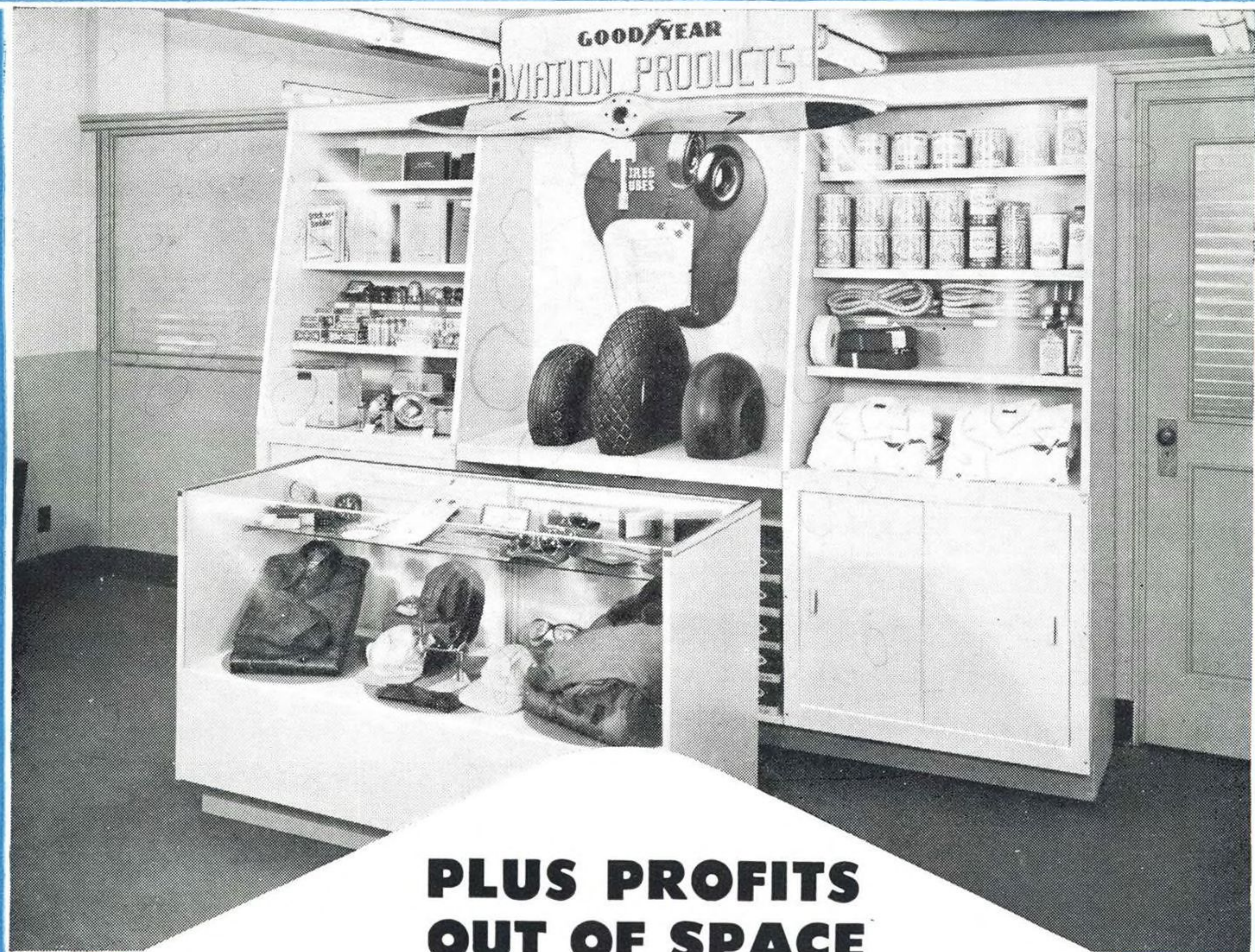


AVIATION WEEK

NOV. 17, 1947

INCORPORATING AVIATION AND AVIATION NEWS

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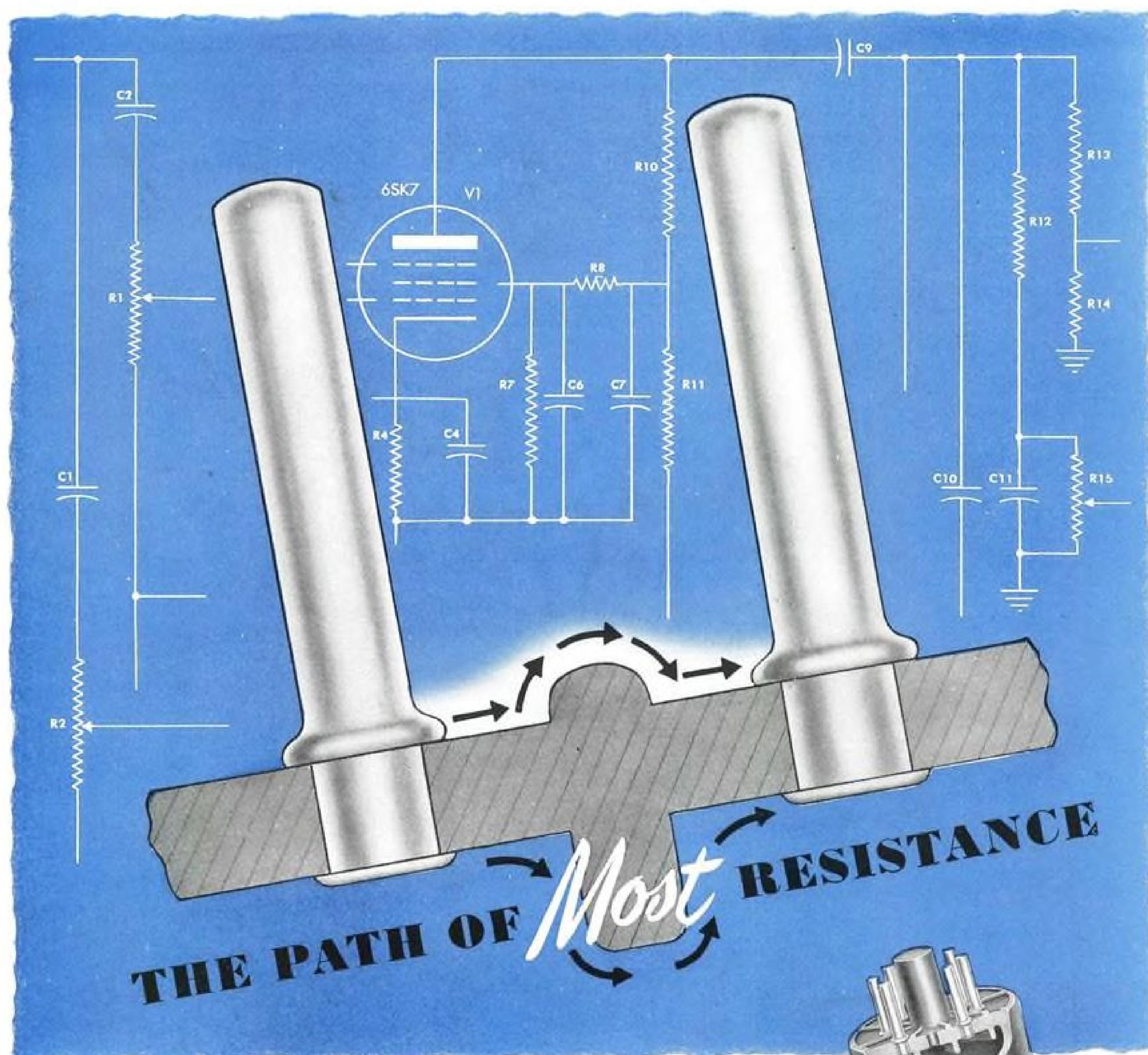
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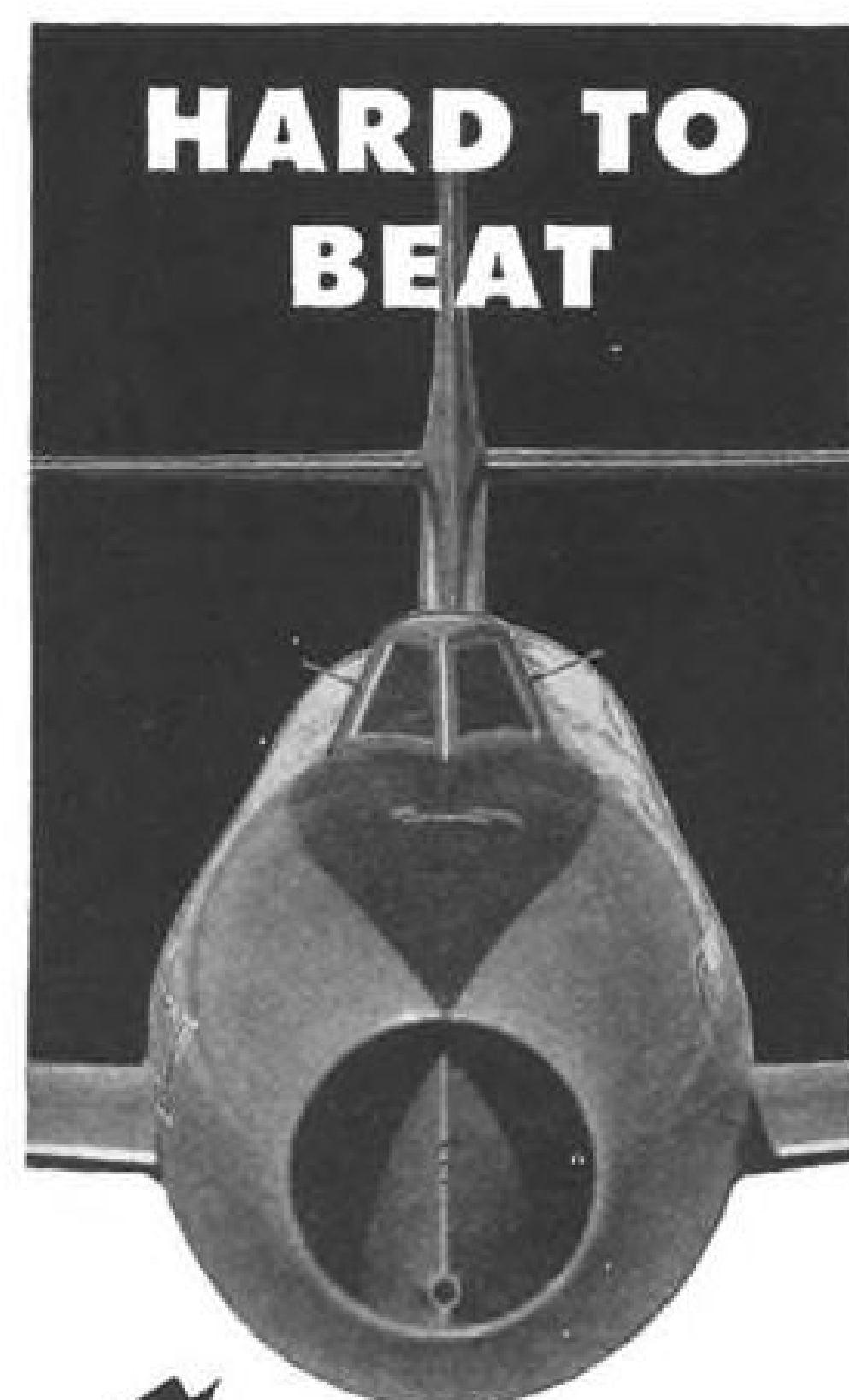
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AVIATION WEEK

Vol. 47 No. 20

Nov. 17, 1947

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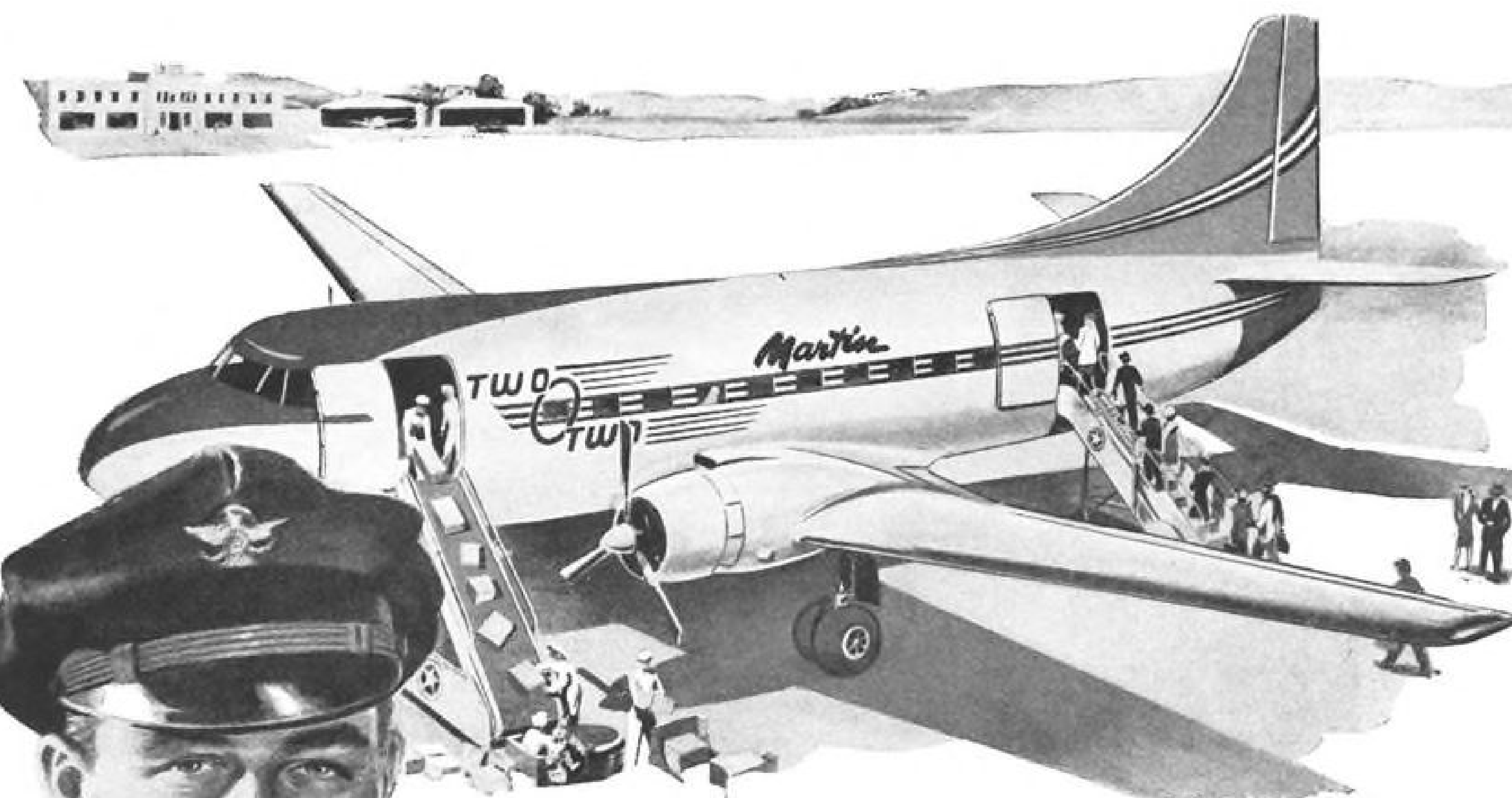
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Greater than that of any other airliner, the Martin 2-0-2's wide center of gravity range all but eliminates problems of weight and balance. Passengers may sit wherever they wish, without regard to weight distribution. No supports are needed under empennage while loading. Costly ground time—formerly needed to check weights, balances and make necessary load shifts—is cut to the bone. Aerial stability is increased, and pilot's work in maintaining trim is greatly reduced. Thus Martin 2-0-2's handle more easily, operate more efficiently, while safety factors are increased. What's more, this wide c. g. range is no estimate or promise—it has been certified by the CAA after the toughest tests ever given any airliner.

Freedom of loading is just one of the features which save time and money for airlines equipping with the Martin 2-0-2.

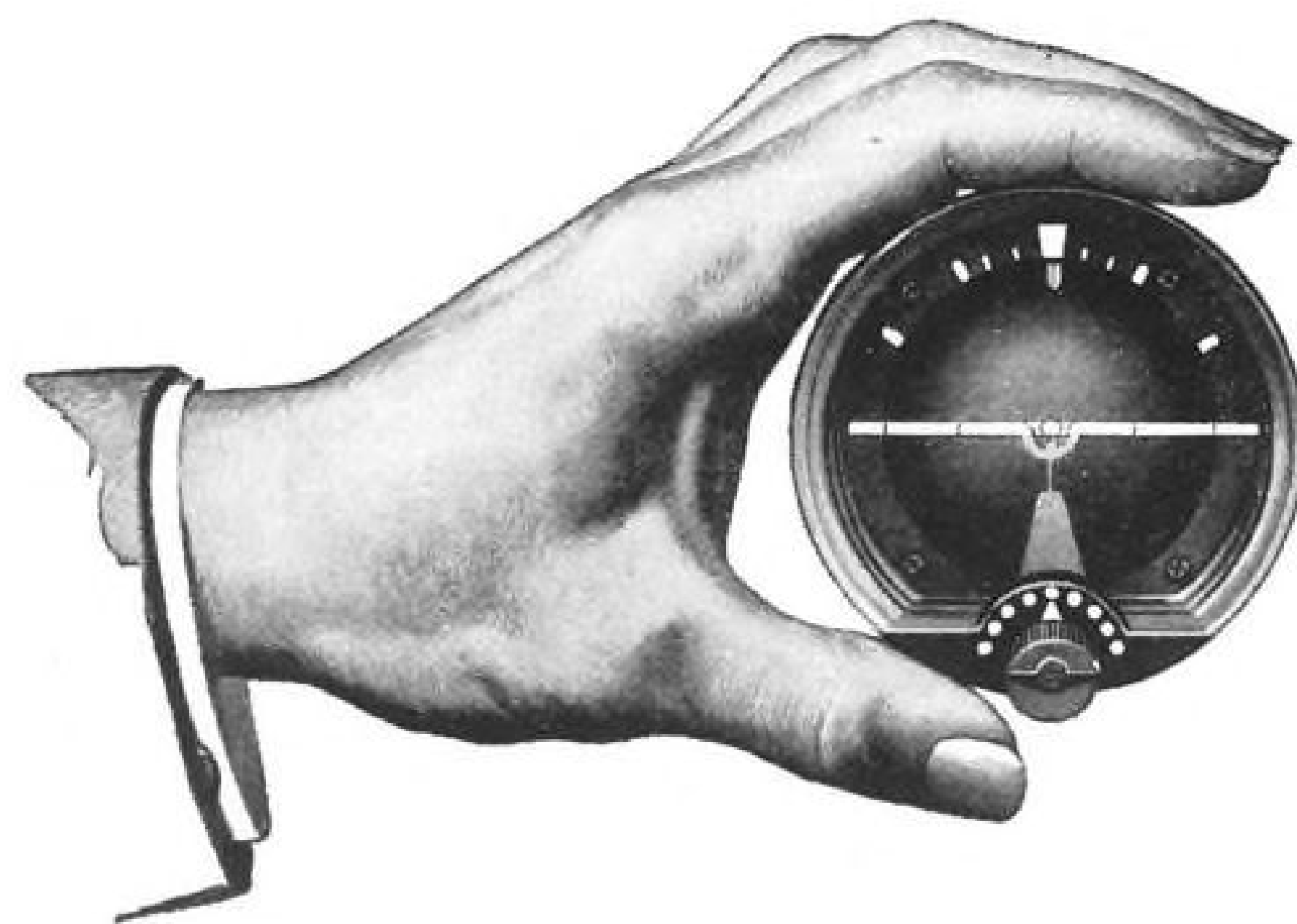
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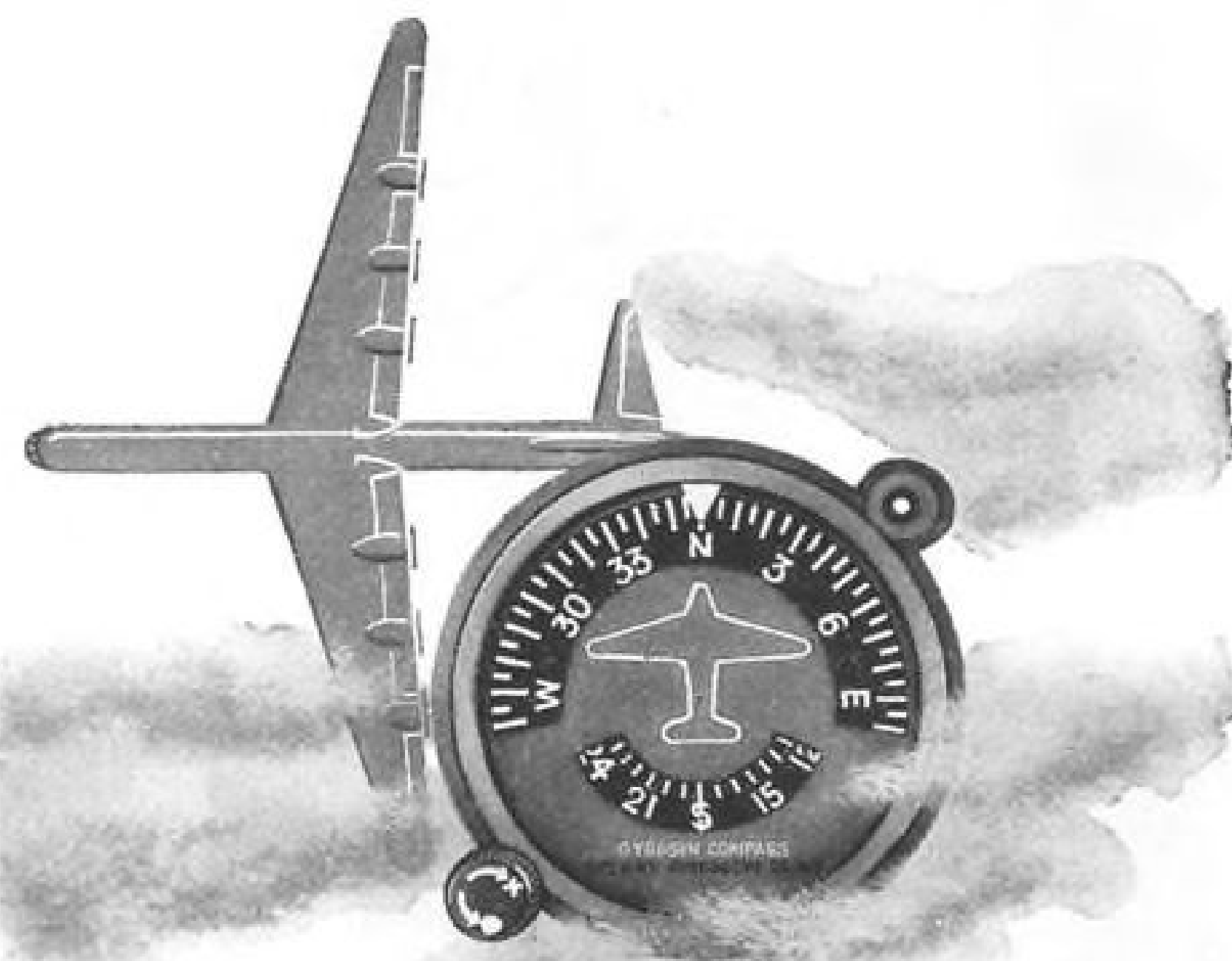


