the added section they installed one tank at the leading edge of the wing and

three around the landing-wheel well. This almost doubles the original internal fuel capacity."

Increased fuel means increased weight but the P-47N gets up beyond 450 miles an hour. It is faster than anything the Japs have in the air, and it is the most powerful single-engine production fighter in the world.

Its new Pratt & Whitney R-2800 "C" air-cooled engine develops well over 2,200 horsepower. It has a new, larger and more efficient turbosupercharger for operating above 40,000 feet. The "C" engine's water-injection equipment adds a substantial boost in power and for a longer period than earlier models.

No sacrifice was made in ammunition, guns or protective armor to provide the P47N with this long range. It still carries eight .50-caliber guns, four in each wing. Also it can carry 10 five-inch rockets which pack the destructive power of five-inch artillery or naval shells.

"The whole problem of increasing range and combat radius," continues Major Foulger, "involved more than adding fuel. The longer the mission, the greater the chance of encountering bad weather going or coming. So the P-47N's navigating equipment, especially radio, is increased.

"Still more important is pilot fatigue. The first P-47N was flown for more than twelve hours nonstop. The pilot lost five pounds during that ride, just sitting there flying. Nervous and physical fatigue were very great. That showed us we needed special provisions against pilot fatigue on long missions. So we've provided arm rests on his seat, like those in a de luxe car. He can fold the rudder pedals and stretch out his legs, and if they become stiff during a long flight, he can get a free massage.

"By jiggling the valve of his G-suit, designed to prevent blackout during combat dives, the pilot can vary the pressure on the leg bands and relieve the stiffness of his muscles. During most of a long mission, the P-47N pilot can really relax.

"That may sound as if we're babying our fighter pilots. We aren't. The purpose of this fatigue prevention is strictly military. We want the pilot to arrive at the scene of combat fresh, alert, ready to fight. We want to conserve his physical and nervous strength so that he can return to his base in any kind of weather, land safely and go out again to escort the Superforts on the long hauls."