

LATEST type of Boeing transport flying above the clouds with Mount Rainier showing in the background.

KEEPING THEM  
*in the*  
AIR



**AIR** passengers soon tire of looking at the scenery and must seek other pastimes. Here two of them are enjoying a game of checkers above the clouds.

**T**HE thousands of passengers who travel millions of miles annually by plane usually credit the success of air transportation to the veteran pilots who sit at the controls. But the nation's airlines could not pile up a total of 55,000,000 miles annually without the aid of a group of earth-bound men who know nothing about flying a ship. For each pilot in the air there are ten men on the ground engaged in keeping the transport planes flying.

It is the skilled hand of the experienced engine mechanic, the watchful eye of the airplane inspector and the careful and painstaking work of other experts on the ground that make it possible for the pilot to write an "All O.K." report at the end of his run.

United Air Lines, operating coast-to-

coast and border-to-border, flies 1,350,000 miles per month, and the mainspring of this far-flung air network is an airplane "round house" at Cheyenne, Wyo. Here, on the roof of the continent, is the world's largest airplane overhaul and repair base manned by 500 expert plane mechanics, engine mechanics, instrument technicians, sheet-metal workers, machinists, riggers, battery men, radio experts, seamstresses, inspectors and foremen. To this base, built on a mile-square airport more than a mile above sea level, comes each of United's fleet of fifty-five transports for complete overhaul and repair after each 350 hours of flight duty. Five days later, the ship goes back on the line, virtually as fit mechanically as the day it was delivered from the factory.

The mobility and flexibility of airline

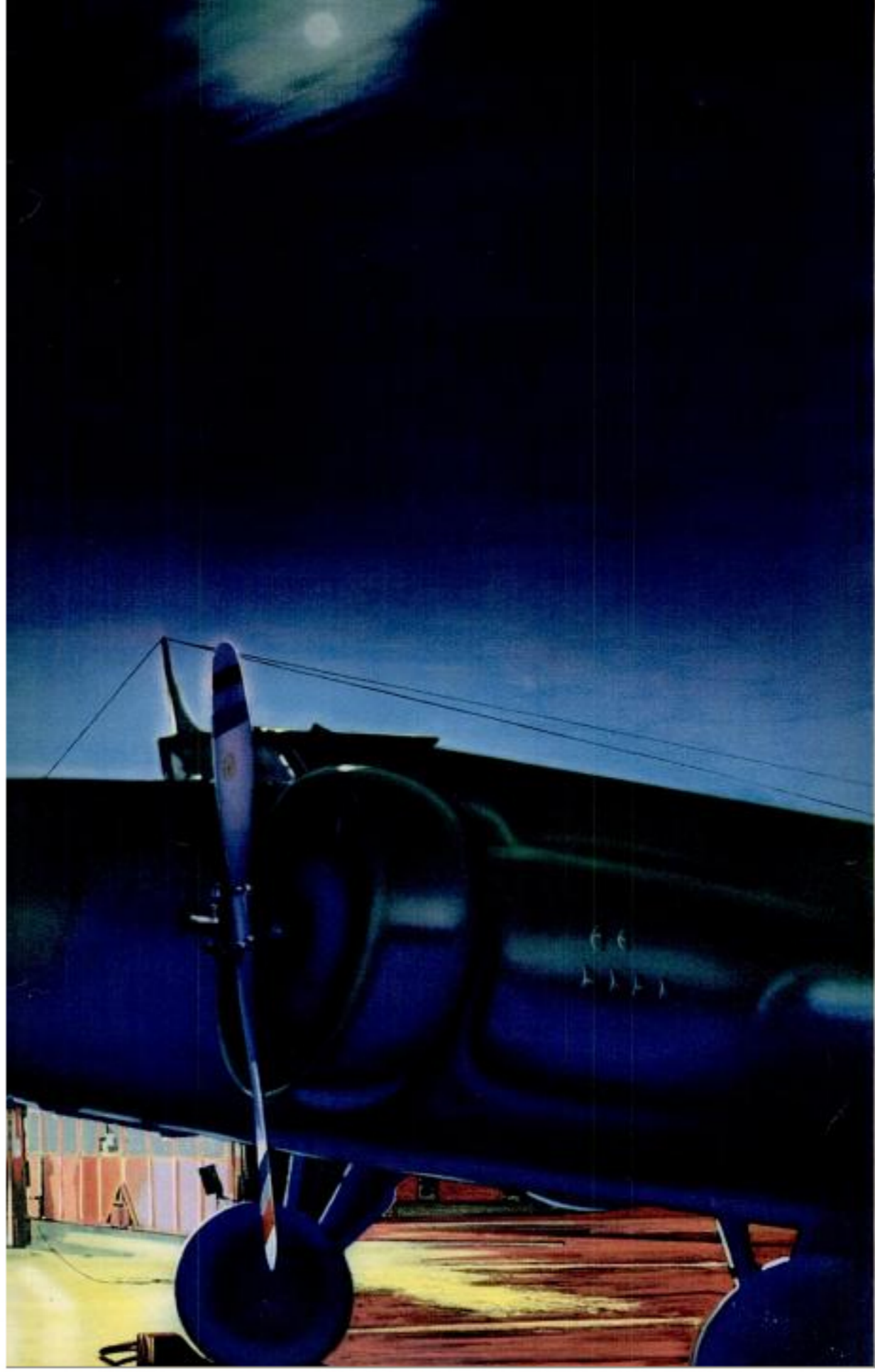
operations have given aviation an advantage over earth-bound transportation agencies and have enabled United Air Lines to consolidate its overhaul and repair activities at one point nearly 2,000 miles from New York and more than 1,000 miles from San Francisco. Here the airline erected a plant larger than the average airplane factory and just as well equipped to build planes from the drawing board to flight tests. It staffed this plant with the cream of aviation's crop of ground men. Supervisory jobs were filled by veterans of ten years and more of experience in air transportation; but among the mechanics are progressive young men, trained in the best aeronautical schools, whose quali-