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AVIATION WEEK, November 17, 1947

THE AVIATION WEEK

CLINIC ON TRIAL—In trying out a new locale and new procedure, the fifth National Aviation Clinic meeting this week at Springfield, Ill., may be as much on trial to many in attendance as was the first Clinic in 1943. And success of the new concept guiding the course of the Clinic could give it greater force than ever before.

In a legislative sense, the Clinic has gone through much the same evolution as have political legislative processes. It originated as a forum, with the major part of time and attention given to panels of guest speakers. This year it more nearly will resemble an aviation congress, with the 98 delegates themselves leading debate on bills of policy formulated in advance, thrashed out in public hearings and then presented to them.

For the first four years of its existence, the Clinic held forth in Oklahoma City until both that city's chamber of commerce (which co-sponsored it with the National Aeronautic Association) and many in aviation came to look upon it as Oklahoma City's annual aviation clinic. To restore its national flavor, NAA decided to put the show on the road. The Illinois department of aeronautics was selected as host over several other bidders.

As site of the Clinic, Springfield for this week will be the center of aviation interest. The fact that Springfield, the capital city of the third wealthiest and most populous state in the union, has a new class IV airport, reasonably good airline service for a city of less than 100,000 (eight movements a day), perhaps is irrelevant to the main theme of this year's meeting, although symbolizing a principal reason for the founding of the Clinic.

BACK TO THE FARM—At inception the Clinic was part excellently-conceived promotion for Oklahoma City and part sincere effort to focus attention of aviation on the importance of the so-called "grass roots."

It scored high on both efforts. By the time it was convened for the third year it had achieved a unique stature and, surprisingly, an identity all its own, dependent in only small measure upon the prestige of its sponsors.

Among other things, it hammered away at the need for a federal airport program, particularly aid for small airports, for prompt, simple disposition of surplus airports, for federal operation of airport control towers after the military relinquished authority, for service unification. Without attempting to assess the Clinic's share in the result, it is worthy of note that all of those things have come to pass.

This year the grass roots theme will be in a minor key at the Clinic with the lead taken by airpower and the need for a national aviation policy.

But this year the 98 delegates to the Clinic will meet in an atmosphere and in surroundings more attuned to the grass roots than modern, oil-rich Oklahoma.

Springfield is in the center of one of the greatest agricultural regions in the nation. As aviation's most important personages converge upon it they will pass through miles and miles of rich black loam that produces corn in quantities exceeded by only one other state. And many of these travelers will journey to aviation's most significant annual event by rail.

For the four days the Clinic meets in the modernized (microphone on every desk; electric voting machines) chamber of the Illinois House of Representatives in the state capitol, the delegates will never be able to forget that Springfield—like so many other grass roots regions—is a major railroad center. A short way down the hill, along their walk from the capitol to the Abraham Lincoln Hotel, trains rumble every few minutes along a viaduct bisecting the street.

The setting alone should be a goad and a challenge to delegates gathered here to force a policy to derive national benefits from aviation.

COMING OF AGE—The National Aviation Clinic developed as a gripe session. While most delegates were listening to, and generally arguing with the speakers, a small group would be framing resolutions.

Drawn up in isolation from floor debate, these resolutions did not always reflect the temper of the delegates.

The original Clinic had thus a dual character—a forum to discuss the aviation issues of the day, and an organ of the industry's opinion—each facet of which was not necessarily a reflection of the other.

The Clinic this year will be integrated. There will be few guest speakers. Clinic machinery is modeled after that of most legislatures, with a "speaker of the house" presiding. In theory, at least, debate will be limited to the bills of policy which may be passed, amended, rejected, or tabled in favor of others introduced on the floor.

As in former years, adopted bills will be incorporated in the proceedings sent to each member of Congress.

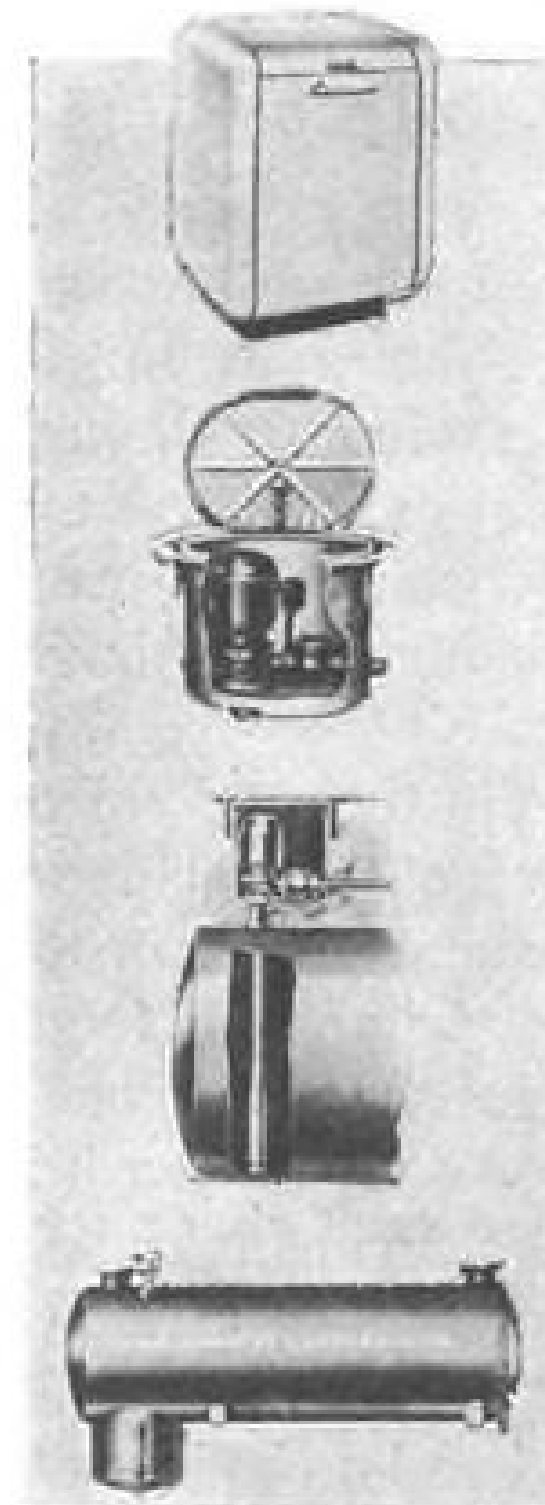
But, unlike the aftermath of former Clinics, this time there will be an attempt to follow up the actions of the Clinic. No organization represented at the Clinic is bound by that body's actions. There is, however, an implied obligation to promote the industry's principles as clarified in Clinic debate. In the past there has been no consistent, twelve-months' effort in this respect.

As Clinic parent, NAA in the forthcoming year between Clinics will endeavor periodically to remind participating organizations of what the Clinic has resolved, and suggest suitable action.

In success or failure of that endeavor, even more than in success or failure of the new machinery at Springfield, may rest the future of the National Aviation Clinic as a true force for aviation betterment.

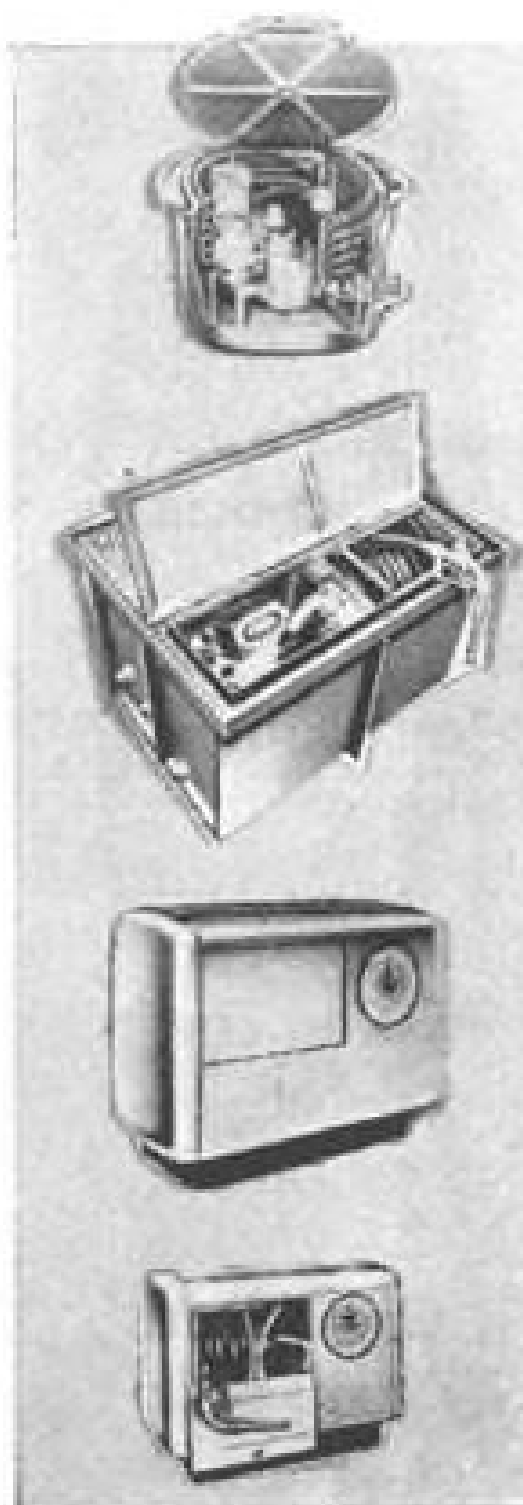
AVIATION WEEK, November 17, 1947

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NEWS DIGEST

DOMESTIC

Glenn L. Martin Co. delivered its first foreign 2-0-2 to L.A.N., Chilean National Airlines at Washington National Airport Monday, Nov. 10 in a brief ceremony. Second foreign 2-0-2 will be delivered to L.A.V., Venezuelan Airlines this week.

Slick Airways set new airfreight records in October by flying 2,519,871 ton-miles with an unprecedented 91.2 percent load factor. Officials predicted the company would show a profit for the second successive month. October volume was up almost 500,000 ton-miles over September.

FINANCIAL

Boeing Airplane Co. reports a net loss of \$356,528 for the first nine months of the year on sales and receipts of \$15,207,145. Against this income was charged \$13,066,935 cost of sales, \$1,096,276 general and administrative expenses, \$740,501 sales and services, \$491,461 research and \$145,000 provision for excess costs on an experimental contract.

Convair stockholders approved a plan for dividing the company's aviation and non-aviation interests, the latter going into a separate company: The Nashville Corp. Following this action, the meeting adjourned until Nov. 20 when nine new directors nominated by Atlas Corp. will be voted on.

Curtiss-Wright Corp. board of directors has approved a call for tenders on up to 500,000 shares of outstanding class A stocks at \$20.50 per share until Dec. 3.

Stewart-Warner Corp. reports net earnings of \$1,938,851 equivalent of \$1.49 per share, for the first nine months of 1947 on sales of \$56,926,546. This compares to a \$1,673,295 profit for the same period last year.

FOREIGN

Merger of Swedish airlines, ABA and SILA, to form a single new line with equal government and private financial interests is now being negotiated. ABA is 90 percent government owned and SILA privately owned. The latter operates two converted Boeing B-17 bombers interned during the war and recently operated over the Atlantic on proving flights.

British European Airways carried 269,678 passengers and 5,000,000 lb. of revenue cargo during its first complete year of operation just ended. This load was carried on 35,933 flights over a total of 7,400,000 miles.



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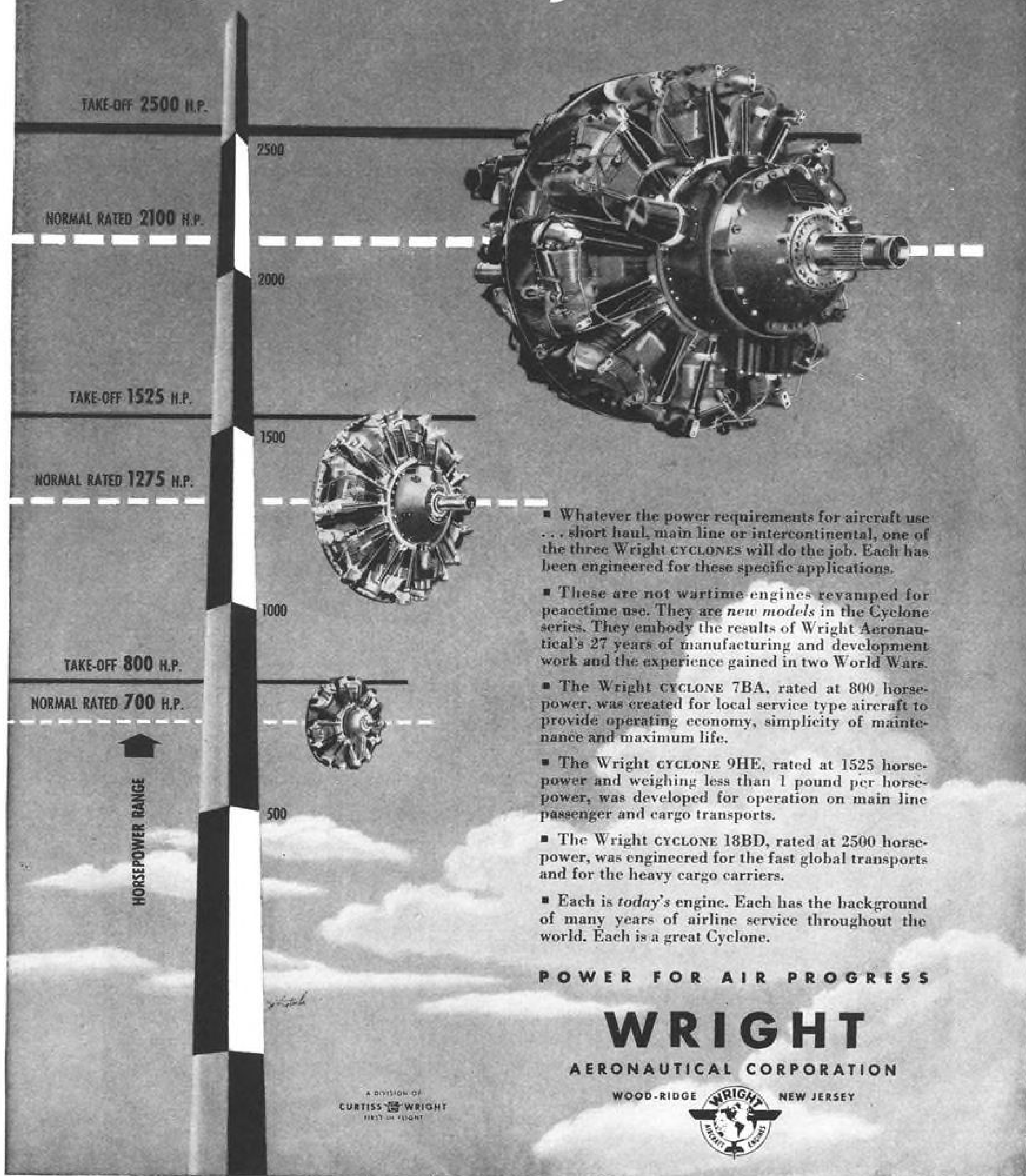


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NEWS SIDELIGHTS

COMPILED AND WRITTEN BY THE STAFF OF AVIATION WEEK

Brewster Committee Split

Not one, but two reports by Senate War Investigating Committee on Howard Hughes' U. S. wartime aircraft contracts are expected. Majority report probably will dwell on Hughes' alleged outside pressure—F. D. R. and Jesse Jones—to obtain over \$40 million in orders for planes never produced during the war. But a dissenting minority report by Democratic members, led by New Mexico's Hatch and Maryland's O'Connor, is shaping up to clear Hughes, emphasizing his priority and manpower problems. It will view the contracts as legitimate wartime experimental risks.

Hughes Gathering "Data"

Reliable reports that representatives of Hughes are now in Sen. Brewster's home state of Maine, gathering "research" on the Senator, indicate the West Coast millionaire still believes the Committee's investigation was initiated because Hughes declined a Brewster proposal to merge his own TWA system with Pan American.

Policy Group Researching

Joint Congressional Air Policy Committee will limit itself to executive conferences with its industry advisers and researching, at least until December. Its executive director, Adm. H. B. "Min" Miller, former TWA public relations chief, now has a staff of six research assistants. William Westlake, former colonel, ex-AAF PRO, and TWA PRO before the war, is serving as executive secretary.

Lt. Comdr. Langdon Marvin, who was replaced by Miller as executive director, is handling the Committee's air cargo studies. In press announcements on the Miller and Westlake appointments, Chairman Brewster detailed their background and qualifications but omitted their TWA service.

Supersonic Battle

If you think the chief competition to crash the speed of sound is Britain, you are wrong. It is vehemently denied but the "no holds barred" obstacle race for the sonic barrier is really between our own Army and Navy. Swathed in an aura of scientific research, the battle proceeds on two levels: technical and public relations.

On the technical level there is a high degree of coordination and scholarly

agreement on the salient point of the whole program: a slow, careful progression in speed up to and through that of sound, with thorough recording and analysis of data.

