

Training on Real Parts and Real Planes



A B-24 Liberator, damaged in combat, is assigned to the Consolidated-Vultee School for training USAAF groundcrew mechanics at Camp Consair, San Diego. Part of the skin is removed, and only one engine is in place.

Comprehensive instructional plan at Consolidated-Vultee includes six programs; Vocational, College Grade, Customer, Apprentice, Supervisory and Plant Defense. Students make production units, paying 85 percent of cost of their training and producing only 4 percent scrap.

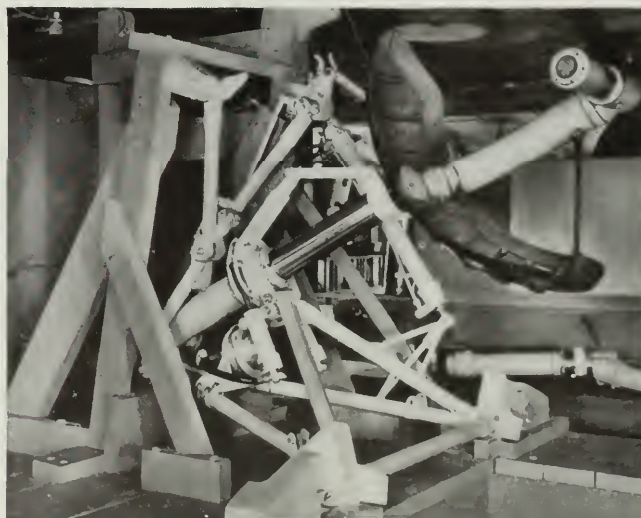
MANY TRAINING PLANS have been proposed and put into practice since we entered the war, but none are more far reaching than those of the Consolidated-Vultee Aircraft Corp. While this training program was designed primarily to meet the war emergency, postwar problems were also carefully considered. With these objectives in mind six training programs were established: Vocational, College Grade, Customer, Apprentice, Supervisory and Plant Defense. Only the first, fourth and fifth will be considered here.

Vocational Training, a very necessary division, becoming more important each day, is divided into four steps: Pre-employment, Pre-factory, Upgrading and Supplementary. These divisions may be handled in separate schools or in the plant itself.

Pre-employment training is handled by local vocational schools through the National Defense Training Program, to teach the fundamentals of various trades before the student enters the shop. Pre-factory training is for those selected by the U. S. Employment Service who have passed the company's requirements. These were formerly given a minimum of a week's training at the local vocational school and then put directly into the department for which they were hired. Experience has shown that it is better to give them up to four weeks of preliminary training. This does not include welders, machine operators or inspectors, who are given longer training periods.

Students spend eight hours a day, six days a week, at the school, as far as possible on work that is accepted for production if it passes inspection. Shop conditions are simulated by having a stock room, tool room and other features that will accustom the learners to shop atmosphere before they go into the plant. The large number of usable parts which the trainees produce justify this method of training. Parts produced indicate a recovery of 85 percent of the cost of operation, exclusive of the trainees' salaries, with a spoilage record of only 4 percent.

This is a most important part of the program, especially in view of the certainty that future calls by the draft board will further



B-24 nose landing-gear mock-up, typical of those used in classrooms for training. All parts are exposed for ready explanation of operation and repair.

deplete the supply of trained men. The original plan was to have men being up-graded spend part of the day at the factory and the rest at the school. Foremen had several objections to this plan. The time spent in going from one location to the other, as well as the split responsibility between foreman and instructor, made it seem advisable to have full-time attendance at the school. This shortens the training period and makes the worker available for full-time work sooner.

Home-study Courses

Home-study courses are offered to all factory workers. These are prepared by two of the aircraft institutes and give a good overall picture of the aircraft-production system. Part of their cost is borne by the company. Any employee passing the final examination with 90 percent receives the entire course free of charge.

Supplementary training, also given to employees on their own time, includes: heat treating, trigonometry, shop trigonometry, shop mathematics and the use of instruments.

