RADIO PHONES USED BY P. A. T. ON AIR ROUTE

Second Longest Airway in Land Important Tenant of Medford Airport, and Pioneer of Coast Air

Pacific Air Transport, the most important tenant of the newly completed Medford airport, is ranked as the second longest mail-passenger airway in the United States, Seely V. Hall, local representative of the company, announced Saturday.

The company operates planes on daily northbound and southbound schedules over the 1204-mile airway between Seattle, Medford and San Diego, carrying mail, passengers and express from one terminal to the other in twelve and three-quarters hours.

Hall said that the route was started four years ago as an air mail line, and planes powered with 90 horsepower engines were used. The airway was undeveloped, and the first lights for night flying were installed by Grover Tyler and other pilots, who carried the beacons to the desired locations in Ford cars.

Airway Developed.

In 1928 the company was taken over by the Boeing interests, which also operate the Chicago-Oakland-San Francisco mail-passenger line. The airway has been completely lighted for night flying by the department of commerce, with powerful airway beacons installed at 10-mile intervals and lighted emergency landing fields established between the terminal airports.

The newest improvement on the Pacific Air Transport route, according to Hall, is the installation of the two-way radio telephone communication system between the planes in flight and operators at eight ground stations located on the line. One of these powerful transmitting and receiving stations is established at the Medford airport.

By means of the radiophone, the P. A. T. pilots are always in voice communication with the ground station operators, receiving weather reports furnished by the U. S. weather bureau, and also traffic information of value to the operations. The radiophone has a radius of 200 miles and is effective at altitudes as high as 14,000 feet.

Traffic Increases.

During the first six months of 1930, a total of five million letters were carried over the Seattle-Medford-San Diego route by the Boeing four-passenger mail planes of the company, Hall reported. The passenger traffic has increased substantially during the past few months.

The company is now operating four-passenger mail planes produced at the Boeing Airplane company of Seattle, an allied organization. These ships are powered with 525 h. p. Hornet engines, making possible a cruising speed of 108 miles per hour during the entire trip from southern California through Oregon to northern Washington. The top speed of the planes is 132 miles per hour.

On the northbound schedule, planes leaving San Diego at 10:15 p. m. arrive at Medford's airport at 6:45 a. m., after flying a distance of 811 miles. Thus mail posted at night in San Diego is delivered in the morning mail at Medford. The northbound ship continues to arrive in Seattle at 11:00 a. m. Southbound, the plane from the north arrives at Medford at 9:15 a. m., and continues on to land at San Diego at 6:20 p. m.

The pilots of Pacific Air Transport are all veterans with thousands of hours of flying experience. Several of them, including Ralph Virden, Russell Cunningham, Heber Miller and Grover Tyler, who are familiar to Medford residents, have been flying since the line was first started four years ago.

BRISBANE, Aug. 2.—(AP)—Driven insane by the continued sight of huge alligators on the bank of the river which runs through her husband's farm at Conway, North Queensland, a mother threw her six months old infant to the monsters as "a sacrifice."

SPIAZZO, Italy (AP)—Aug. 3—Remains of a temple to Saturn were unearthed here when new water mains were laid. The site corresponds to a local legend that St. Virgilius, an early Christian missionary, was murdered when he struck at a statue of Saturn.

OBERAMMERGAU, Germany, (AP)—Aug. 3.—Passion Play attendance is exceeding all estimates with 101,000 recorded up to June 20 and the heaviest two-thirds of the season to come. A total of 300,000 had been expected.

CASABLANCA (AP)—Aug. 3. — Moorish truck gardeners in this district exported 6,000 tons of early vegetables to France this year, principally tomatoes, string beans and green peas.

An old manuscript come to light says that Columbus was born in Milan, not Genoa. It does not, however, clear him of the more serious charge of discovering America.—The New Yorker.

Two couples in Red Wing, Minn., who married on April Fool's Day in 1927, were divorced this year in the same week.

Nearly 20,000 trees, two-thirds evergreens, were planted in demonstration shelterbelts on Iowa farms this year.