Publicity wise, there is a single objective: fly faster than the competition, and hurry.

While in less strenuous days flying faster was looked upon as "improving the breed," the deliberate engineers' smashing an airplane against the sonic barrier without adequate data is a useless sacrifice of time, money and effort, as the British learned so painfully.

But the public relations boys and their enthusiastic supporters in operations usually win such internecine brawls.

Navy wasted no time smashing Col. Albert Boyd's P-80R record with the D-558, at a time when the airplane was ill-prepared to attempt its design critical mach number.

Now that the Navy has officially rolled out the D-558-2, you can be sure the Army will waste no time in the next few weeks pushing the XS-1. This question haunts the Navy: Has the XS-1 already been flown full out at 73,000 ft. and failed to fly faster than mach number .92? The top engineers say the struggle won't be scientific, it may cost some lives and waste precious research opportunities, but it will surely put the winning service in the headlines!

Courts Faster Than CAB

Airlines which believe their competitors are operating in violation of the Civil Aeronautics Act are taking an increasing number of grievances to court instead of trying to get relief through slow-moving CAB. Successful court actions against uncertificated operators in Alaska and Hawaii have set off a chain reaction.

On Landis and 202

David L. Behncke, president of Air Line Pilots Assn. who doubles in brass as editor of the union's monthly newspaper, makes clear in the latest issue that ALPA has turned thumbs down on the Martin 202 and thumbs up on CAB Chairman James Landis. The newspaper describes the plane as "a so-called replacement for the DC-3" and is sharply critical of its paddle propellers and their automatic feathering device.

Landis is described as being "decidedly on the ball when it comes to air safety," and "unlike his predecessors

and many others in governmental agencies, he has shown a refreshing preference for first hand information and down-to-earth realism over bureaucratic paper work and flimsy theories."

CAA's Top Lawyers Bog Down

Feeling in aviation circles against CAA's strait jacketed top legal authorities in Washington is rising high and may hit the boiling point at the National Aviation Clinic. Many think that if regional CAA lawyers had as much leeway as CAA's regional engineers in dealing with airport aid problems the legal technicalities which are blamed for bogging down the program might be eased. This opinion is shared by some officials of CAA itself.

While decentralization has been fairly effective in the engineering branch, CAA's boss law department in Washington has relinquished very little of its extremely close supervision and red tape to its field offices. Watch for increasing pressure on Commerce officials to delve into this division.

Cuts in Air National Guard

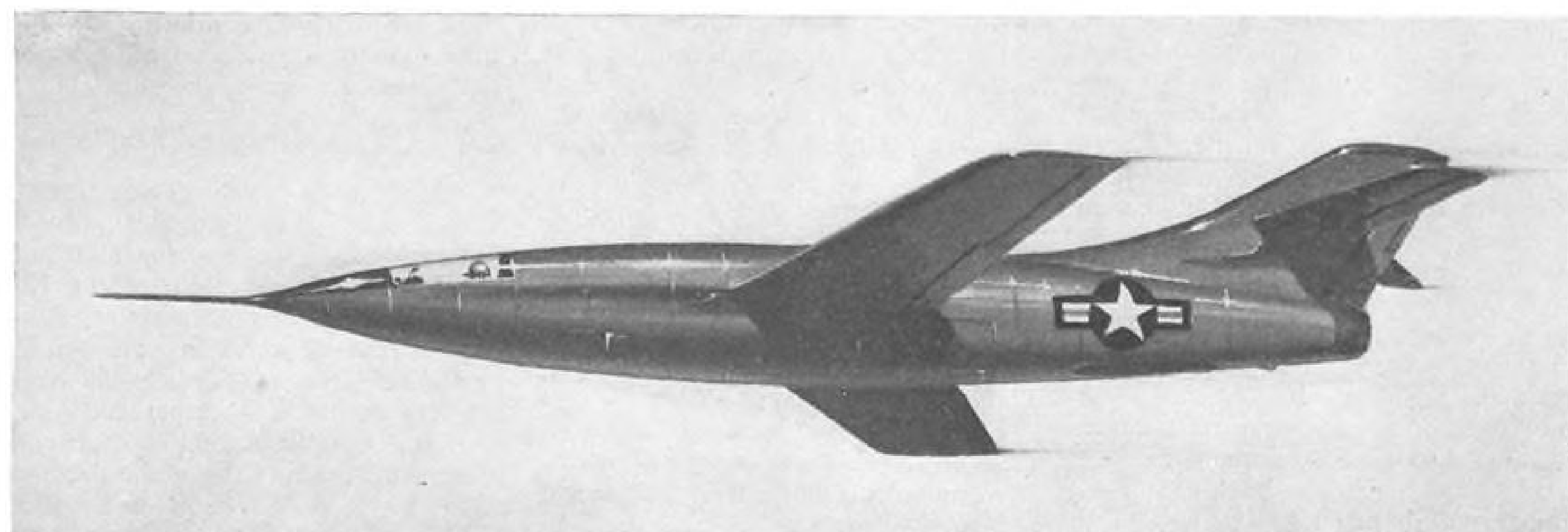
Drastic cuts in Air National Guard program are underway. Original plans called for 514 squadrons, but less than 60 percent of this number is likely to materialize. Budget slashes for fiscal 1948 are just being felt in the field. Personnel is taking a 90 percent cut-back, with only 15,000 reservists scheduled for two-week active duty periods next summer instead of 170,000 contemplated earlier. Plans for reservists to fly combat type planes has been abandoned. Flying will be restricted largely to advanced trainers.

T. P. Wright's Status

Rumors are flying that CAA Administrator T. P. Wright will be leaving his post before long. High officials in the Commerce Building are not denying the reports, and a few persons have been asked to submit names for "a possible successor."

ERP to Increase Air Cargo

The European Recovery Program, in so far as it means a continued shortage of goods domestically, should keep air-freight booming. Both scheduled and uncertificated lines have experienced record cargo business recently, and expect even higher volume through December.



New Aircraft:

Douglas Unveils Its New Research Plane

Skyrocket designed for sonic speeds combines turbojet and rocket power; features sweptback wing.

By ROBERT McLARREN

Douglas Aircraft Co. last week revealed its new sonic research plane, the "Skyrocket" (D-558-2). The Skyrocket's design differs radically from its original layout as a modified version of the "Skystreak" (D-558-1). The needle-nose, swept-wing craft has emerged from the Douglas factory as an entirely new concept in highspeed flight incorporating all of the known ingredients for sonic speed, many only recently revealed by intensive wind tunnel research work.

The Skyrocket combines the rocket power of the XS-1 with the turbojet power of the Chance Vought Pirate, incorporates thin, swept wings of low aspect ratio and a swept tail. Long, thin nose assures low fuselage drag and flush air inlets avoid the blunt nose of the D-558-1. Navy, Douglas and NACA engineers are confident that sonic speed with a piloted aircraft is now only a question of getting the D-558-2 into the air and striking for the mark.

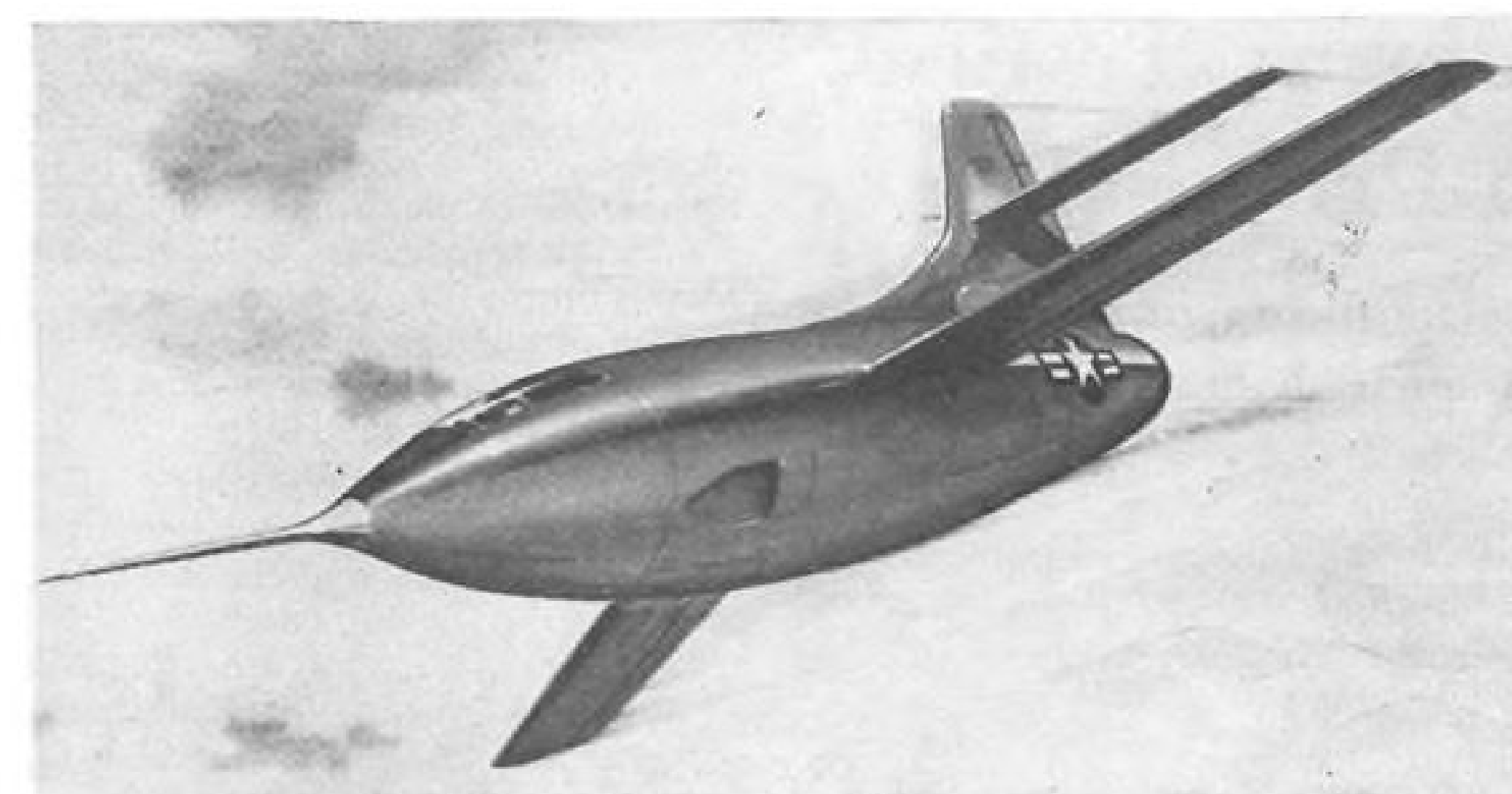
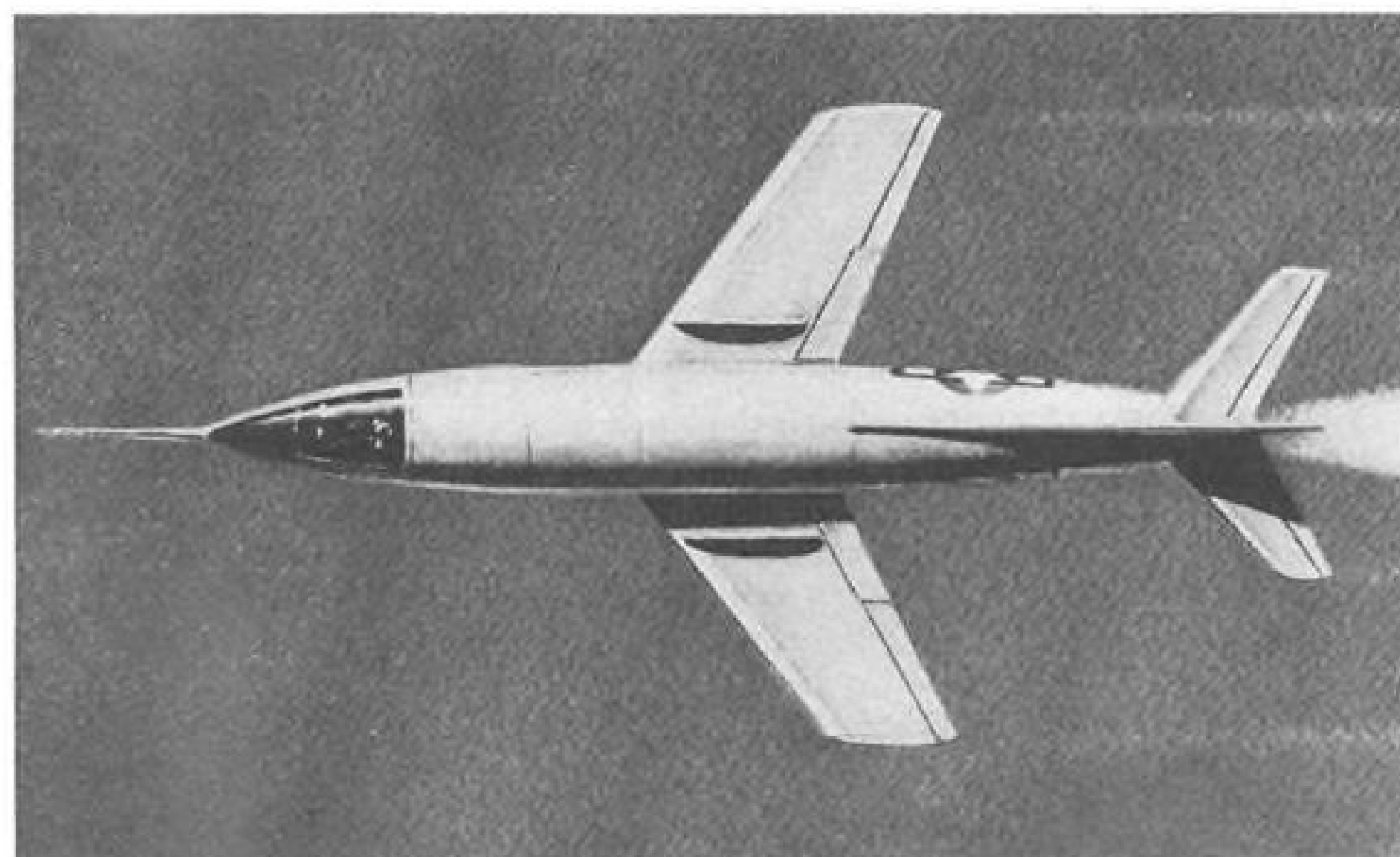
Skyrocket contains all the available features revealed by research, both in wind tunnel and by piloted flight, necessary for sonic speed:

• **Power**—For takeoff and subsonic flight the Skyrocket contains a 3,000-lb.

thrust Westinghouse 24C axial-flow turbojet engine mounted in the fuselage belly below the wing. Air is taken in through twin NACA-designed flush air inlet ducts inset in the lower nose. The jet blasts from a flush outlet under the after belly just forward of the tail. A Reaction Motors four-barrel rocket engine, similar to that used in the Bell XS-1, is mounted in the extreme tail of

the Skyrocket. This engine produces 6,000 lb. thrust. The total output of both engines is the equivalent of 18,000 horsepower, comparable to the power of the giant Convair XB-36 strategic bomber.

• **Swept Wing**—The stubby, low aspect-ratio wing of the Skyrocket has the same span as the Skystreak but is swept back 33 degrees. The increased effective dihedral (rate of change of angle of attack with angle of yaw) created by wing sweep necessitates the use of a cathedral (negative dihedral) angle of five degrees. By using cathedral, Douglas achieves the equivalent of a straight



wing, whereas a straight wing would have produced the effect of five degrees dihedral, inefficient when not required for stability.

A new feature of the Skyrocket wing is the use of stall control vanes, a small "air dam" on either side of the fuselage, to prevent spanwise flow and consequent loss of lift over the wing during periods of root shock stall. When the Skyrocket executes a highspeed pullup at a mach number of .8-.8, a shock stall is created in the wing root region adjacent to the fuselage. This stalled air is at a higher pressure than the unstalled portion of the wing, resulting in the stalled air being drawn out into the lower pressure of the wing, resulting in the stall spreading across the wing. The stall control vanes prevent this air leakage and thus decrease the high-speed stalling tendencies of the wing. To delay the conventional low-speed stall, conventional Handley-Page automatic slots are mounted on the wing leading edge over the portion containing the ailerons, to maintain aileron control to higher stalling angles than would otherwise be practicable. The wing is built of 75S aluminum alloy

and stressed to a design load factor of 18, 50 percent higher than military combat aircraft.

• **Swept Tail**—The horizontal stabilizer of the Skyrocket incorporates a sweep angle of 40 degrees, 10 degrees more than the wing. This differential insures that the tail will remain unstalled at a time when the wing is undergoing a shock stall, providing longitudinal stability for the airplane during the period and enabling a recovery to be made.

• **Fair Lines**—The use of flush air inlet ducts permits the shaping of the forward fuselage in a conical configuration assuring the maintenance of laminar flow over the forward portion of the fuselage aft to the region of the wings. This pointed nose and a lengthening of the fuselage (35 percent longer than the Skystreak) comprises a high fineness ratio of nearly 12, a requirement for low drag at high speed.

The pilot is mounted in a fully enclosed cockpit contained within the mold line of the fuselage. The tricycle landing gear is contained entirely within the fuselage to prevent a compromise with the minimum wing thickness required for sonic speed. Aerodynamic brakes, as on the Skystreak, are mounted on the after fuselage to provide deceleration from high speed. The fuselage is made of cast magnesium alloy providing lightness, strength and smooth exterior lines. The airplane is painted white to distinguish it from the crimson Skystreak and the orange XS-1.

• **Research Instruments**—Standard NACA highspeed research instrumentation, developed for the XS-1 and Skystreak, is mounted in the forward end of the Skyrocket behind the pilot. Improved and expanded, the new system incorporates an extensive strain gage installation mounted throughout the wing and stabilizer skin and at six points in the after fuselage on the vertical stabilizer fittings. (XS-1 and Skystreak used these gages only on main spar and stabilizer fittings.) A total of 400 pressure orifices are contained in the wing and stabilizer to produce a recorded plot of

pressure distribution over these surfaces throughout the range of airspeeds.

The radical configuration of the Skyrocket, representing a considerable rearrangement of original plans, is indicative of the productivity of the current subsonic research program utilizing the XS-1 and Skystreak and new findings in wind tunnel sonic research. This rapid rate of progress suggests a further advancement of the U. S. in sonic aerodynamics than has generally been believed. The new Skyrocket promises to carry this program forward into the sonic regime in piloted flight, a field of investigation now the exclusive province of the United States so far as is presently known.

Douglas Skyrocket

Power:

Westinghouse
24C 3,000 lb. thrust

Reaction motors
engine 6,000 lb. thrust

Span 25 ft.

Length 45 ft. 3 in.

Height 11 ft. 6 in.

Gross weight app. 15,000 lb.

Design speed 760 mph. at S.L.
660 mph. at 35,000 ft.

Sweepback (Wing) 33 degrees
(Tail) 40 degrees

Cathedral 5 degrees

Incidence (Root) 6 degrees
(Tip) 3 degrees

Aeronautical Board Names Committee on Standards

Members of the special new committee of the Aeronautical Board created to develop policies and procedures for implementing decisions reached at the recent Army-Navy-Industry standards conference at Wright Field (AVIATION WEEK, Nov. 3) have been named:

• **Industry Members**—Wright A. Parkins, Pratt & Whitney Division, United Aircraft Corp.; Raymond W. Young, Wright Aeronautical Corp.; and C. E. Mines, Aircraft Engine Division, Packard Motor Car Co.

• **Air Force Members**—Col. M. Demler, USAF Headquarters; Maj. Stanley Pace, Procurement Division, Air Materiel Command; Clarence A. Shade, Supply Division, Air Materiel Command.

• **Navy Members**—Captain N. A. Drain, Technical Data, BuAer; Captain G. B. H. Hall, Aeronautical Board; and Captain E. C. Ewing, Power Plant Design, BuAer.

First meeting of the new committee was held Nov. 13 in Washington. Recommendations and report are due Dec. 15.

Hughes, Bennett Meyers Testify On \$200,000 Loan Proposal

Planemaker says Air Force general sought job with him and asked financing for personal deals; names Echols as "hate Hughes" leader.