Apprentice Training

An indentured-apprentice training system has been in operation since Mar. 1, 1942. This is a 4-year course, or approximately 8000 hours, including school time. Schooling takes 450 hours the first

year (or about 2 hours a day) and about half this for the remaining three years. The pay starts at 50 cents per hour and is increased 10 cents an hour every six months. Four fields are covered: aircraft electricians, machinists, sheet-metal workers, and tool and die makers. A training supervisor administers this program in the plant. The company feels that this work has been fully justified by the results.

Supervisory training in foremanship, leadership and job instruction has proved very popular and effective. This training is given one hour a day for 20 days, on company time. The reference books used may be retained by the men on payment of one-third their cost.

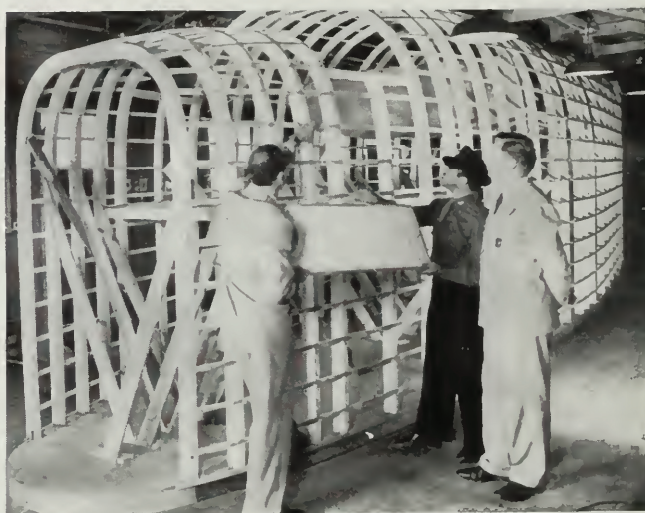
Teaching Plane Details to Future Flyers

Customer training at the Consolidated-Vultee training schools shows men of various military branches how parts of the plane are made, how mechanisms function, and what to do when they get out of adjustment. The Army training center, Camp Consair, is an excellent example in training methods and equipment. Every opportunity is given to learn all details of the construction of the various mechanisms which go to make up the modern military plane. Planes of various types are assigned to the school to be used for instruction purposes. One of these planes is a B-24

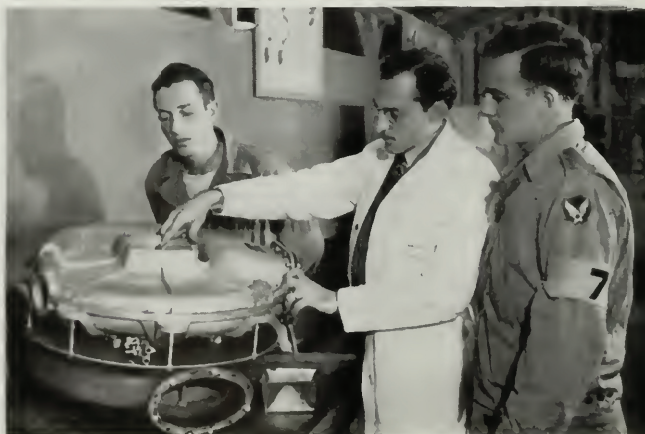


Operating controls are exposed, lines colored and parts stencilled to make instruction clear in this damaged B-24 at Camp Consair.

A turbo-supercharger, taken from a ship, can be disassembled to instruct in construction, operation and repair.



The electrical system, hidden in a completed plane, is exposed in this mock-up, being discussed by school superintendent, commanding officer of camp, and manager of Industrial Training Division, Camp Consair.