Remarkable Earl Aircraft Motor Displayed at Airport; Medford Men are Interested

One of the most sensational developments of the present era of aviation development is claimed to be the new Earl engine, a distinct departure from the usual run of aircraft power plants. Through the efforts of I. M. Gainer, Central Point and Medford man, and other business men of this city, the novel Earl engine will be displayed and demonstrated at the Medford airport next Monday as a special feature of the dedication program.

Harry Earl.

Prominent aviation engineers have been enthusiastic in their praise of the motor designed by Harry W. Earl, of Portland. B. R. Gainer, factory representative and B. O. Gainer, builder of the motor and mechanical engineer, associated wtih Mr. Earl are brothers of I. M. Gainer, of this section.

Southern Oregon people will be especially interested in the initial showing of the Earl engine and I. M. Gainer is making a special effort to secure the first Earl engine factory for this section.

This engine has over 300 less parts and can be manufactured at a cost per horse power far below the present types of aviation engines now in use.

Mr. Earl, while running tests for the government in 1917, and having in mind the difficulties encountered in adapting the automobile engine to aircrafe use, he conceived the idea of disregarding all existing types of engine and allowing the specific requirements of aviation to dictate the design of its power plant. With this in mind, he set out to discover what form such an engine should have to comply with the laws of aerodynamics that control flight. After drafting on paper several forms of cam, he recognized the advantages of the four-point circular cam for applying the power of exploding gas to the rotation of the propeller. During the next ten years, he spent his spare time in designing an aircraft engine based on this principle.

The following is taken from the Society of Automotive Engineers Journal under date of March 1930:

A new type of aircraft engine, for use in planes or dirigibles and which promises to more completely fulfil the specific requirements of aviation than any other engine now in use, is being produced in Portland by the Earl Aircraft Corporation. This engine was designed by Harry W. Earl, aeronautical engineer, formerly of Detriot, Michigan, but now of Portland. The Earl engine is an internal combustion engine based on an entirely different principle from that of any other aircraft engine for converting the power of exploding gas into a rotary motion for the purpose of turning the propeller. Instead of using the usual "crankshaft" for this purpose, such as used in other aircraft engines. The Earl engine uses a four-point circular and alternating cam.

The Earl aircraft engine, showing the remarkably small size and consequent reduced wind resistance.

This cam embodies the fundamental principle of the engine and makes it possible to arrange horizontally and parallel with the propeller shaft on each side of the cam as many cylinders as may be desired, thus making a smaller, lighter and more compact engine in any given amount of horsepower than is possible with the cylinders placed at right-angle to a crankshaft.

A block of nine cylinders attaches to each side of the cam-housing. Each connecting-rod carries a piston on each end and serves two cylinders, one in each cylinder block. Each connecting-rod carries a pair of rollers mounted at the center, one of which fits against each side of the face of the cam and, as the cam revolves, each con-rod shuttles back and forth in its place, thus serving its pair of cylinders.

Camshaft of the new Earl aircraft engine.

Cut above shows the assembled engine and propeller mounted on the testing stand. This engine is a four-cycle, liquid cooled, eighteen cylinder engine designed to develop 300 horsepower and weighs 300 pounds. It is enclosed in a plane tank for holding the cooling medium during stand tests instead of the regular radial-fin radiator. Also the exhaust manifolds are removed.

Without attempting a technical discussion, it is generally conceeded by aeronautical engineers that the four major considerations in aircraft engine design are, low engine weight per horsepower, minimum head-resistance, low propeller speed and durability and reliability.

The average air-cooled engine weighs two and one-half pounds per horsepower and water cooled engines weigh more. It has long been the goal of aircraft engine designers to produce an engine weighing not over one pound per horsepower. It is claimed that for every pound eliminated in engine weight, two more pounds may be eliminated in the weight of the plane without imparing its required strength or reducing its carrying capacity. The saving thus effected may be used in many ways such as increased fuel capacity, pay-load, speed or doubling the power without reducing engine weight which is the greatest safety factor. Equipping a plane with twice the amount of power required for flying under normal condition would provide a reserve power capable of lifting the plane over tall trees, mountains or other obstruction or pulling out of a tail-spin or nose-dive. The Earl engine shown above weighs one pound per horsepower.