Testimony that Maj. Gen. Bennett E. Meyers, wartime deputy chief at Wright Field's Materiel Command, unsuccessfully attempted a "shakedown" of planemaker Howard Hughes for \$200,000 financing on a \$10,000,000 U. S. government bond deal during the time that Hughes' photo reconnaissance plane contract was being negotiated highlighted hearings of a subcommittee of the Senate War Investigation Committee last week.

Evidence on this deal—and another deal under which Hughes was supposed to make a "down payment" of \$50,000 toward a postwar job for Meyers—were pried, piecemeal, from Hughes and Meyers in hours of unrelenting grilling by subcommittee Chairman, Sen. Homer Ferguson (R., Mich.). Neither deal was consummated.

► **Other Issues Drawn**—Testimony on other issues in the Hughes investigation was inconclusive. The question of the advisability of the government's entering contracts for experimental planes which were not completed for wartime utilization—the \$22,000,000 contract for three XF-11s and the \$18,000,000 flying boat contract—was worn threadbare by a score of witnesses, pro and con. The extent to which "favoritism" entered into Hughes' contract awards was discussed at length. Evidence of pressure on Hughes' behalf by the late President Roosevelt, former Secretary of Commerce Jesse Jones, and former AAF commanding general, H. H. "Hap" Arnold, was countered with evidence purporting to show unreasonable prejudice against Hughes by Army and WPB officials, notably Maj. Gen. Oliver Echols, the wartime chief at Wright Field whom Hughes dubbed "chairman of the hate-Hughes committee." With Maine's GOP Sen. Owen Brewster in absentia, argument over whether the investigation was sparked off by Pan-American to "smear" TWA-owner Hughes was omitted from the hearings, except for a few mild suggestions by Hughes—that the committee appeared interested "only in evidence against Hughes"; "withheld pro-Hughes evidence"; and that in fairness the committee should investigate the Republic XF-12 reconnaissance plane which did not get into wartime production. Hughes persisted that PAA pressured government financing of XF-12 development,

with an eye to cheap postwar purchase of the airplane for service as a transport carrier.

The subcommittee's informant on what Ferguson termed "attempted shakedowns" by Meyers was Neil McCarthy, prominent Los Angeles attorney whose ability and character were vouched for by both Meyers and Hughes. McCarthy was engaged as attorney by Hughes during the brief wartime period that Hughes was "on friendly terms" with Meyers.

► **Information Pried**—Only after being confronted with McCarthy's secret report to the subcommittee did Meyers or Hughes reluctantly produce any information on the alleged "shakedowns". Summary of their conflicting testimony revealed that:

Discussions between Hughes and McCarthy, on the one hand, and Meyers, on the other hand, relative to employment of Meyers by Hughes and the Meyers' proposal for purchase of \$10,000,000 in U. S. government bonds got underway late in 1943—although the exact time was not determined.

Up to mid-October, 1943, approximately the time the discussions started, Meyers, according to telephone transcriptions, had vigorously opposed the letting of a contract for the XF-11 plane. Although Arnold signed a letter of intent in September, Wright Field officers balked at execution of a contract. Meyers testified that he twice urged Arnold to withdraw his commitment. A telephone transcription between Meyers and the then under Secretary of War for Air, Robert Lovett, subsequent to Arnold's directive, disclosed the antagonism of both to the contract. Lovett predicted that there would be a congressional investigation and "an awful smell" and suggested, with Meyers' concurrence, that a contract should "not be gone into under outside pressure (since) you can never bring in the outside pressure in your defense."

► **Meyers Reversed Stand**—But later in 1943, Meyers suddenly became Wright Field's most vigorous pusher of the Hughes reconnaissance plane contract. Telephone transcriptions reveal him as making impatient demands such as "why the hell hasn't this contract been let?" to other officers.

Meyers plausibly explained his atti-

tude change by stating that when his protests to Arnold were ineffective, he behaved "like an officer taking orders" and did his utmost "to attempt to get the XF-11 contract executed and the planes into production". In line with Meyers on the point, Hughes repeatedly and forcefully discredited suggestions by Ferguson that Meyers' change might have been due to the looming possibility of obtaining a "shakedown" from Hughes.

Hughes testified that—on the advice of McCarthy—he turned down both a request by Meyers for a wartime job with Hughes Aircraft Company and a proposal that he "loan" him \$200,000 to place as collateral on the purchase of the bonds "not because I thought there was anything morally wrong" in either proposal, but because "I felt they might be misinterpreted". In addition to "loaning" \$200,000 in the bond deal, Hughes said, Meyers requested him to guarantee against loss—each point fall in price would involve \$100,000, which would have to be advanced to him as collateral.

► **Conflicting Testimony**—According to Meyers testimony which conflicted with that of Hughes and McCarthy, Hughes offered him the wartime job—broaching the subject with "I wish you were twins so I could hire one of you right now"—and he (Meyers) turned it down. Meyers declared that the liberty bond discussions were limited to "comment" on the deal to McCarthy, for the purpose of obtaining his legal advice. Meyers did not concede—up to the time this issue went to press—ever having proposed Hughes' financing of the transaction.

Despite McCarthy testimony that he discussed with Meyers, at Hughes request, contracting with Meyers for postwar employment with Hughes Aircraft and making a \$50,000 advance on the job contract, neither Hughes nor Meyers could "recall" any negotiation on postwar employment.

Hughes stated that although Meyers was "very angry" when informed of his rejection of his job and bond requests, Meyers "did not throw in any monkey wrenches" to block execution of the XF-11 contract. Hughes left the date of the rejection indefinite, but reported that it was prior to the date on which the XF-11 contract was consummated—August, 1944. This, Hughes proffered as "proof" that Meyers did not "tie up" his "loan" and job requests with his official position on the contract. Hughes did not specify, however, whether his rejection of Meyers proposals came before he (Meyers) signed the XF-11 contract—May, 1944. After the rejection, Hughes said, Meyers "stopped speaking to me for two years". Meyers-Hughes talking resumed in 1946 when former

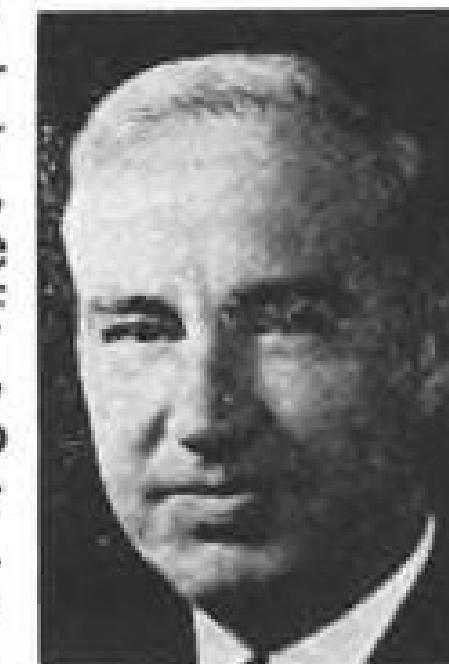
TWA president, Jack Frye, informed Hughes that Meyers, a close personal friend of Mayor William O'Dwyer, "put the nix" on the showing of Hughes' film, "The Outlaw" in New York City and "kicked over" a TWA deal for use of Idlewild Airport. O'Dwyer served as brigadier general in the Materiel Command during the war. Hughes said he sought out Meyers "to get him to un-nix what I understood he had nixed".

Meyers' retirement contract with the Army, testimony developed, bars him from representing Hughes military aircraft interests in private life, but early this year—after the Senate investigation of Hughes got underway—Meyers did request Hughes for a \$50,000 loan. Meyers reported that he and Alfred Marchev, former Republic president, planned to purchase a \$500,000 business (bicycles) with \$100,000 put down as collateral.

Hughes declined the loan.

Whelan of Sikorsky Named To Head Helicopter Council

B. L. Whelan, general manager of Sikorsky Aircraft Division, United Aircraft Corp., Bridgeport, Conn., has been elected chairman of the Helicopter Council of the Aircraft Industries Association, succeeding Lawrence D. Bell, president of Bell Aircraft Corp., Buffalo. Membership in the helicopter council has been increased to a total of seven companies by addition of the Rotawings division, Glenn L. Martin Co., Philadelphia, and the Piasecki Helicopter Corp., Morton, Pa. Other company members are McDonnell Aircraft Corp., St. Louis; Kellett Aircraft Co., North Wales, Pa., and Firestone Tire & Rubber Co., Akron. Whelan is a graduate of the original Wright Brothers flying school at Dayton, Ohio, in 1913, when he soloed in total time of four and one-half hours.



Whelan

After serving as a civilian flight instructor for the Army, and as partner in the Rinehart-Whelan Company flying service at Dayton, he went with Pratt & Whitney in 1928, and has been associated with United Aircraft division since. He became general manager of the Sikorsky division in 1943, after heading United Aircraft's airport division for 12 years.

Agnew Larsen, director of the Rotawings division, and Frank Piasecki, president of the Piasecki Helicopter Corp., will represent their organizations on the council.

Douglas Decides to Build DC-9

Prototype expected to be flying in one year; aimed at DC-3 replacement market.

Donald Douglas has given the green light to his engineering department on the DC-9 and hopes to have the prototype flying within one year. Douglas feels that the airlines will be in a position by then to resume the purchase of new equipment.

Testifying before the President's Air Policy Commission, Douglas stated that he regards neither the Martin 2-0-2 nor the Convair Liner as "DC-3 replacements" insofar as both fall into an entirely different size-weight-performance class than the veteran Douglas aerial workhorse.

► **15-Ton Plane**—The DC-9 is a 15-ton twin-engine design carrying 28 passengers (or 10,400 lb. useful load) at a cruising speed of 242 mph. It can be powered by either Wright Cyclone R-1820 or Pratt & Whitney R-2180 engines. Preliminary calculations indicate a takeoff run to clear a 50-ft. obstacle of 3,640-ft. at standard sea level temperature.

Although previous transport aircraft designs have stressed flexibility of installation, Donald Douglas desires to hold the number of various models of the DC-9 to a minimum. Pointing to individual airline interior arrangement requirements as an important factor in airliner costs, Douglas reveals that there have already been more separate models of the DC-6, of which some 75 have been delivered, than there ever were of the DC-3, of which nearly 10,000 were built. These model changes do not include such minor details as color scheme or upholstery, but such differences as major bulkheads for compartments, side of fuselage on which entrance doors are placed, etc.

"Sky Queen" Hearing Bares Inexperience

Inexperience and laxity in planning characterized operations of American International Airways, whose Boeing 314 "Bermuda Sky Queen" was ditched 750 miles northeast of Newfoundland Oct. 14, evidence at a Civil Aeronautics Board hearing in New York indicated last week.

Moreover, uncertainty of the legal status of the flight was expressed by H. Don Reynolds of CAB's legal staff. He pointed out that merely applying the term "charter flight" to an operation does not automatically remove it from the category of a common carrier

and stressed that any flight offered to the general public may be construed as a common carrier operation. Travel agencies and brokers connected with passenger transactions before the flight were questioned in an effort to clarify its legal status.

Repeated questioning by R. W. Chrisp, CAB's investigation chief, brought information that lack of experience and planning were usual in the company's operation. Lack of planning was evident in poor arrangements for overseas servicing, improper application for landing rights, insufficient investigation of regulations, inadequate crew rest, lack of crew watch schedule, and poor briefing of the crew on radio procedures and aids to navigation.

Evidence of crew inexperience indicated that pilot and co-pilot were unfamiliar with the routes and the captain had flown only 60 hours in the plane prior to the Oct. 14 flight. The navigator had made only one previous trans-Atlantic flight as navigator and never had been checked out on the route, nor had he been informed of weather broadcasts given on fixed schedules for planes en route. Yet there was no evidence of crew negligence on the actual flight.

Disregard of radio frequencies allocated by the British government to planes in this type of service and an overloading of the Sky Queen, a breach of Civil Air Regulations, were admitted by the crew. Observers inferred from the testimony, however, that fuel consumption had offset the overload at the time of the ditching.

Buys Two Lodestars

Inland Airways, Walla Walla, Wash., has bought two Lockheed Lodestars and taken delivery on one, with the second expected shortly, according to Perry Cole, president. The planes will be used on the company's run between Walla Walla and Seattle, replacing a seven-place Beechcraft. Development of the Hanford atomic bomb plant at Richland and construction of McNary Dam on the Columbia River near Pasco (both points being on Inland's intrastate route) have taxed the line's capacity during the past three months.

Canadian Nonscheds

Poor service by charter airlines in Canada has resulted in a ban on further licenses until May 1, 1948. By that time a survey will be completed to determine the actual potential for nonscheduled operations in Canada.

Modification, Check Ordered For DC-6s

Two modifications and a thorough inspection of auxiliary systems on the DC-6 were ordered last week as a result of investigation of the United Airlines DC-6 crash at Bryce Canyon, Utah, on Oct. 24.

CAA ordered all fibreglas insulation stripped from fuselage skin and bulkheads below the cabin door to remove possible fire hazards. Fibreglas is fireproof but when soaked with oil acts as a wick to speed combustion of oil or other inflammable liquids. Inspection of a test DC-6 flown to the scene of the United crash by CAA was soaked with oil or hydraulic fluid.

► **Inspection Deadline**—Thorough inspection of electrical, hydraulic, fuel, oil, heating and ventilating systems must be completed at airlines main overhaul bases by Dec. 1. Oxygen, alcohol and thermal de-icing systems must also be checked with emphasis on possible leaks and fire hazards.

Meanwhile Douglas conducted tests at Santa Monica on possible effects of faulty oil seal rings in the supercharger. The cabin heater normally located below the passenger cabin between fore and aft baggage compartments was removed from a DC-6 for the tests. When supercharger and heater were operating a spray of oil was injected into supercharger which ignited in the heater and caused a fire.

► **Douglas Order**—As a result Douglas has ordered all DC-6 operators to refrain from using superchargers and heaters simultaneously until further modifications can be made. It is likely that the supercharger oil seal rings will

be required replacements. At least one airline is considering a master cut-off switch for the cabin heater system that will cut off all heater operations on indication of overheating. System is now controlled by two heat control switches.

CAB has begun investigation into the effect of radar signals on photo-flash bulbs after General Electric Co. reported to its dealers that ground radar transmissions could ignite flash bulbs in flight. G-E asked dealers to refrain from further air shipment of bulbs. CAB will attempt to determine whether airborne radar as utilized in some terrain clearance indicators now required by CAB, will touch off the bulbs. Traffic control radar at Washington National and LaGuardia Fields will also be investigated.

X-Ray To Help Cut Helicopter Costs

Photographic X-ray is being tested on the West Coast to reduce materially the admittedly high inspection tear-down costs of helicopter maintenance.

Los Angeles Airways, Inc., flying the world's first helicopter transport service with loop and shuttle routes radiating from Los Angeles Airport, is initiating X-ray inspection experimentally with the cooperation of Triplett & Barton, Inc., Aircraft X-ray specialists of Burbank, Calif.

Arthur L. Fornoff, former helicopter service manager for Bell Aircraft, now superintendent of maintenance and engineering for L.A.A., told AVIATION WEEK:

"I am hopeful that we can cut maintenance inspection costs considerably more than 10 percent, and reduce our grounded time-out for inspection

even more, by running portable X-ray photographs of critical parts without disassembly.

► **Perfecting Procedure**—"We should have our procedure developed within the coming two months, and be able to prove to the satisfaction of CAA that our radiographic negatives will show the exact condition of both metal and wood structural parts that are subjected to dynamic stress, including ball bearing assemblies.

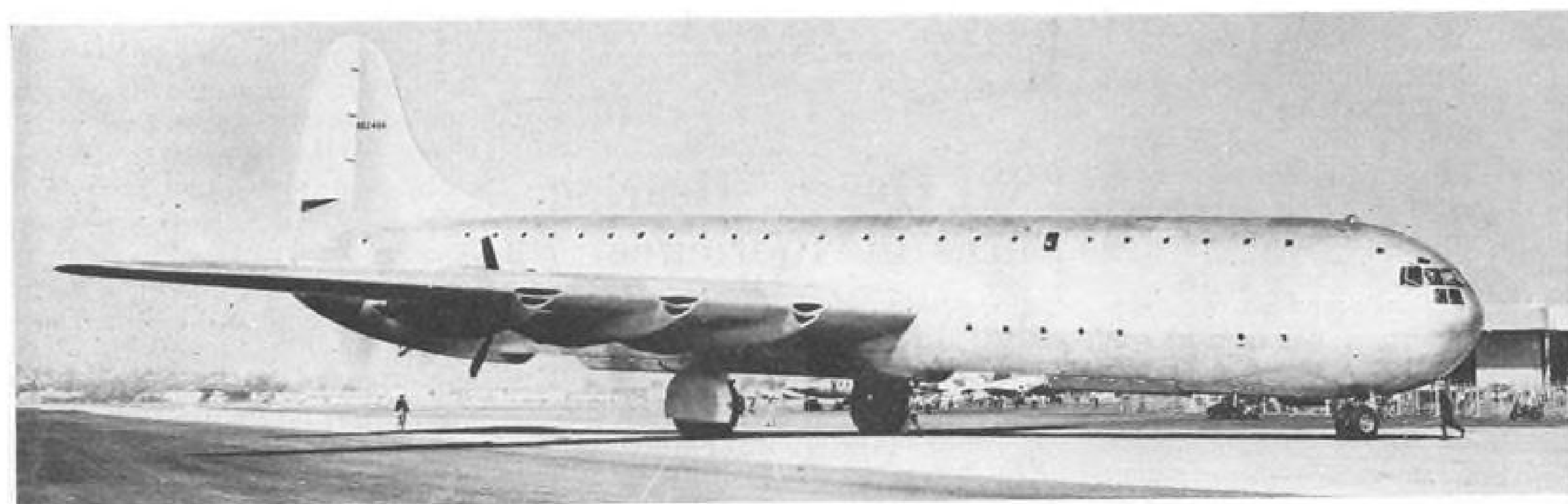
"Considering that a main rotor head teardown for inspection and overhaul at the 200 hours calls for expenditure of 150 man hours of labor, and 500 man hours go into a major inspection and overhaul at 400 hours, the time and labor economy of X-ray inspection readily is apparent. Teardown and overhaul should be limited to only those specific components failing to pass X-ray tests."

► **Experience Satisfaction**—Operational experience of Los Angeles Airways one month after inauguration of its service is highly satisfactory to the company's president, Clarence M. Belinn.

He expects to receive momentarily a lowering of range visibility minimum from one mile to one-half mile. Present altitude minimums for the helicopter air mail operations are 500 ft. en route and 300 ft. at the company's 17 suburban area "heliports."

"So far we have had no noise complaints from any residents or property owners," Belinn said.

The possibility of reaction from airplane-shy Los Angeles residents had given company officials concern and had led to the ordering of Maxim silencers for the Sikorskys. These are expected to be ready for mounting by Jan. 1.



WORLD'S LARGEST LANDPLANE IN TAXI TESTS

First photo of completed Convair XC-99 at San Diego, Calif., reveals mammoth fuselage with a capacity of two ordinary freight carloads. Giant 139-ton craft carries 21,116 gals. fuel for 10,000-mile range. It can carry 50 tons of cargo, 200 passengers, 400 troops or 335 litter patients over a 2,000-mile range at 200 miles per hour. Top speed is 330 mph. at 30,000

ft., 250 mph. at sea level. It requires 5,000 ft. for full-load take-off and only a few military fields can support its single main gear wheel loads. Only one to be built, it will make its first takeoff flight before Thanksgiving. Bristol Brabazon I and XC-99 are almost identical in specification. (Air Force photo)

Airline Pilots Poll Favors ILS as Primary Landing Aid

Airline pilots prefer the CAA-sponsored Instrument Landing System as a primary landing aid rather than radar Ground Controlled Approach, according to a poll conducted by the Air Line Pilot's Association.

Questionnaire's submitted to 57 local ALPA councils showed that 50 councils gave a majority vote for ILS; one favored GCA and six gave no preference because of insufficient experience with either system. Of the 50 favoring ILS, 12 councils also recommended use of GCA as a secondary aid and check on the accuracy of ILS signals.

Pilots' preference, according to ALPA President David L. Behncke, was based on the fact that ILS has had more opportunity for operational testing than GCA. ILS is now operational at 51 commercial airports in the United States in contrast to five GCA sets.

AVIATION CALENDAR

Nov. 18. National Aviation Trades Association annual meeting, Springfield, Ill.