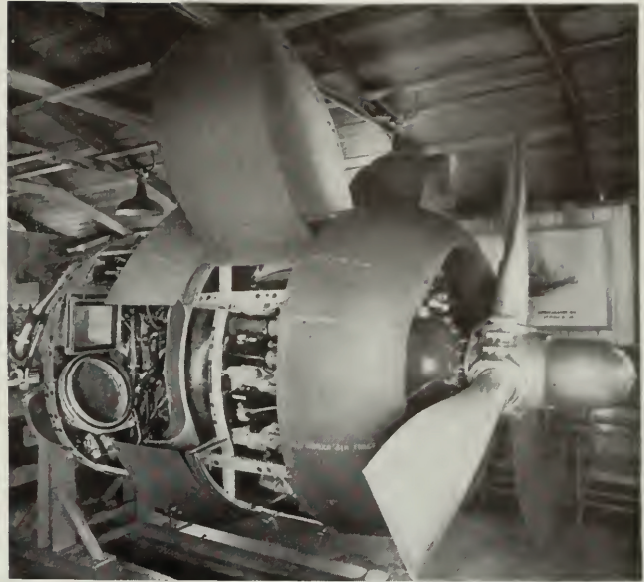


bomber. Occasionally, planes that need repair are left at the school so the construction of parts nominally hidden may be seen by the students.

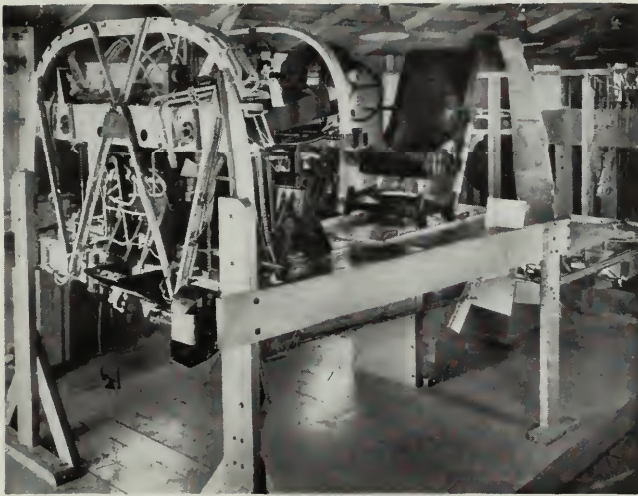
In addition, mock-ups, or models, are used in the classrooms to show just how various mechanisms work and what to do when they fail. Everything is exposed so the full action can be clearly seen. Lines are colored and parts stencilled with their names and numbers to make instruction clear. Blackboard instruction is also given. Thus, the actual plane and its parts is combined with instruction in the class room by blackboard and models.

Classes in Exhibit Building

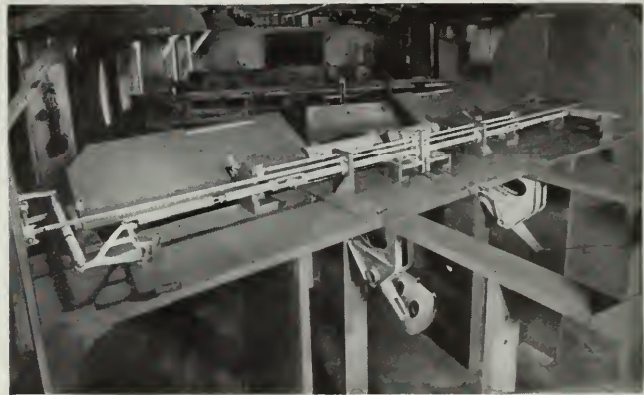
The preliminary training is given in what was the Ford Building at the San Diego exhibition, which makes an excellent setting for inducting women into factory life. The circular building has an open court in the center which makes for light and air. Work progresses around the building in orderly fashion, with much the same atmosphere as is found in the shop. The knowledge that the work being done will go into the airplanes themselves if they pass inspection is a real incentive to the learners. There is nothing more fatal to morale than the knowledge that, no matter how good the work is being done, the piece is merely a "lesson" and destined for the scrap pile.



One of the engine bucks, used for power plant instruction. All lines are labeled and disconnection points noted. Students can approach from all sides.



Control-surface mock-up, B-24.



Mock-up of flight deck of a B-24, with all parts ready for access.

The complete B-24 hydraulic system is mocked-up on panels so each system can be separately demonstrated.

