

AERONAUTICS

Planes Made Safer

Auxiliary power plants may eliminate maze of wires and pipes when generators are driven by the main engines. First installation in PBY.

► **AUXILIARY** power plants have been put on several types of warplanes during the past year and their post-war use will be expanded to provide safer flying, Blake Reynolds of the Lawrance Engineering and Research Corporation reported to the meeting of the Society of Automotive Engineers in Los Angeles.

"On the basis of its present performance and uses," he stated, "and in view of the trends which are currently being established it is safe to predict that the auxiliary power plant will be standard equipment on many large and small planes, operating either in combination with main-engine generators or as a sole source of electric power."

If the generators driven by the main engines were completely replaced by the auxiliary type, a great maze of pipes and wires could be removed from the rear of the engines which now "hampers maintenance and impairs reliability," it was pointed out. This would also

permit the use of lighter generators as a result of removing them from the severe vibration encountered at the rear of the main engines.

Use of auxiliary power plants was first proposed only about nine years ago; they have since been known as "putt putts" because of the sound made by the engine exhaust on the first model.

The first installation was made on the Navy's PBY flying boat which "served to demonstrate the reliability and flexibility of this source of power." The Army is now installing the units in big bombers, marking a new trend. Development has been largely in the Navy where sea-going planes have more need for auxiliary power than the Army because of the greater importance of radio and because ground power is not usually available before take-off.

"A year ago there was merely a handful of planes which could boast auxiliary power," Mr. Reynolds said. "There are now several others which give proof of the ever-widening usage of auxiliary power. Long a proponent of auxiliary power plants, the Navy is again demonstrating its confidence in their reliability, as it did some four years ago by installing two units as the sole source of electric power in the flying boats."

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AERONAUTICS

New Tricycle Landing Gear Invented for Airplanes

► **PROMISE** of a "happy landing" for America's planes is found in a retractable, steerable, tricycle landing gear, which does away with bothersome landing-gear shimmy. It was invented by John B. Wassall of Burbank, Calif., and Wilfred N. Wallace of Glendale, Calif. who assign rights in the patent (2,329,168) to the Vega Aircraft Corporation.

Three-wheeled gear, seen on the old crates of early flying days, has been returning to favor after a long period of neglect. Its advantages for modern aircraft is that the third wheel near the front prevents many a nose-over during landing, and keeps the craft in the

same horizontal position on the ground as is normal in flight. Merits of the tricycle show up especially well at high landing speeds and when there is uneven wheel braking.

"However, very few satisfactory arrangements of retractable tricycle landing gears have been either proposed or built," the inventors maintain, "as a result of difficulties encountered in arresting shimmying, providing suitable steering mechanism, stowage space, points of attachment and other conditions."

The new tricycle gear controls shimmy by hydraulic damping. A hydraulic motor provides steering power to the front wheel, instead of to a tail skid or wheel. Hydraulic power also pulls the gear into the plane's belly during flight for modern streamlining. The landing gear is adapted to support the weight of the aircraft in emergencies, however, even though the gear may stay retracted.

Science News Letter, October 9, 1943

ENGINEERING

Rescue Device Invented for Entrapped Submarine Crew

► **FOR THOSE** who fight beneath the surface of the seas, a special lifeboat for submarines has been invented by John F. Donnelly of Oakland, Calif. (patent no. 2,330,477).

The air-tight boat, shaped like a box, is set in a well in the submarine deck, the top being flush with the outer hull. When a crippled submarine finds itself unable to rise, the entrapped crew crawls into the rescue boat through a tube connecting with the main part of the sub. The tube is disconnected and closed, a wheel is spun which unbolts the life boat, and the buoyant box floats to the surface. Then the hatches and portholes may be opened.

Science News Letter, October 9, 1943

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