Nov. 18-19. Air Force—Navy—industry conference on propeller procurement specifications and drawings, Wright Field.

Nov. 19-22. Fifth Annual National Aviation Clinic, Springfield, Ill.

Nov. 20. Personal Aircraft Council meeting, Springfield, Ill.

Dec. 1-3. Air transport meeting, Society of Automotive Engineers, Hotel Continental, Kansas City.

Dec. 1-3. Fifth annual meeting, Aviation Distributors and Manufacturers Association, Hotel Adolphus, Dallas, Texas.

Dec. 2. Air Transport Association air traffic conference, Washington.

Dec. 3. Air Transport Association board of directors meeting, Washington.

Dec. 3-4. Aircraft Industries Association board of governors, Los Angeles.

Dec. 4-5. Air Transport Association meeting of members, Washington.

Dec. 4-6. Society for Experimental Stress Analysis, annual meeting, Hotel Pennsylvania, New York.

Dec. 4-7. International aviation celebration, El Paso.

Dec. 5. Meeting of Air Transport Association directors for 1948, Washington.

Dec. 17. Annual Wright Brothers Lecture, Washington.

Jan. 9-11. All-American air maneuvers, Miami.

Jan. 13. ICAO statistics division, Montreal.

Jan. 15-18. Southeastern soaring contest, Sanford, Florida.

Jan. 26-28. CAA non-scheduled operators of region four, Fort Worth.

Jan. 26-29. 16th annual meeting, Institute of the Aeronautical Sciences, Hotel Astor, New York.

Mar. 22. ICAO aeronautical maps and charts division, Brussels.

Mar. 30. ICAO personnel licensing division, Montreal.

Apr. 20. ICAO rules of the air and air traffic control division, Montreal.

Apr. 27. ICAO facilitation division, Europe.

July. International Air Exposition, Idlewild Airport, New York.

July 15. Ninth annual meeting, Airline Advisory Board, Kansas City, Mo.

Sept. 3. International Aeronautic Federation, Cleveland.

Sept. 8. ICAO operations division, Montreal.

Sept. 21. ICAO airworthiness division, Montreal.

INDUSTRY OBSERVER

► Navy Bureau of Aeronautics engineers believe the pulsejet engine will shortly prove capable of supersonic flight. For guided missile propulsion, BuAer believes the pulsejet engine superior to all other types at speeds up to mach number 2.

► Piasecki HRP-1, first production model of the Navy helicopter was damaged during its final demonstration flight. Hovering about 10 ft. off the ground, the twin-rotor craft suddenly drifted into high trees surrounding the Morton, Pa., plant and came to rest. James Hutton, one of the three crew members, was slightly injured. Harry S. Pack, Piasecki vice president, states that damage was superficial and that the craft will be repaired quickly and delivered within two weeks.

► Glenn L. Martin Co. has delivered 20 AM-1 Mauler torpedo-bombers to the Navy. Flight tests on the XB-48 are continuing at N. A. S. Patuxent. The second XP4M-1 has joined its sister-ship at Patuxent. Also undergoing flight tests at Patuxent is the Martin XJRM-2 powered by four Pratt & Whitney R-4360 Wasp major engines.

► All three Douglas D-558-1 research aircraft have been completed and are now at Muroc Air Base, Calif. One D-558 has been delivered to the Navy with the others going to NACA and Douglas Aircraft Co.

► A new slow-turning 100 hp. engine for two-place lightplanes, is due for flight testing shortly in an Ercoupe, at New Britain, Conn. Manufacturer is the Gridley division of New Britain Machine Co.

► CAB Chairman James M. Landis agrees with the airlines that parachutes would be of little value to passengers during an emergency. Because the great majority of air travelers are not experienced in using parachutes, they stand a better chance of getting down safely by staying with the plane than by jumping, Landis believes. CAB accident statistics do not support the odds he gave recently in stating that "in 99 out of 100 cases a plane crash occurs when everything is going along fine."

► Two experimental propellers being built by Sensenich Corp., Lancaster, Pa., for the Aeronautical Research Foundation's noise reduction experiments will have split type metal hubs and will utilize wooden blades. Hubs will have spaces for several different blade configurations, from two to eight blades.

► British CAA in Germany has assumed complete civil maintenance and operation of Hamburg and Dusseldorf airports and has placed civil staffs at military airports in Cologne, Minden and Berlin (Gatow).

► Air France has in service 122 planes with 2,800 places: four L-49 Constellations (43 place), three L-749 Constellations (42 seats or 20 berths), 15 DC-4s (42 seats), 13 Languedocs (French make, with 33 places), 32 DC-3s (21 places), 42 JU-52s (French-made tri-motored Junkers, with 14 places), nine Lockheed 60s (14 places), two Late-631 (French hydro-plane with 46 berths), and two Catalina amphibians (22 places).

► Construction of a Piper cub type monoplane equipped with a Continental A-65 65-hp. engine has been undertaken at Moreno Airport, Buenos Aires, by a private firm, Paso Del Rey. The aircraft will be of aluminum construction, with a speed of 100 mph. It will be known as "El Boyero."

► McDonnell claims F2H-1 Banshee Navy fighter will climb at the rate of 9,000 ft. per min. at sea level.

► Dwane L. Wallace, president of Cessna Aircraft Co., Wichita, Kan., has notified the Securities and Exchange Commission at Philadelphia he plans to sell 25,000 shares of his holdings of Cessna's \$1 par common stock. Wallace said the stock would be offered publicly through the Los Angeles brokerage firm of Dempsey-Tegeler and Co. at approximately \$4 a share.

► American Airlines during October flew about 30 percent more passenger miles than in the same 1946 period with 1,000 fewer employees. Big share of the credit goes to increased use of DC-4s and DC-6s. Cost per seat mile on American's DC-4s in the first six months of 1947 was 3.7 cents against 5.8 cents on DC-3s.

ENGINEERING & PRODUCTION

West Coast Helicopter Builders Press Work on Four Designs

Hiller, Landgraf, Magill and Pentecost near flight testing of latest models although production plans not clarified.

By SCHOLER BANGS

More realistically now, with less of the helicopter-in-every-garage frenzy of rotary wing flourishes four years ago, a resurrection of helicopter interest and speculation is enlivening the aviation scene on the West Coast.

If all goes well there should shortly be significant flight tests of the latest experimental designs of four builders out of the dozen or so who were planning and abandoning projects during 1943 and the following years.

At Compton, just outside Los Angeles, Fred Landgraf is in final assembly of the third of his machines, built to the original design of highly streamlined fuselage and retracting landing gear with dual three-blade rotors supported by arms projecting upward and out from the fuselage.

► **Unintentional Race**—An unintended race to be first in the air may develop between Landgraf and Stanley Hiller, Jr., president of United Helicopters, Inc., Palo Alto, who last week had scheduled an early flight for the first of his fully-developed single-rotor models that he hopes to have in commercial production next year.

Also nearing test flight in California is Gilbert Magill's (RotorCraft Corp.) small experimental tandem rotor helicopter, rebuilt after a disheartening series of structural failures, both minor and serious.

Although working under severe financial handicaps, Magill by sheer persistence has eliminated through trial-error the key weaknesses of a distinctive design that is reminiscent of the successfully flown Piasecki tandem only in general configuration.

Finally, in the Pacific Northwest, at Seattle, Horace T. Pentecost is approaching full flight tests of his re-designed single-place Hoppicopter, heretofore flown only in limited hovering flight.

► **No Bonanza**—Successful flight of all or any of these western designs, each differing radically from the other, should not be expected to result in a rash of building.

They know from bitter experience

that months of testing lie ahead.

They know that CAA, matured by study of experimental failures and the slowly-developed success of Bell and Sikorsky, producing the only commercially successful helicopters now on the market, will be hypercritical in issuance of airworthiness certificates.

And, they know that obtaining the millions in financing they will require to go into competitive production is a problem as serious as any they have encountered on drafting boards.

► **Financing Needed**—One of the western quartet, comfortably financed to complete the testing of his experimental model, estimates that his company will require for the commercial production plunge the floating of a stock issue of at least \$3,000,000. How quickly such a sum could be raised is uncertain in the light of the tightening, in recent months, of investment money. And, should he be able to obtain a complete underwriting of the issue by a brokerage firm it is quite likely that he will be confronted with the maximum brokerage commission allowed under California securities law... 20 percent, or \$600,000. Too, unless there should develop a surprising buyer reaction, promotional money might prove skittish in the light of limited production and sale of Bell and Sikorsky machines, and their high costs.

However, high as these hurdles appear to be, there is no indication that they will deter the western builders.

To each, with the exception, perhaps, of Hiller, who gives indication of having sufficient finances to carry him well into initial production, there may appear to be two happily and immediate solutions to all their dollar worries.

As in the case of airplane manufacturers, each hopes that his 'copter will win military contracts sufficient to underwrite tooling for commercial production.

There also is the constant expectation that a helicopter will show such promise that a major plane builder will buy it for a thrust at competitors heavily committed in the personal airplane market.

► **Big Company Interest**—On the West Coast, for example, Lockheed, Douglas, and Boeing are considered likely prospects for the purchase of either an unusually good personal airplane or a helicopter; their interest aroused, if not whetted, by the personal airplane ventures of Convair and Ryan.

All this, of course, adds up to the daydreaming of the coast's helicopter fraternity, and all immediate interests center upon forthcoming test flights and bids for CAA certification.

Within the aircraft industry closest attention will be paid to engineering details of the various helicopters as they are disclosed by their designers during the flight test period.

► **Points of Design**—Hiller's simplified rotor head assembly, embracing only seven major components and aimed at achievement of relatively low production and maintenance costs, will command top attention in that his machine appears to be closest to the assembly line. Hiller insists that his coaxial two-rotor design has been put aside purely for production economy and mechanical simplicity reasons; and he hints that it may prove to be a useful design at a later date.

Magill is convinced that in his tandem design he has a machine offering maximum payload for horsepower, and hopes that proof of his contention will come out of his own forthcoming flight tests.

Already publicized has been Pentecost's eyeing of the Army as an initial buyer of his Hoppicopter, for troop use, and his belief that he can crack the "flying farmer" market by offering a machine in which Farmer Jones can leap, with a loss of only a few minutes, from milking stool to the south forty irrigation ditch and back again.

Similarly, Hiller and Landgraf are established as potential intruders upon the markets already under development by Bell and Sikorsky, and Landgraf already has profited in six figures from the sale of a manufacturing license to a British group.

► **Interest on Landgraf**—Probably the greatest engineering interest rests today, among the four designs, upon the Landgraf helicopter.

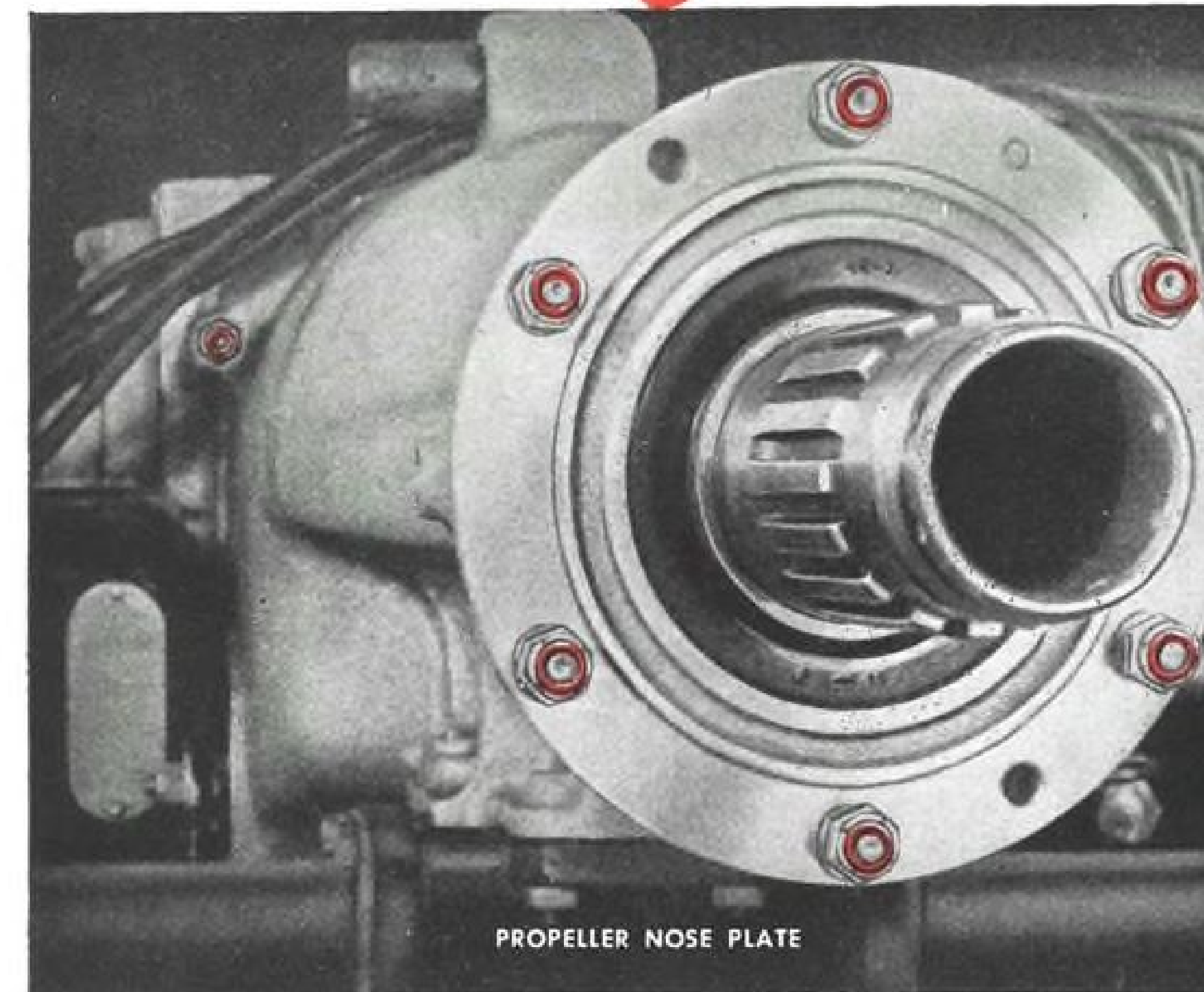
Two failures, a wood rotor hub once and a rotor blade on his second model, have not detracted from the seeming merit of his basic design and its ingenuity of control, power administration, and blades.

When his new model flies it will carry an innovation in rotor blade

SELF-LOCKING

Prestressed Settings

RESIST PROP-ENGINE VIBRATIONS



PROPELLER NOSE PLATE



FRANKLIN "500" AIRCRAFT ENGINE
215 HP — 2,500 RPM

The Red Elastic Collar provides dependable protection against VIBRATION!

Two sources of vibration combine their efforts to loosen the detachable fasteners on the propeller nose plate of the Franklin "500" Aircraft Engine. Continuous engine vibration and fluctuating blade flutter, caused by turbulent air, make each prestressed setting a potential trouble spot. Conventional fasteners would shake loose. But ESNA Elastic Stop Nuts hold fast!

The reason for the dependable ESNA protection is the Red Elastic Collar that has become a symbol of security to all aviation engineers. Its full contact grip on the bolt or stud threads and its metal

thread seating action make all Elastic Stop Nuts self-locking and self-sealing. As a result, they protect against Vibration, Thread Corrosion, Thread Failure and Liquid Seepage.

ESNA experience and research are always at the disposal of the aviation industry. Industrial distributors are stocked and ready to give prompt service. For further information address: Elastic Stop Nut Corporation of America, Union, New Jersey. Sales Engineers and Distributors are now conveniently located in many principal cities.



LOOK FOR THE RED COLLAR
THE SYMBOL OF SECURITY

It is threadless and dependably elastic. Every bolt—regardless of commercial tolerances—impresses (does not cut) its full thread contact in the Red Elastic Collar to fully grip the bolt threads. In addition, this threading action properly seats the metal threads—and eliminates all axial play between the bolt and nut.

All ESNA Elastic Stop Nuts—regardless of size or type—lock in position anywhere on a bolt or stud. Vibration, impact or stress reversal cannot disturb prestressed or positioned settings.



ELASTIC STOP NUTS



INTERNAL
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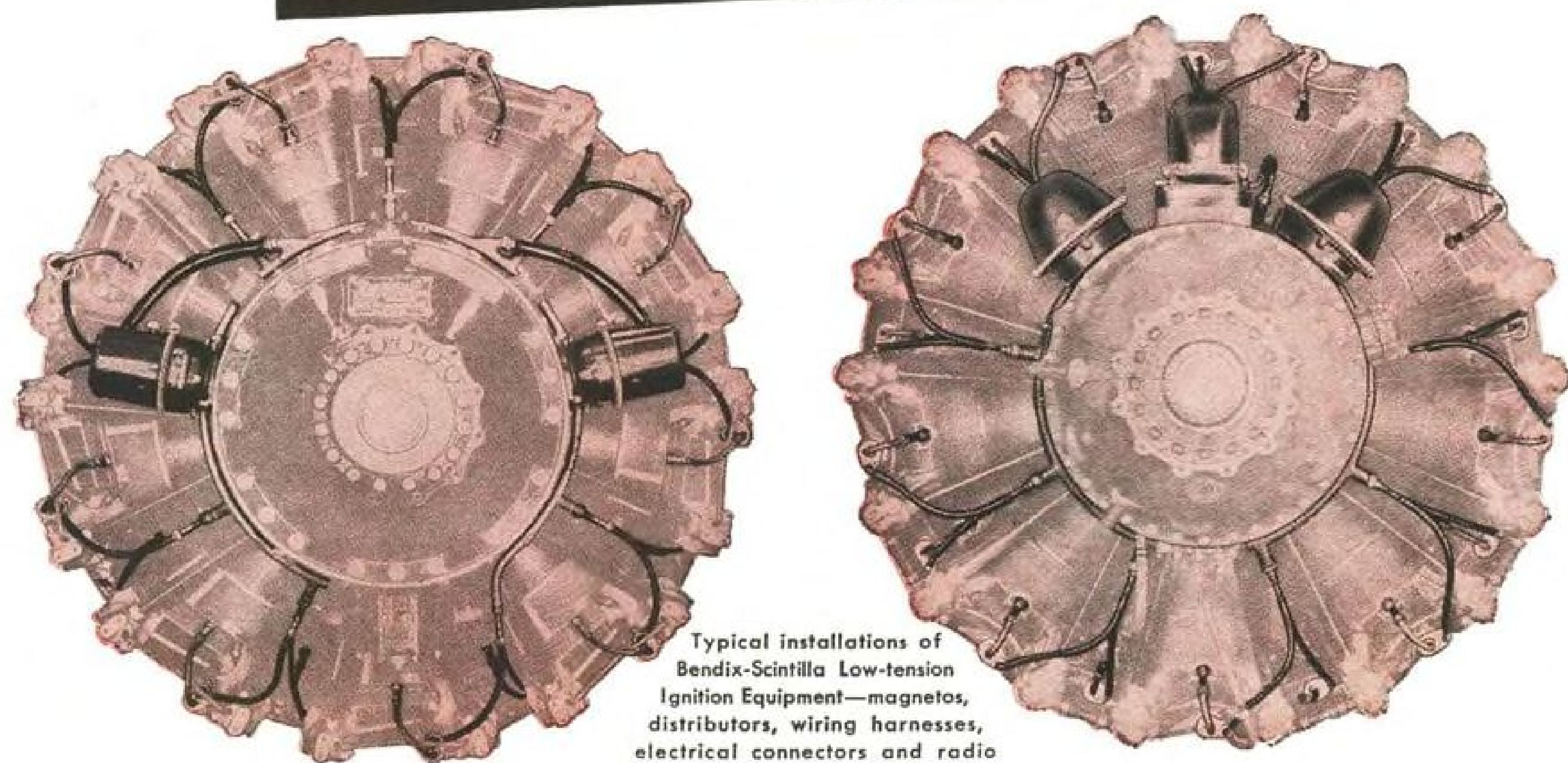
PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA

AVIATION WEEK, November 17, 1947

For Power at its Peak...

BENDIX-SCINTILLA

IGNITION EQUIPMENT



Typical installations of Bendix-Scintilla Low-tension Ignition Equipment—magnetos, distributors, wiring harnesses, electrical connectors and radio filters—on recent and leading engines.