Head-resistance, or air pressure against the frontal area of the plane, is deemed of such great importance in plane design that engineers are streamlining all parts of the plane including guy wires and the smallest fittings in their efforts to reduce head-resistance to the absolute minimum. With relation to consumption of power, head-resistance is more important than excessive engine weight for the reason that power consumption due to weight remains constant while the power consumed by head-resistance varies with the speed of the plane of the velocity of the headwind. Air cooled engines present a frontal area averaging fifty inches in diameter and with the plane flying one hundred miles per hour the head-resistance consumes up to thirty-five horsepower. The Earl engine as shown above being only twenty-four inches in diameter including the radiator drops within the streamlining of the fuslage and creates no head-resistance at all.

Radio Head-resistance

And another advantage of the Earl engine lies in the fact that the pilot's view in the line of flight is not obstructed by the extreme engine diameter, thus adding another factor of safety to aviation.

According to propeller engineers the highest propeller efficiency is attained at about one thousand revolutions per minute with the use of a propeller of proper size and pitch. In crankshaft engines propeller speed equals piston speed and piston speed is increased to increase power without increasing weight. This necessitates using a smaller propeller turning at eighteen hundred to two thousand revolutions per minute. In other words, crankshaft engine propeller efficiency is sacrificed to gain power without increasing engine weight. In the Earl engine propeller speed is just one-half the piston speed, hence, two thousand piston speed produces one thousand propeller speed with ample power to turn a propeller of proper size and pitch thus producing one hundred per cent and connecting rod assembly.

In recognition of the natural advantages of the Northwest for the development of air transportation and the available raw materials for airplane manufacture, Mr. Earl has selected Oregon as the location for the development and manufacture of the Earl Aircraft Engine. Mr. Earl says: "I see no reason why the aviation industry cannot be developed in Oregon on a large scale if the industry is given the local support which it deserves.

Mr. Harry W. Earl is an American, is forty-one years of age, and is a former student of the University of Nebraska. He was service engineer for Nodyke and Mamon during 1912 and 1914; was experimental engineer for the Athey Hydroplane Co. of Chicago in 1914; had charge of motor tests for the Curtis Airplane and Motor Corporation in 1914 and 1915; was chief inspector of motor tests for the Continental Motor Corporation in 1915 and until the United States entered the World War; during the war he was one of a group of engineers sent by the U. S. War Department to England, France and Italy to collect data and study aircraft engine design and production methods for the Aircraft Division of the U. S. Army. This data was used in the design of the famous Liberty motor which has been authoritatively declared to be the United States' greatest contribution to the winning of the World War. After returning to America and until the end of the war, he ran government tests on various aircraft engines, including the first fifty hour test of the Liberty motor. After the war he was with the Dort Motor Co. for three years and served as chief inspector and finally as assistant to the factory manager. He spent the next three years as assistant to the general superintendent of the motor plant of the Chrysler Motor Corporation of Detroit, Michigan.

"Ladies of Leisure," at Fox Rialto

Ralph Graves and Barbara Stanwyck in a scene from the all-talking picture, "Ladies ow Leisure," the love story of a party girl who tries to live down her past, which opens at the Fox Rialto theatre today.

Portland Pastor Christian Church Sunday Morning

W. S. Lemmon, of the Kern Park Christian church of Portland will fill the pulpit of the local church Sunday at 10:45 a. m. and Carmen E. Mell takes Mr. Lemmon's place in Portland.

Mr. Lemmon, accompanied by Mrs. Lemmon and children drove down and have spent a week at Diamond and Crater lakes. They are guests while here of their friends, Mr. and Mrs. Herb Berrian.

Classified advertising gets results.