**SERVICING** and testing the hundreds of spark plugs at the air transport "round house" at Cheyenne, one of the many operations involved in overhauling and repairing the transport planes. Left, testing a directional gyro which has been removed from one of the transports for inspection and service.



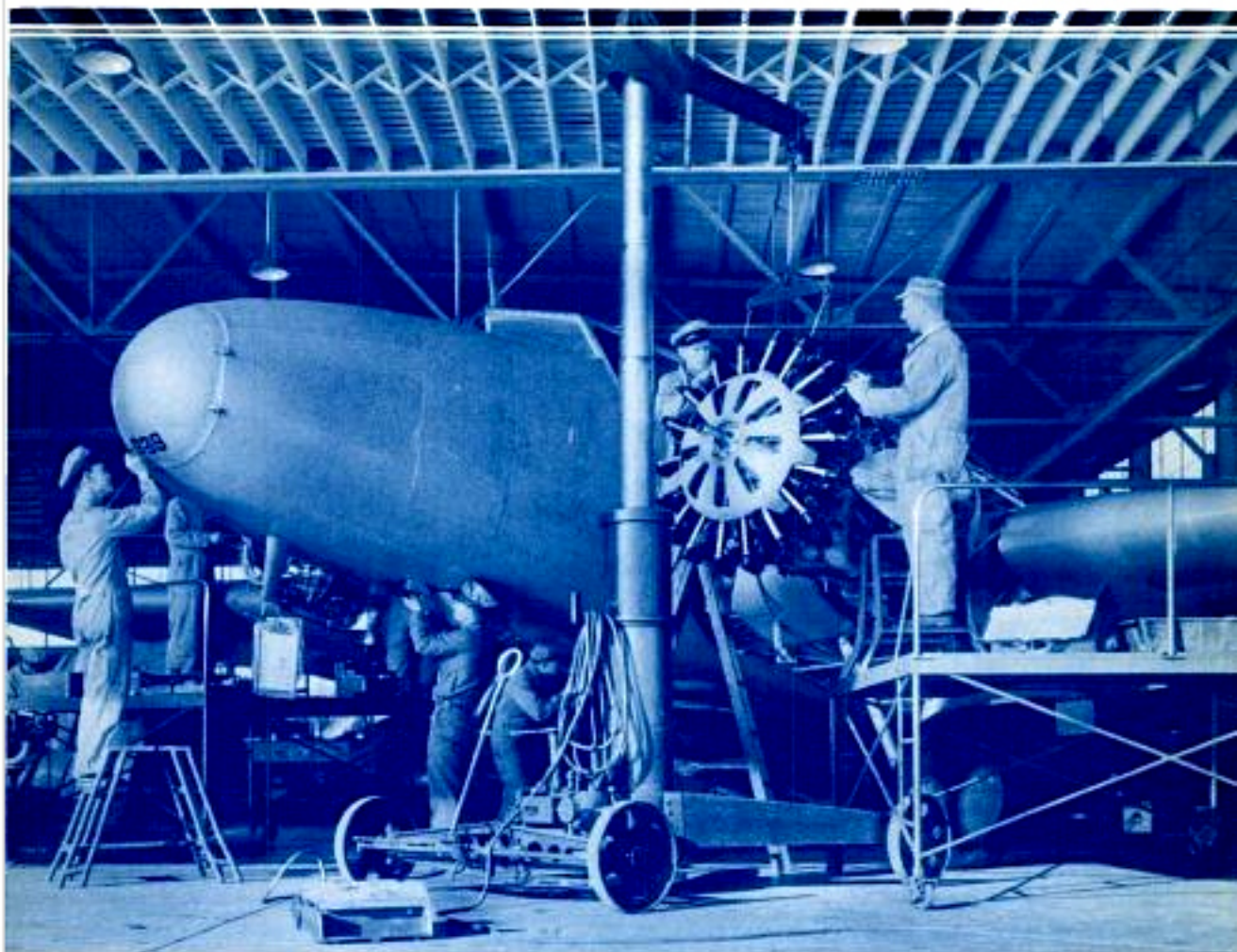
TRANSPORT plane standing in front of the Union Air Terminal, Los Angeles, before its midnight departure for the north Pacific coast cities. Left, preparing an overhauled engine for a several hours run on the test block at Cheyenne.