When there is no compromise with quality—when the standard of acceptance is power at its peak—leading engine manufacturers invariably select Bendix-Scintilla* Ignition Equipment. Mile after mile, air-hour after hour only emphasize its reliability, efficiency and low operating cost. Bendix-Scintilla builds both high-tension and low-tension aircraft ignition systems. The newly developed low-tension systems are designed for extra efficiency, especially at higher altitudes. Write for the new brochure, fully illustrating and describing the low-tension systems and their outstanding features.

*TRADE MARK

Bendix-Scintilla Radio Interference Filters are designed for insertion in aircraft ignition grounding circuits. Extremely successful in eliminating radio noise at very high frequencies.



Bendix-Scintilla is also a leader in the field of Diesel Fuel Injection Equipment, and it is in wide use on railroad, marine and stationary Diesel engines.



Bendix-Scintilla Electrical Connectors are built in a wide variety of sizes and types. Precision-designed to give a pressure-tight, water-tight and radio-quiet assembly.

**BENDIX
SCINTILLA**

SCINTILLA MAGNETO DIVISION of
SIDNEY, N. Y.



spoilers that are expected to improve materially control originally sought in equipping each blade with an aileron responding to cyclic changes during each rotation.

Also, the new Landgraf model is expected to be the first 'copter to fly with gear full retracted; and if preliminary tests are successful a helicopter speed record of well over 100 mph. may be expected.

Brown Named Edo General Sales Manager

Archibald M. Brown, Jr., on the sales staff of Edo Aircraft Corp. from 1934-37, has returned to the company as general sales manager at their College Point, L. I. office. For the past year, he has served as an aviation consultant to financial houses. Previously, Brown managed the Port Washington, L. I. seaplane base, and was Sales Manager for Fairchild Aircraft division at Hagerstown, Md.

In other personnel actions:

Jack and Heintz Precision Industries, Inc. appointed Frank R. Kohnstamm as general sales manager. Kohnstamm was previously associated with Westinghouse Electric Corp., in Mansfield, Ohio.

Fairchild Aircraft division named Herman Wieben, Jr. as head of the production engineering division of the engineering department. He was previously with Glenn L. Martin Co.

Pacific Airmotive Corp. announced the appointments of Leonard J. Rowley as traffic manager for PAC, L. M. Reed as manager of their Burbank branch, and Kenneth V. Hilliard as service production manager for the newly activated Atlantic division of the firm.

Elastic Stop Nut Corp. of America named E. F. Nason as aircraft sales and product manager. Previously he was associated with Pratt & Whitney Aircraft division of United Aircraft Corp.

General Electric appointed H. D. Kelsey and E. S. Thompson as manager and assistant manager, respectively, of the company's newly created aircraft gas turbine division at Lynn, Mass.

McDonnell Aircraft Corp. elected Don R. Berlin, present vice president in charge of engineering and contracts, to the board. He has been with McDonnell in his present capacity since Feb. 3.

United Aircraft Products, Inc. appointed W. Hayward Geddes as chief engineer. He has been with the firm for seven years.

Wheelair Builder Bankrupt

Puget Pacific Planes, Inc., of Tacoma, Wash., has filed a voluntary petition in bankruptcy in federal district court at Tacoma. The company, organized after the war, listed assets of \$225,743 and liabilities of \$106,689.

The assets listed include deferred development costs and prime costs of the Wheelair personal airplane, including one completed airplane, work in process of a second plane and engineering data.

Donald J. Wheeler is president of the corporation and designer of the plane.

BRIEFING PRODUCTION NEWS

► **Northrop Aircraft Inc.** is tooling up for production of B-50 landing flaps under a \$1,500,000 subcontract from Boeing.

► **Rohr Aircraft Co.** is hiring 600 additional workers to fill another Boeing B-50 contract for subassemblies, parts and stampings.

► **Aviation Maintenance Corp.** has obtained a contract from American Overseas Airlines for major overhaul of DC-4s used by AOA. During the overhaul, fire prevention items specified by CAA for all transports by next Spring will be installed.

► **United Helicopters, Inc.,** Palo Alto, Calif. has begun construction of new plant where it hopes next year to begin commercial production of its three-place industrial and agricultural helicopter.

► **Parker Appliance Co.** is now offering overhaul and modification of its selector valves at a flat rate. Latest features will be built into valves serviced. Program is in effect at both Cleveland and Los Angeles plants.

► **Glenn L. Martin Co.** plans call for production of one 2-0-2 per week. Company now has three shifts working around the clock. First and second shifts are full crews, with the third shift smaller. Northwest Airlines has taken delivery of five of its order for ten 2-0-2s. Martin is scheduled to deliver this month the first of the two planes ordered by Linea Aeropostal Venezolana, with the second due in December.

► **Canadair Ltd.** is now employing 6,000 on its production of DC-4M North Star transport. Company is also doing extensive overhaul and conversion business for airlines of about a dozen countries.

► **Beech Aircraft Corp.** has purchased for \$94,000 the Government-owned hangar, lean-to, clock house and parking area it used during the war at its Wichita, Kans. plant. Company expects to employ about 65-70 additional persons to turn out subassemblies and prefabricated houses in the hangar.

► **AiResearch Manufacturing Co.,** subsidiary of the Garrett Corp., had a Sept. 30 backlog of \$9,000,000—about two-thirds military and one-third commercial—for aircraft pressurization and cooling equipment. AiResearch is supplying pressurization systems or components for all commercial aircraft and most of the military planes. Work on auxiliary gas turbine engines and air turbine starters is also underway.

► **Edo Aircraft Corp.** has changed its name to Edo Corporation due to its increasing activities in non-aeronautical fields.

► **Fleet Manufacturing & Aircraft Ltd.** has discontinued the manufacture of Cabin Car house trailers, and now is negotiating with Twin Coach Co. for production of motor buses for a Canadian subsidiary of the coach company.

► **Fairchild Engine & Airplane Co.** has moved the site of its directors meetings to its Hagerstown airplane plant. Main business offices continue to be at 30 Rockefeller Plaza, New York City.

► **Pesco Products division** of Borg-Warner Corp. has begun construction of a \$120,000 laboratory in suburban Cleveland. It will be used to test aircraft fuel system.

► **Solar Aircraft Co.** sales for May, June and July amounted to \$3,531,209 on which company realized profit of \$185,517.

► **Lapeer Manufacturing Co.** has moved its general sales offices to 2906 W. Grand boulevard, Detroit 2, Mich. Plant recently was moved to Lapeer, Mich.

NEW AIRCRAFT



With wings disassembled and latched to the sides, the plane is towed by a jeep and tucked out of sight in the forest.



The Boeing XL-15 fits any standard 2 1/2-ton Army truck. Wings and tail section are removed, wheels rotated inboard.

XL-15 Demonstrates Its Versatility

Boeing liaison plane has a variety of uses in varied climes.



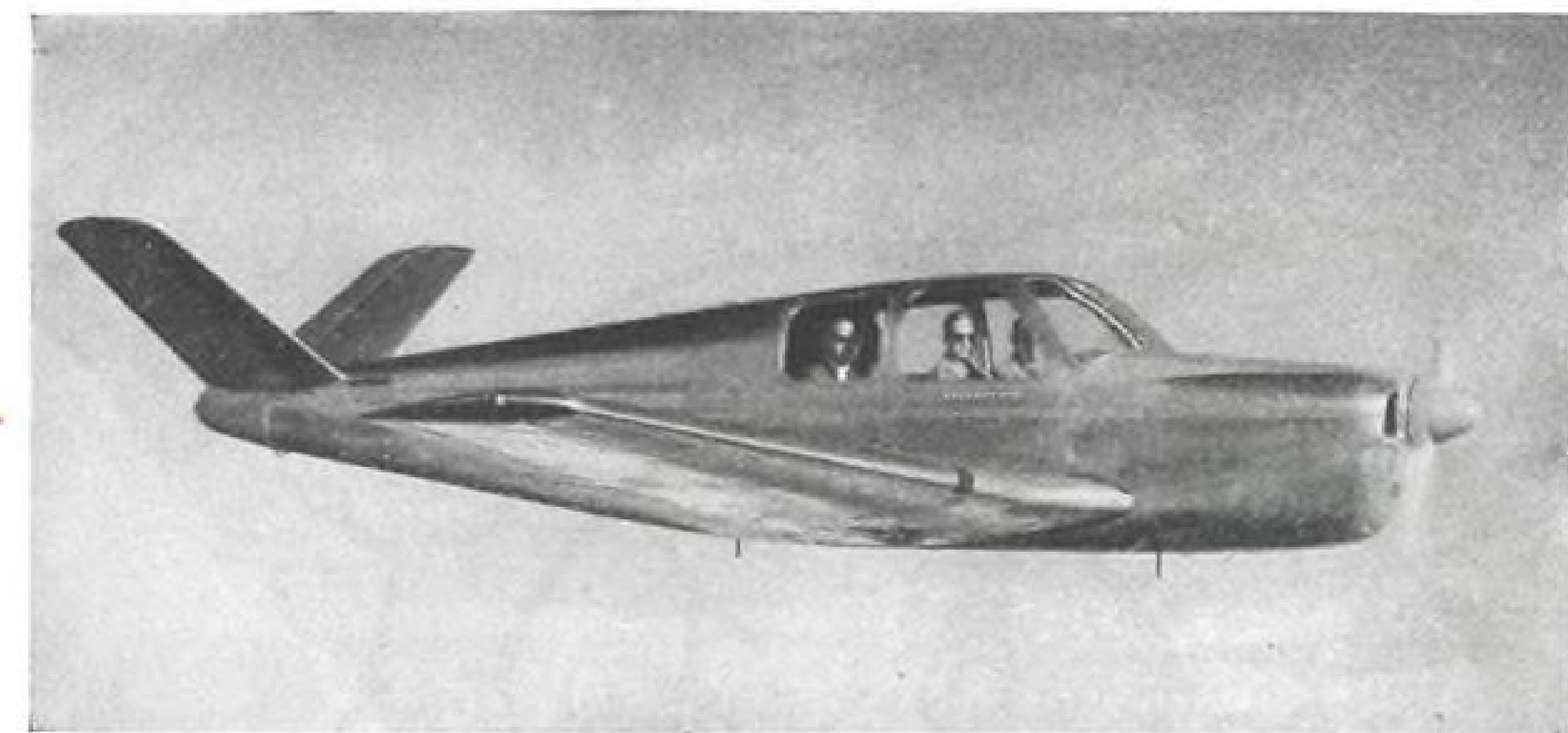
Another example of the wide versatility of the liaison plane is its adaptability as a ski plane. This makes it available to the Army for

use in cold climates and in mountain areas and it has been winterized. Boeing is now at work on a service test quantity.



The XL-15, being built at Boeing Wichita plant for the Army Ground Forces, can be equipped with floats, giving the Army a

seaplane that can fulfill many aerial assignments. In this picture, the XL-15 is equipped with Edo floats for water operations.



**WHAT LUCK! OH BOY!
IT'S A BEECHCRAFT
BONANZA!**

So you've struck it rich . . . with a plane of your own! Staking your claim to a whole gay new world in the air with a Beechcraft Bonanza! We know the thrill. We've been going round with our heads in the clouds for years! Flying? *It's wonderful!*

Flying for fun? Flying for business? You'll want to keep that new engine of yours tuned to its sweetest song. Here's a hint . . . use only fine-quality aviation products!

Phillips 66 aviation engine oils and 80 octane gasoline, developed by Phillips 66, are specially designed to keep airplane engines cleaner . . . to help your plane to better performance.

You'll find the Phillips orange and black shield . . . *with wings on!* . . . not only at your big city airport, but also at the little prairie landing fields along your route. *Happy landings!* . . . at the Phillips 66 airfield pump! The Aviation Department, Phillips Petroleum Company, Bartlesville, Oklahoma.



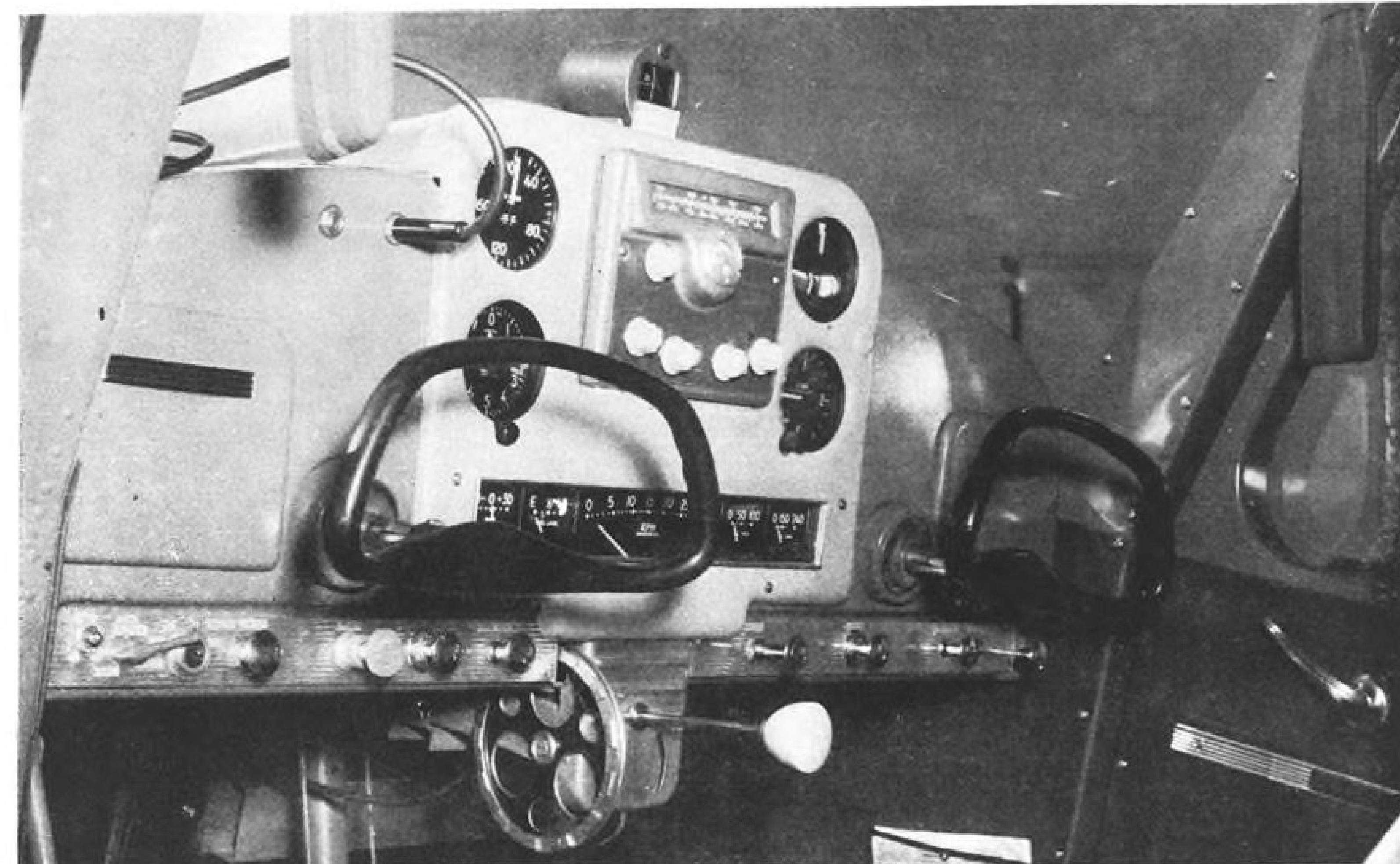
AVIATION GASOLINE



FLEXIBILITY

The lasting flexibility . . . built into all Glidair Aircraft Finishes . . . assures the economy of long life and easy maintenance. The Glidden Company, Aviation Sales Headquarters, 11001 Madison Ave., Cleveland 2, Ohio.

Glidden



Neat instrument layout places utility and good looks side-by-side. Flight instruments and radio controls are grouped for accessibility

while less frequently needed items are placed in less prominent positions. Installation of throttle block is an innovation.

Flight Report

Luscombe Sedan Stresses Comfort

Although resembling its two-place forerunner, it is larger and heavier. Performance shows excellent control and climb.

By ALBERT E. SMYER, JR.

Luscombe Silvaire Sedan, the yet-to-be marketed four-place product of the Dallas manufacturer, from a distance resembles the two-place Silvaire. A closer inspection, however, reveals some interesting points of difference.

The familiar tail assembly has been modified and now features an exaggerated fairing into the large vertical stabilizer and a much larger rudder and horizontal stabilizer. The landing gear is basically the same design as its forerunner but all parts are larger and heavier to accommodate the additional fuselage weight and increased power of the 150 hp. engine.

The rear of the fuselage has been streamlined and looks much like the body of an automobile since a generous window has been installed in the after part to improve visibility. Landing lights are mounted in the nose section cowl

behind the propeller and below the shaft to eliminate light reflection during night landings.

► **Interior**—During a recent demonstration of the Sedan, it was noticed that the cabin of the plane is large and the seating arrangement has been made with an eye to passenger comfort. Conventional front seats have been installed and are provided with folding backs, the seats are adjustable to provide maximum pilot comfort, and seat backs fold flat providing easy access to the rear of the cabin.

The rear seat is exceptionally wide and deep and is set far enough back to give ample leg room to passengers carried on long flights. It is quickly removable by detaching a couple of locking pins, and its removal provides space for use as a cargo hold.

► **Instrument panel** is designed for utility as well as looks. Flight instruments are grouped prominently in the

upper center section and engine controls—throttle, mixture, carburetor heat, primer, and starter—are mounted together at the lower center. Fuel gages and selectors and fuel valve are mounted at the lower left side of the panel near the ignition switch; cabin heat control is mounted on panel at lower right. Twin glove compartments are installed for storage of small items, one at left may be used as receptacle for radio microphone. Radio installation, a Bendix PATR-10, is mounted centrally in panel and provides five channel VHF and a two-band receiver covering 200-400 kc. and 400-1500 kc.

► **Controls**—Dual control wheels operate through the dashboard and dual rudder pedals are standard equipment. Brakes are fitted only on the pilot's side. Parking brake lever is located under the left side of the instrument panel.

Elevator trim is operated by a hand-wheel located on the left side of the



Section of nose cowl clearly shows the unusual placement of the twin landing lights. Intakes for cabin heater air are located just inside the opening of the cowl. (All photos Aviation Week)



Side views show the odd fairing structure at the empennage. Note the placement of the rear cabin window and the decided down sweep of the after cabin wall, and large top windows.

throttle block. Flaps are hydraulic, and pressure is provided by a hand pump located on floor to the right of the pilot seat. A release valve is provided to permit flaps to be retracted either by air pressure or spring assist without necessity of further pumping.

► **Flight Data**—The Sedan is powered by a Franklin 150 hp. engine driving a Sensenich fixed-pitch propeller. Taxiing is normal, good visibility is provided by large size side and rear windows, the action of the toe brakes is gentle and effective. It was noticed that the engine appears to be very rough on the ground and it creates an annoying amount of vibration throughout the structure.

• **Takeoff** was normal, although run was slightly longer than was to be expected; we became airborne at about 62 mph. indicated airspeed (surface wind was about 4 mph.). Climb was made without flaps at 80 mph. and resulted in a vertical speed of nearly 1,100 ft./min. with excellent control on all surfaces.

• **Level flight** at 1,850 rpm. gave us an indicated airspeed of 130 mph. at 2,000 ft. Most noticeable feature of cruising attitude was the position of the nose with reference to the horizon. It appears to be about 10 degrees below the level position and it was necessary to refer to the instruments to ascertain when the ship was correctly trimmed.

The cabin proved to be very noisy and it was impossible to converse in anything approaching a normal tone of

voice; seemingly most of the noise was due to passage of wind outside but a noticeable amount came from the engine which even in flight gave an impression of roughness and vibration.

• **Slow flight** was carried out at 60 mph. indicated, without flaps, and while good control was maintained with no apparent "mushing" the nose was in such a high position that forward visibility was reduced to an extent that the maneuver lost much of its value.

Flaps are used for glide control only and create little appreciable lift. They make only one mile per hour difference in the landing speed, but do permit the pilot to make a steep approach to the field. We put the flaps down in flight, then retracted them and there was no sink as they were reduced and the only sensation was of increased speed.

• **Landing** was accomplished in normal three point position and the stall was gentle. Three point touch-down emphasized the advantage of the Luscombe

gear by taking up most of the shock and minimizing the effect of the rough surface of the field on the landing roll.

The Silvaire Sedan is expected to sell in the \$6,000 class along with Stinson, Beech and Cessna.

Boeing Stratojet Slated For Early Test Flight

With the first taxi tests completed, indications are that the Boeing XB-47 multi-jet bomber may make her first flight shortly.

The plane's initial flight likely will be her last from Boeing Field, adjacent to the Boeing plant at Seattle, as the Strato-jet will be flown directly to the Army's field at Moses Lake in Eastern Washington for the flight test program. The Moses Lake airport is much larger than Boeing Field and is also in a better weather zone.

Since being rolled from the plant Sept. 12, the XB-47 has been put through a series of pre-flight tests. The six turbo-jet engines were operated at both low and high speeds and the tandem landing gear was tested by towing the plane over ditches and low obstacles.

First powered taxi tests were made at low speed, using only two of the bomber's six engines. Brakes, steering and ground stability were tested.

The Moses Lake field has two runways, each 10,000 ft. long, with 500-ft. asphalt extensions.

Luscombe Silvaire Sedan Specifications

Span 38 ft.
Length 23 ft.
Gross wt. 2280 lb.
Fuel cap. 47 gal.*
Range 550 mi.*
Cruising speed 130 mph.

* Approximate

For Uniform High Quality no matter what the job... Demand REEVES ARMY TWILL



Look for this Label in Your Uniforms, Utility and Work Clothes!

WHATEVER your industry, it is good business to specify uniforms and work clothes of durable, smart looking Reeves Army Twill. Its high tensile strength insures rugged wearability. It tailors smartly, too, and is color-fast to sun, water and perspiration. Sanforized Shrunk®, it is

the fabric for long-lasting economy. Remember—over 90 million yards of this same fabric helped equip America's fighting men—exceeding Government specifications under the toughest climatic and combat conditions.

*Residual shrinkage less than 1%.

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AVIATION WEEK, November 17, 1947



"FROM COTTON TO CUTTER"

UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE

No Place for Vermin



KOYLON—the world's most comfortable material—makes life uncomfortable for vermin. For the very characteristics of Koylon Foam make it *verminproof*! Vermin just won't go near Koylon Foam—even if they could build a home in it.

Koylon Foam starts clean—stays

clean! That's one of the many reasons why this amazing cushioning and mattress material is ideal wherever people sit or sleep. In *every* way it's best for the people you serve and best in the way it serves you. For the *matchless* comfort of Koylon can be provided easily, economically and permanently.

WHEREVER COMFORT COUNTS, PUT

U.S. **Koylon** FOAM
Comfort Engineered!



12 years of testing on major railroads prove that comfortable Koylon is long-wearing!



The matchless comfort of Koylon wins and keeps more passengers for modern bus and air lines!



In new cars, the matchless comfort of Koylon helps to lessen driving fatigue. A safety feature!



U. S. Koylon Foam Division, Mishawaka, Indiana

Concentration on Jet Research Expected to Yield Greater Gains

Allison director of engineering sees more benefits to be obtained from funds spent on turbine development than could result from further piston work.

An assessment of all factors present in the construction and use of reciprocating and gas turbine engines has brought at least one engineer prominent in the development of both types to the conclusion that research funds available for expenditure on power plants should be concentrated on turbojet and turboprop engines.

This is the analysis of R. M. Hazen, director of engineering of Allison division of General Motors Corp., now the world's largest producer of jet engines. Hazen's belief is based on the premise that every mission, whether military or commercial, which can be accomplished satisfactorily with turbojet engines will be powered by this type, that every possible mission on which the turbojet cannot meet requirements will use turboprop engines and that only such missions as cannot be accomplished with either jet or turboprop will the reciprocating engine be used. Accomplishment of the mission is intended to consider such factors as speed, range, cost of initial equipment, cost of operation and general performance of the aircraft. In support of the above premises there are now tens of thousands of hours of flying on turbojet engines, experience on a considerable number of installations in various types of aircraft and a production background which verify the advantages of this type of power plant.

► **Economic of Development**—Development funds are definitely limited in a peacetime economy. Their major allocation must of necessity be in favor of eliminating shortcomings in the simplest type of power that can be made to meet requirements, in exploring the various sizes needed, and in developing those avenues where the most rapid progress can be made.

Hazen believes the advantages of applying research and development funds to the turbine are obvious since major improvements in efficiency, in output for a given size, in economical fabrication and material usages are possible due to the newness of the product.

Such improvement applies to the power sections of both turbojets and turboprops, and, by providing basic information applicable to the exhaust

turbine, even aids in the development of the compound reciprocating engine. The favorable ratio of funds being applied to turbine development makes the turbine engine's future more certain and the reciprocating engine's less secure, according to Hazen. Military funds only are considered in this appraisal, as commercial applications in general support detail refinement rather than new model or type development.

Allison, Hazen says, has recently had the unique and interesting experience of producing side by side in the same plant comparable monthly quantities of a centrifugal type turbojet, an axial flow turbojet, and a two-stage liquid cooled reciprocating engine.

In each case the engines had been tooled for production on a war-time basis and the lines rearranged for relatively modest peacetime requirements. Sufficient quantity of each have been built so that the starting and pre-production costs are now down to normal figures. Uniform overhead, labor, material sources, and to some extent, subcontracting have permitted some interesting comparisons to be made.

The only important variable was the time of prior development on the products and this admittedly is very important. The centrifugal jet and the reciprocating engine are both at a stage where only careful production

engineering may result in further cost reductions, and costs may increase due to greater complication of the product.

► **Turboprop Next Step**—In Hazen's view, a further production factor favoring the elimination of the reciprocating engines is that once turbojet production exceeds reciprocating production, the facilities, fuel handling, manufacturing "know-how" and operating problems all favor the turboprop engine over the reciprocating engine to cover the remaining range of power plants for which the turbojet is unsuitable.

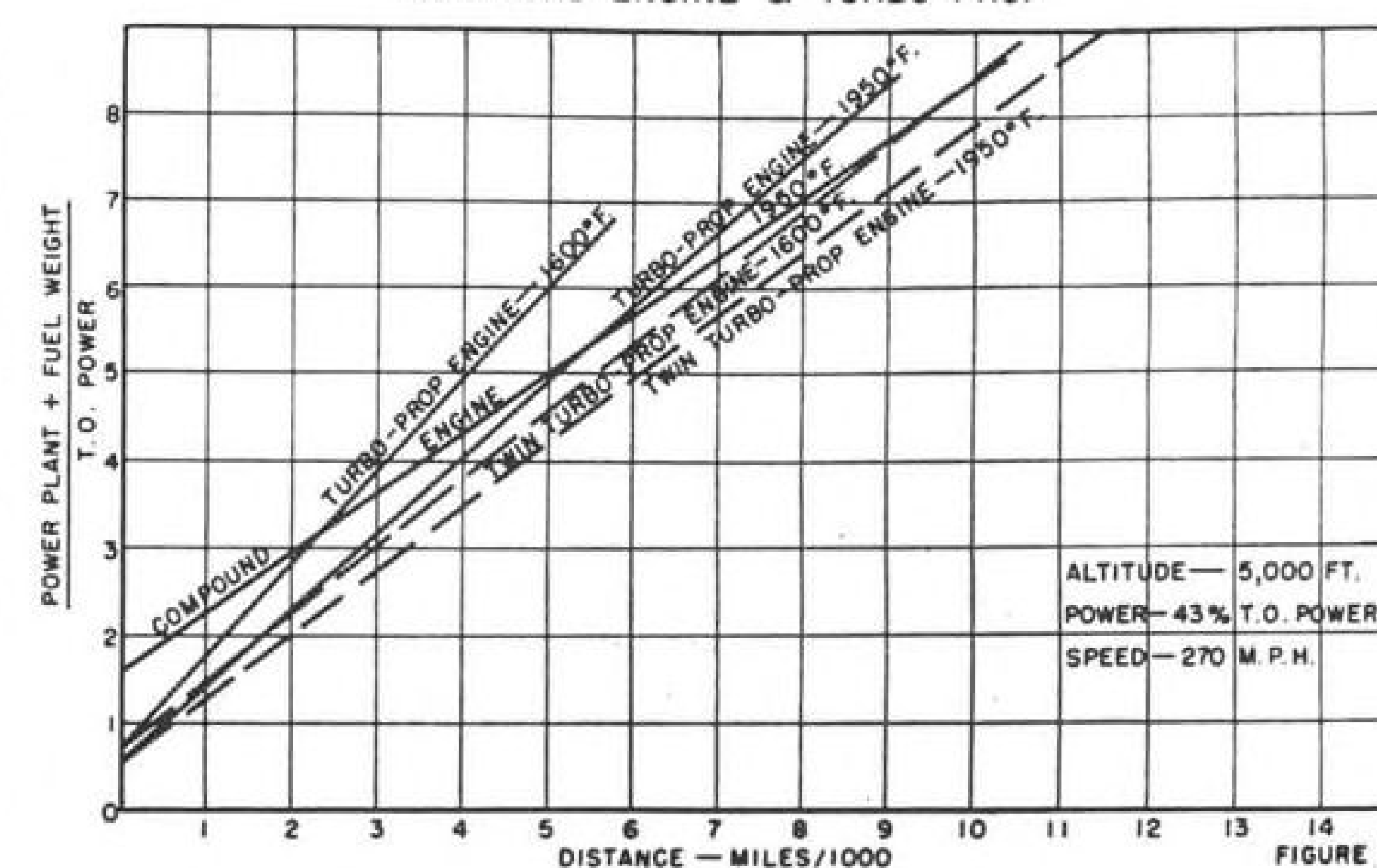
There has been perhaps too little emphasis on the effect of fuel logistics and supply on power plant development. It is more or less obvious that every additional turbojet or turboprop powered aircraft not requiring high octane fuel which takes the air reduces the probability of fuel companies providing development or facilities for higher octane fuel because of the uncertainty of its use.

Military pressure to eliminate the more special and higher cost fuels from the logistics standpoint will increase in direct proportion to the percentage of turbine powered planes in use. This is another major factor working towards the elimination of reciprocating engines in aircraft.

► **Turbojet Engines**—Since the turbojet is the first choice of engineers attempting to meet a given set of performance requirements, it is desirable to examine its weaknesses and determine what can be and is being done to make it applicable to broader specifications, Hazen points out. Disadvantages in order of their importance are poor takeoff and climb, high fuel consumption, variable range with altitude and poor acceleration and deceleration.

• Poor takeoff, and early climb characteristics is perhaps the most glaring

COMPARISON
COMPOUND ENGINE & TURBO-PROP



weakness of the simple turbojet, but it is also one which something can be done about rather quickly.

Application of wartime water-alcohol injection was routine and has been in production for over eight months with an increase of 18 percent in takeoff thrust ratings. Weight addition to engine is only 4 or 5 lb. and, while the water-alcohol consumption is high, it is needed only for a minute or two, is used up quickly and adds only the weight of pump, lines and tank.

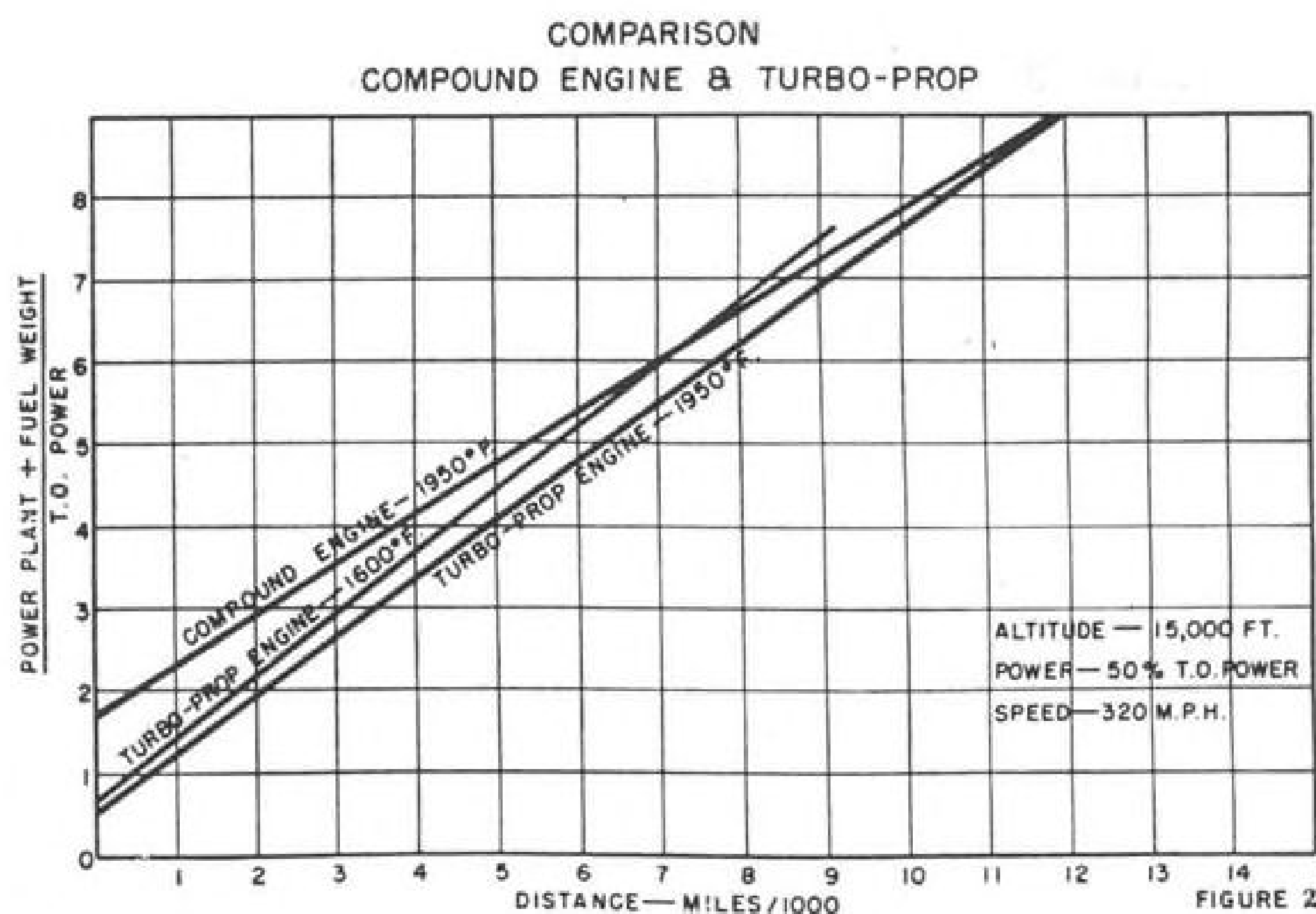
Afterburning or reheating is the next step in augmentation and will take longer to apply, largely because it will involve the use of a variable nozzle and the accurate control of this device automatically is essential to prevent damaging the engine. The higher the percentage of takeoff augmentation, in general, the smaller and more efficient the basic engine can be at cruising conditions.

This is particularly true with afterburning which permits thrust augmentation at all altitudes. It is apparent that every increased pound of takeoff thrust increase widens the field of turbojet selection and application.

• **High total fuel consumption** is a major problem in turbojet installations. The pressure for higher speeds and improved takeoff has placed the emphasis to date on higher and higher thrust, at times at the expense of improved fuel economy. Additional thrust from afterburning at all altitudes may permit appreciable reductions in fuel consumption at some decrease in thrust and temperature of the basic power plant. One of the most comforting points to an engine manufacturer is the evidence that fuel consumption improvements on turbojets tend to come with a reduction in maximum temperatures and an increase in durability.

• **Variable range with altitude** characteristics of the turbojet is perhaps the least discussed disadvantage of aircraft powered by this unit. The better specific fuel consumption at static sea level than that obtained at high speed and altitude is misleading, considering that the range of a turbojet powered airplane is about $\frac{1}{3}$ or $\frac{1}{4}$ at sea level of the usually quoted 35,000 ft. range. Afterburning for high speed permitting a smaller basic power plant helps this problem as would a variable nozzle. Multiple units with low drag shutoff of one unit may be another approach.

• **Acceleration and deceleration** are mentioned by Hazen mainly because the response is slower than might be expected. The variable nozzle and augmentation can help here too. Refinement of design and reduction of rotating weight are obviously indicated as are high momentary temperature limits for acceleration.



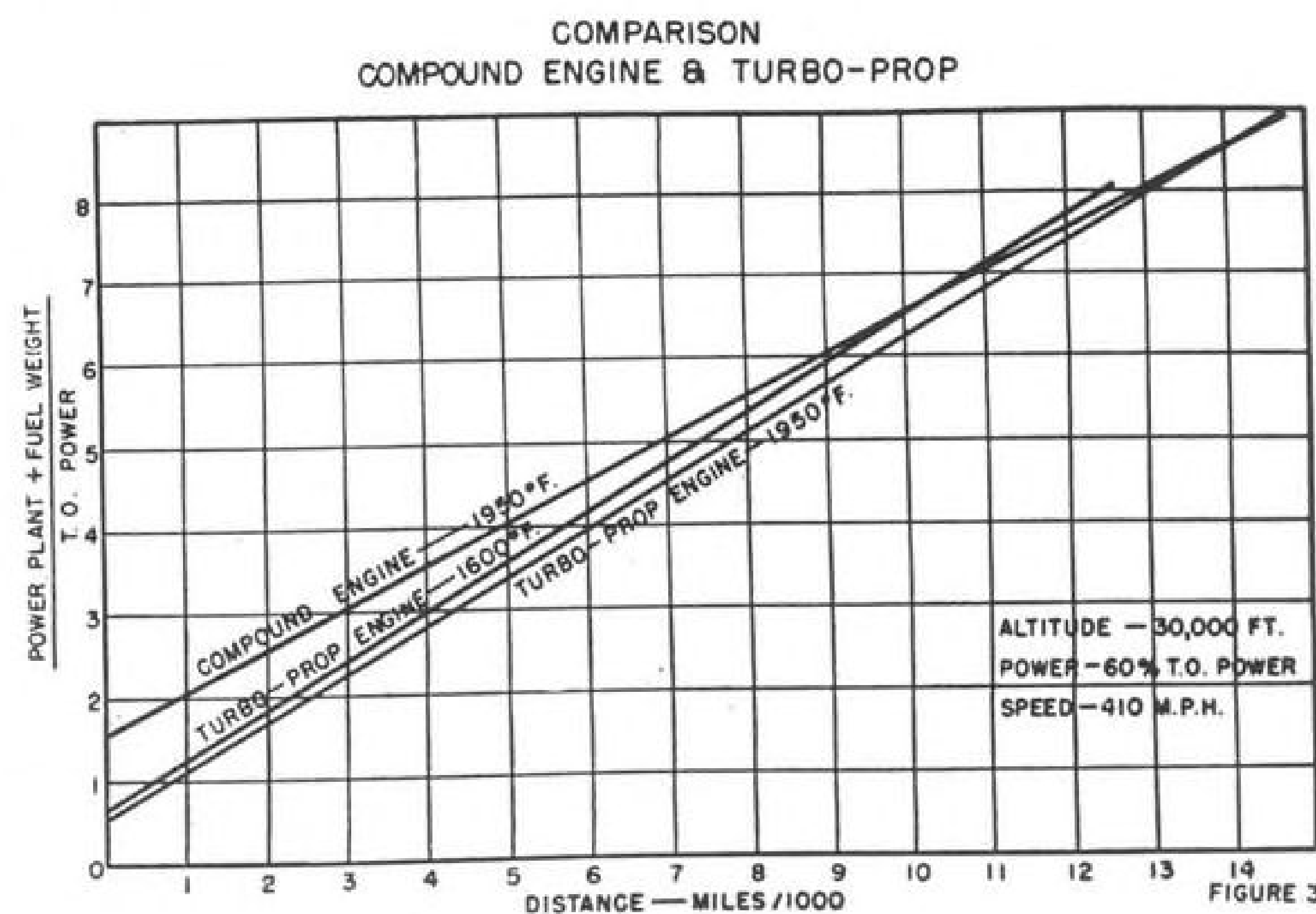
► **Turboprop Engines**—Turboprop is wedded to the propeller and its competitor is the reciprocating engine developed over 35 years to a high state of refinement, reliability, durability and low fuel consumption. To find a place in aircraft propulsion the turboprop has to better in certain respects and equal in all others the reciprocating engine of two or three years from now. It has the basic advantage of high output per pound of weight, smoothness, low fuel cost, small size and the important advantage of being readily scaled up or down, once a good fundamental design is developed, to take care of various power requirements.