**REFUELING** a big transport plane during one of its few stops on a coast-to-coast run. Below, examining bearings under a microscope to detect flaws, one of the many painstaking tests of the parts of a plane being overhauled at Cheyenne.





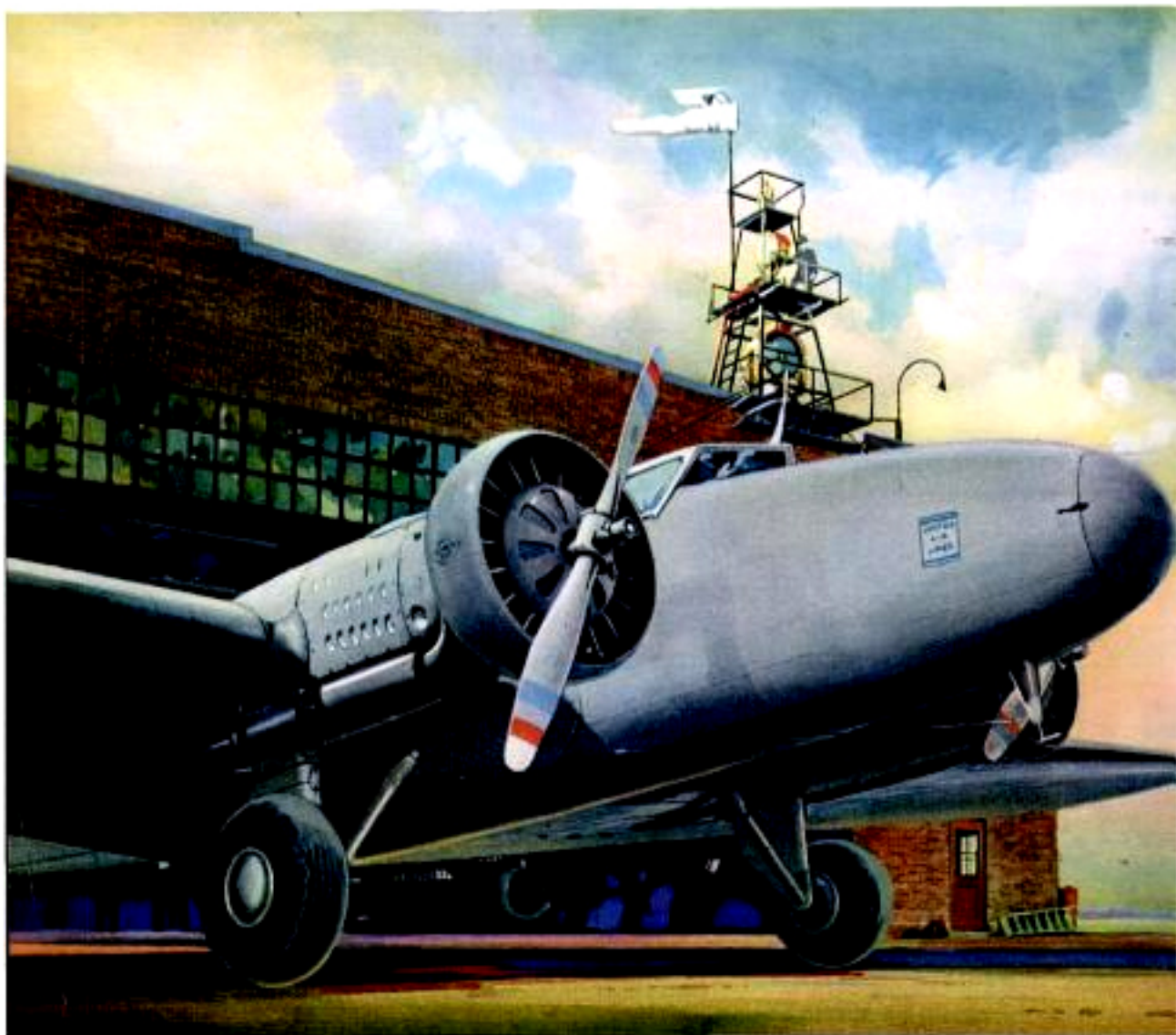
INSTALLING motor in an overhauled ship at Cheyenne. This motor was operated for several hours on a test block after it was reassembled.

ications have been certified by government license. This Cheyenne staff represents one-third of the company's 1,500 employes.

This plan of eliminating guesswork from the mechanical operation of an airline, which reaches its zenith at the Cheyenne overhaul base, is carried out along the entire 6,000-mile system. After every scheduled flight made by a transport plane, it is inspected at the terminal, where mechanics make 190 different checks on engines, propellers, fuel system, electrical system, fuselage, controls, landing gears, instruments and other parts. After each forty hours of service the ship is given a more thorough inspection. At the eighty-hour period spark

plugs are changed, electrical accessories are serviced and changed and brakes are overhauled. The forty and eighty hour overhauls are continued until the airplane has flown 300 hours when it is withdrawn from its particular route and transferred to the Salt Lake-Cheyenne-Chicago sector. It is flown on this run until it reaches 350 hours, when it is landed at Cheyenne and turned over to the overhaul and repair station.

Immediately the maintenance crews begin to function like clockwork. First, the airplane is given a thorough bath of soap and water so dirt and grease cannot mask flaws. The engines are removed by hydraulic hoists and conveyed to the engine overhaul department, the propellers



**A** TRANSPORT plane leaving the Cheyenne "round house" after a complete overhaul, ready to go back into service on the coast-to-coast run.

being routed to the propeller department. Radio apparatus goes to the radio service crew. The cabin is stripped of its furnishings for cleaning and necessary replacements. A crew of inspectors examines every inch of the fuselage and wings. Portions of the wings are removed so examination of the interior construction can be made. The inspectors check the different parts of the plane on charts, and where service or replacement is necessary, the work is assigned to specialists in the different fields. Fuel lines and oil lines are removed and replaced with new systems, control wires are checked, and the flying

instruments are removed from the cockpit and assigned to the instrument overhaul and repair shop. Landing wheels are removed and the shock-absorber units are serviced, brakes tested and tires are examined and changed if necessary.

The three-bladed controllable pitch propellers, weighing 242 pounds each, are taken apart, the blades are ground with special buffers, and then dipped in an acid bath which reveals flaws. The blades are examined under microscopes and slight nicks are ground away carefully to prevent them from developing  
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