Expenditure of engineering time and development funds could not be undertaken on a turboprop engine without first carefully designing such a unit and comparing it with what could be expected from a compounded reciprocating engine of the same development time, Hazen believes.

► **Compounded Engine**—Allison's V-1710 engine is selected as the example only because there is very complete information on not only the basic engine but on turbosupercharged operation with intercooling, operation with fuel injection, operation with and without aftercooling on two-stage versions but most particularly because of available data on high octane fuels (to 75% triptane). The unusual variable speed hydraulic drive of the auxiliary or first stage of compression makes the application of a geared turbine for compounding relatively simple from application, surge, and control standpoints.

Fairly complete information is available on water injection takeoff ratings, high b.m.e.p. lean mixture cruise operation over long periods of time, high

(Continued on page 34)



The XHRP, built by the Piasecki Helicopter Corporation in collaboration with the Navy, represents the first successful tandem rotor helicopter. Typical of the advanced engineering that went into this new ship are the FEATHER-WEIGHT all-aluminum oil coolers... developed in the largest, most modern wind tunnel laboratory in the aeronautical heat exchanger industry.

Inherently light, strong, compact, FEATHER-WEIGHT all-aluminum oil coolers resist the extremes of temperature, pressure, vibration and shear which frequently cause oil cooler failures. Inquiries concerning FEATHER-WEIGHT oil coolers are invited. Clifford Manufacturing Company, 561 E. First Street, Boston 27, Massachusetts. Offices in Chicago, Detroit, Los Angeles.

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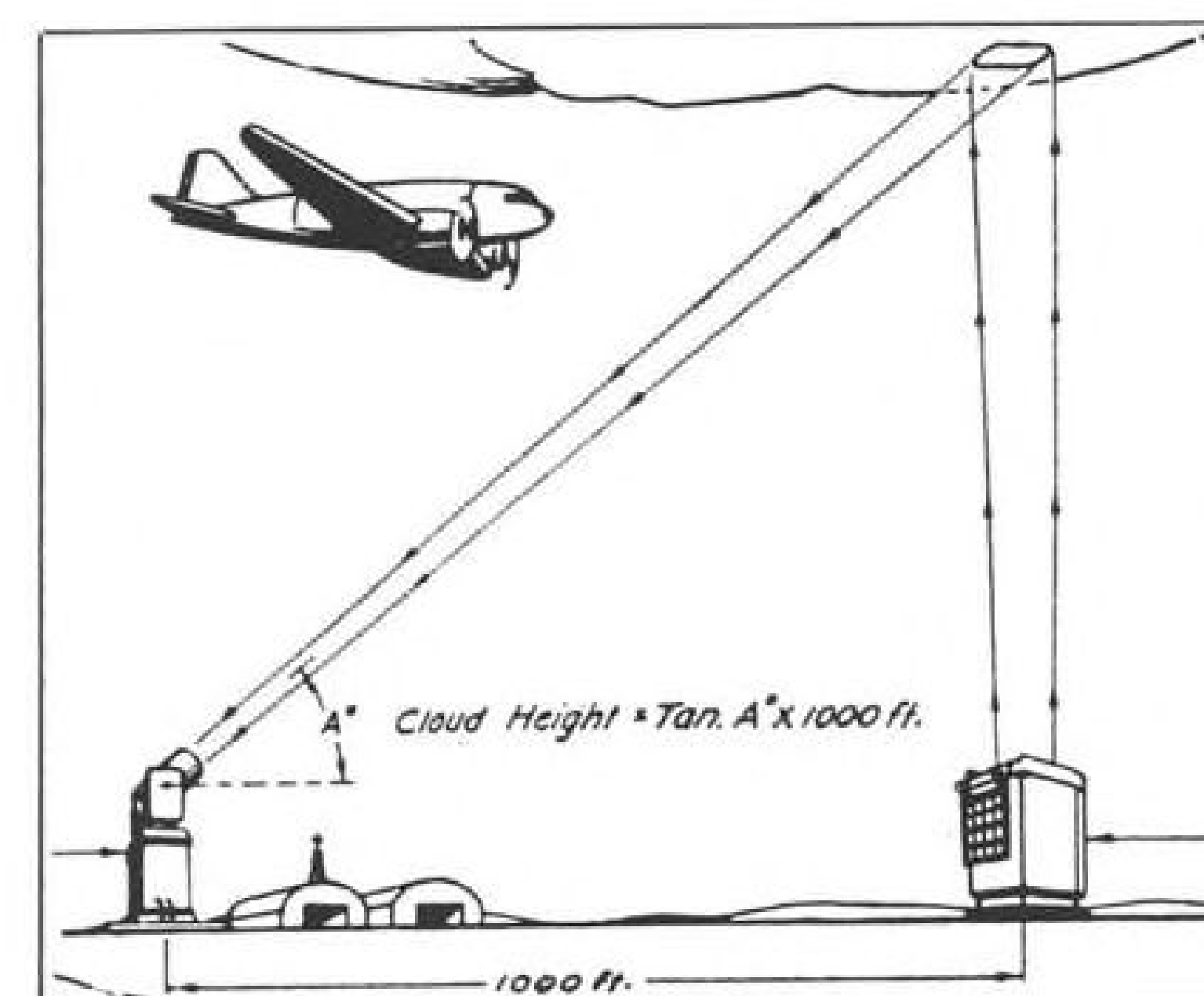
With the *best combination of desirable qualities*, and completely perfected through thousands of hours of intensive operational experience, the *Navion* has proved its superiority by actual performance under all conditions. Speed without sacrificing safety...power and ruggedness combined with clean design that means low operating cost...unmatched, designed-in stability that pays off in "hands off" control and smooth riding, even in rough air...high load capacity and versatile, multi-purpose utility...that's the unique combination of performance features which makes the all-metal *Navion* by Ryan the *ideal* answer for both business and pleasure travel. Check these additional features: Cruising

speed, 150 mph...Range 500 miles...Requires only 560 feet to take off; 335 feet to land...Hydraulic landing flaps, power-retractable tricycle landing gear, hydraulic shock absorbers, and over-size tires make for pillow-smooth landings at slow speed, even in cross winds or on rough fields...185 hp engine and variable-pitch propeller assure safe, fast rate of climb. *Profitable* because it's *useful*, the Ryan *Navion* can be quickly converted to a light transport capable of carrying 645 pounds of bulky cargo in 55 cubic feet of easily loaded space. Both veteran and novice pilots...hundreds of business and professional men...are choosing the Ryan *Navion* for better air transportation at lower cost.

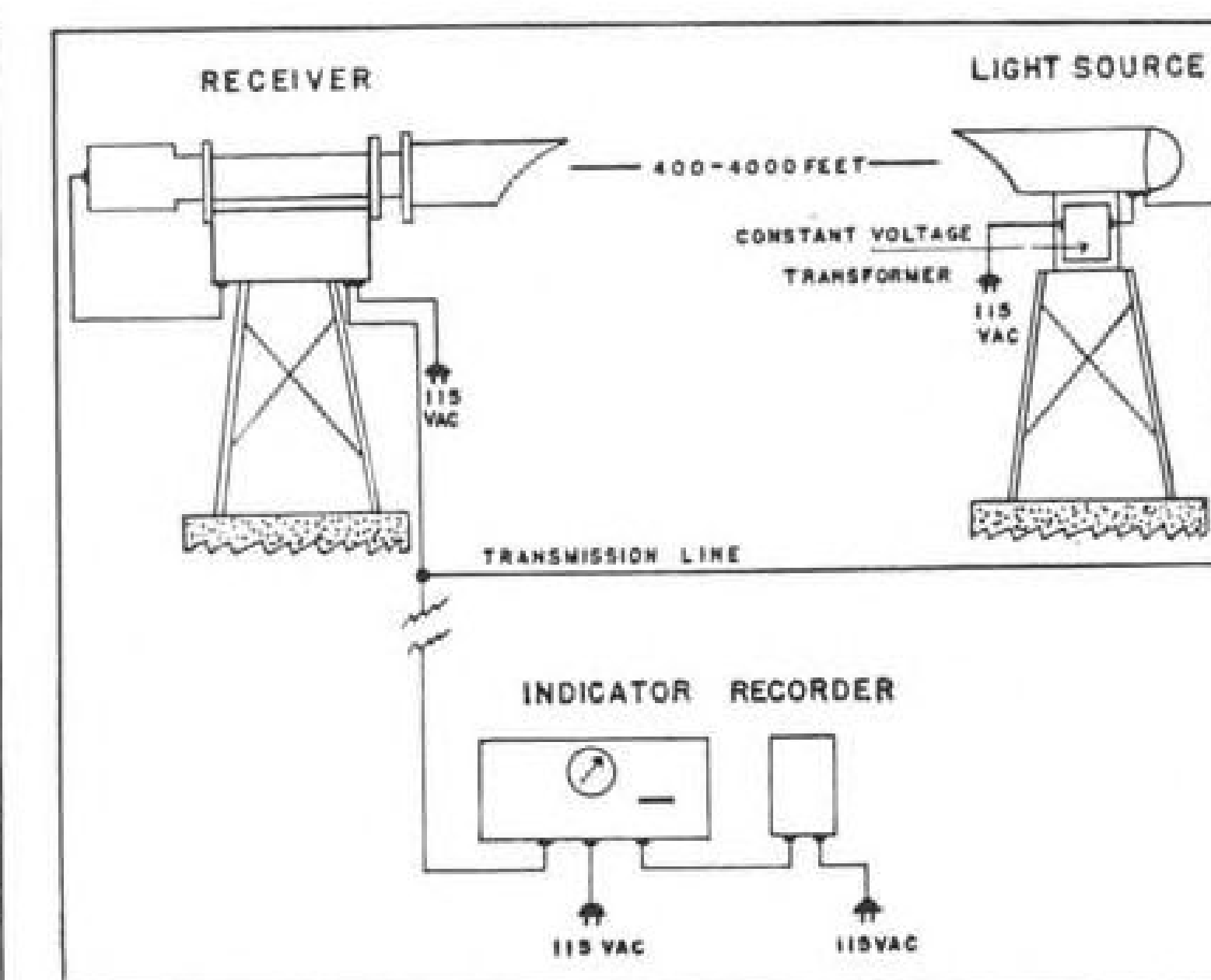
Write today on your business letterhead for fully illustrated brochure and name of dealer near you who will be glad to give you a demonstration. **ORDERS ON HAND** are increasing daily, and are filled in sequence. You'll get earlier delivery by ordering your *Navion* now, well in advance. Address: Ryan Aeronautical Company, 411 Lindbergh Field, San Diego, California.

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CEILING RECORDER: Beam of a 900-watt mercury vapor arc-light is projected vertically into the air (right) and its reflection off the cloud base is picked up by scanning photoelectric tube (left). (U. S. Navy sketch)



VISIBILITY RECORDER: Beam of the arclight is projected horizontally across the field to the receiving station. True gauge of conditions is obtained by placing transmitters and pick-ups at several locations.

New Ceiling and Visibility Recorders

Devices that convert light values into electrical impulses take the guesswork out of forecasting airport weather conditions.

Adding a new weapon in their constant fight to increase the safety of bad weather landing operations, the U. S. Air Force and the Navy have ordered from General Electric Co. 125 electronic devices which give a permanent, precise record of the ceiling over an airport.

This instrument, combined with a development of the Bureau of Standards which gives similar information regarding airport visibility, holds promise of great aid for civilian operations by taking the guesswork out of weather observations at an airport.

While present methods of determining ceiling and visibility at airports are largely a matter of human observation, the GE "Ceilometer" and Bureau of Standards "Transmissometer" will give constant readings and make permanent records for later reference which will assist meteorologists in making future forecasts.

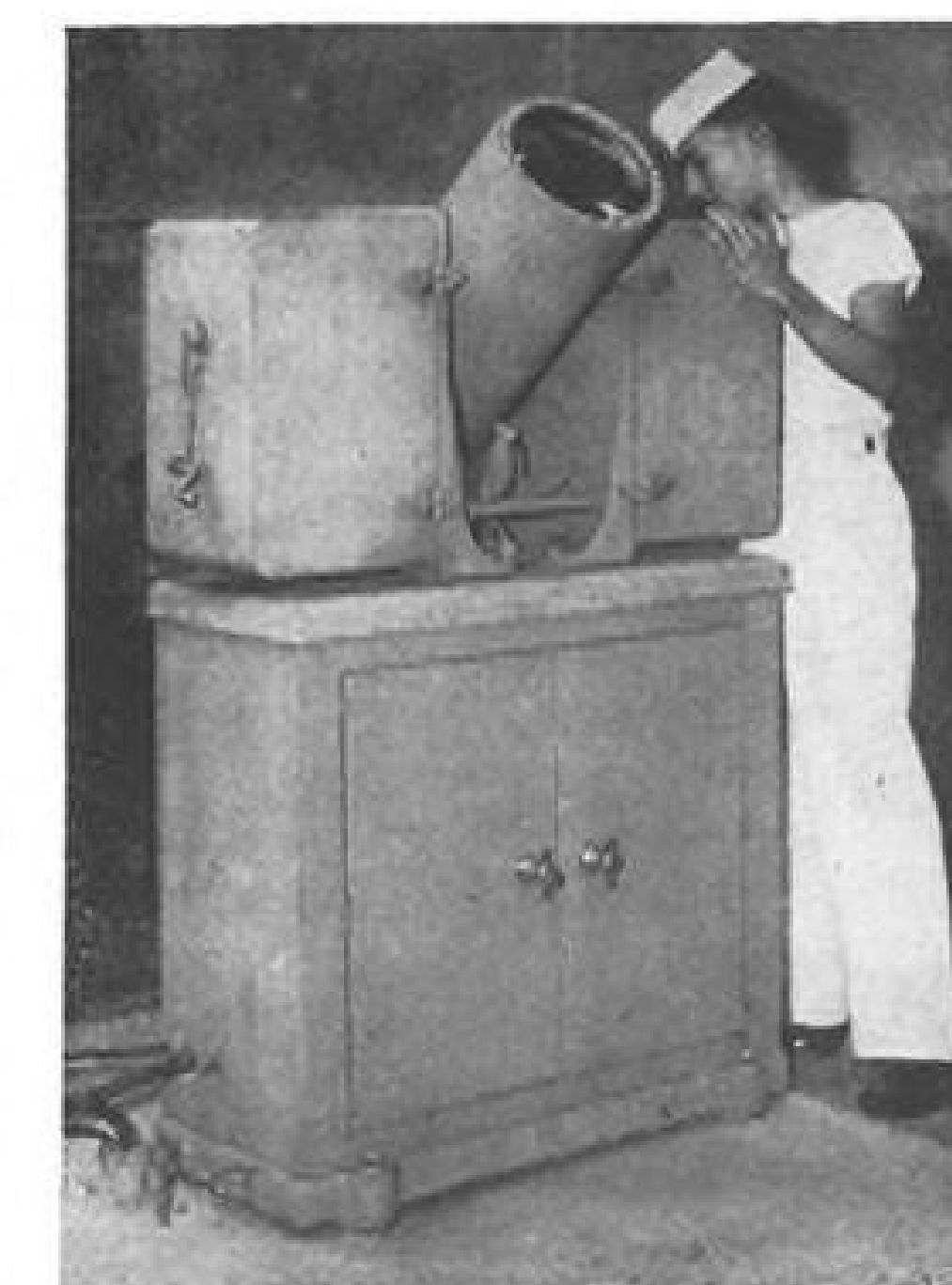
Both devices compute distances by converting light values during the day as well as at night—into electrical current through use of photo-electric cells. ► **Ceiling Measurement**—GE's Ceilometer automatically measures ceiling height by projecting a pulsating light vertically to the base of the clouds, and then picking up the reflected light by means of the photoelectric tube.

Heart of the Ceilometer is a tiny 900-watt mercury vapor arclight modulated to a frequency of 120 cycles per second, the beams of which is projected into the air with the aid of a parabolic mirror. The receiver located 1,000 ft. horizontally from the transmitter, is the photoelectric tube mounted on an inclinable

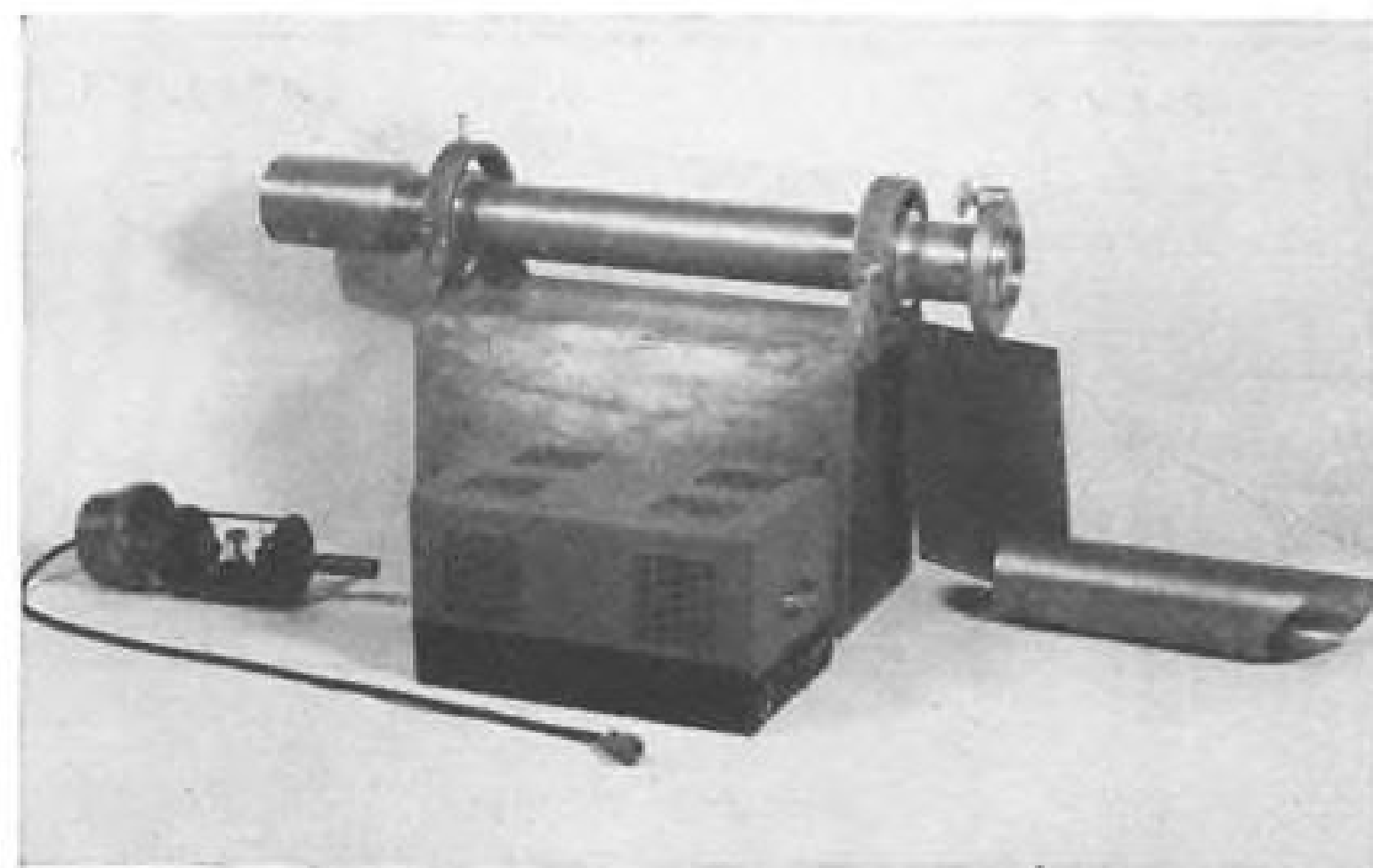
carriage which oscillates between horizontal and vertical positions in a twelve minute cycle. The angle at which the tube intercepts light reflected from the cloud base is converted into feet of height by triangulation, and the result recorded on a moving chart in the weather office.



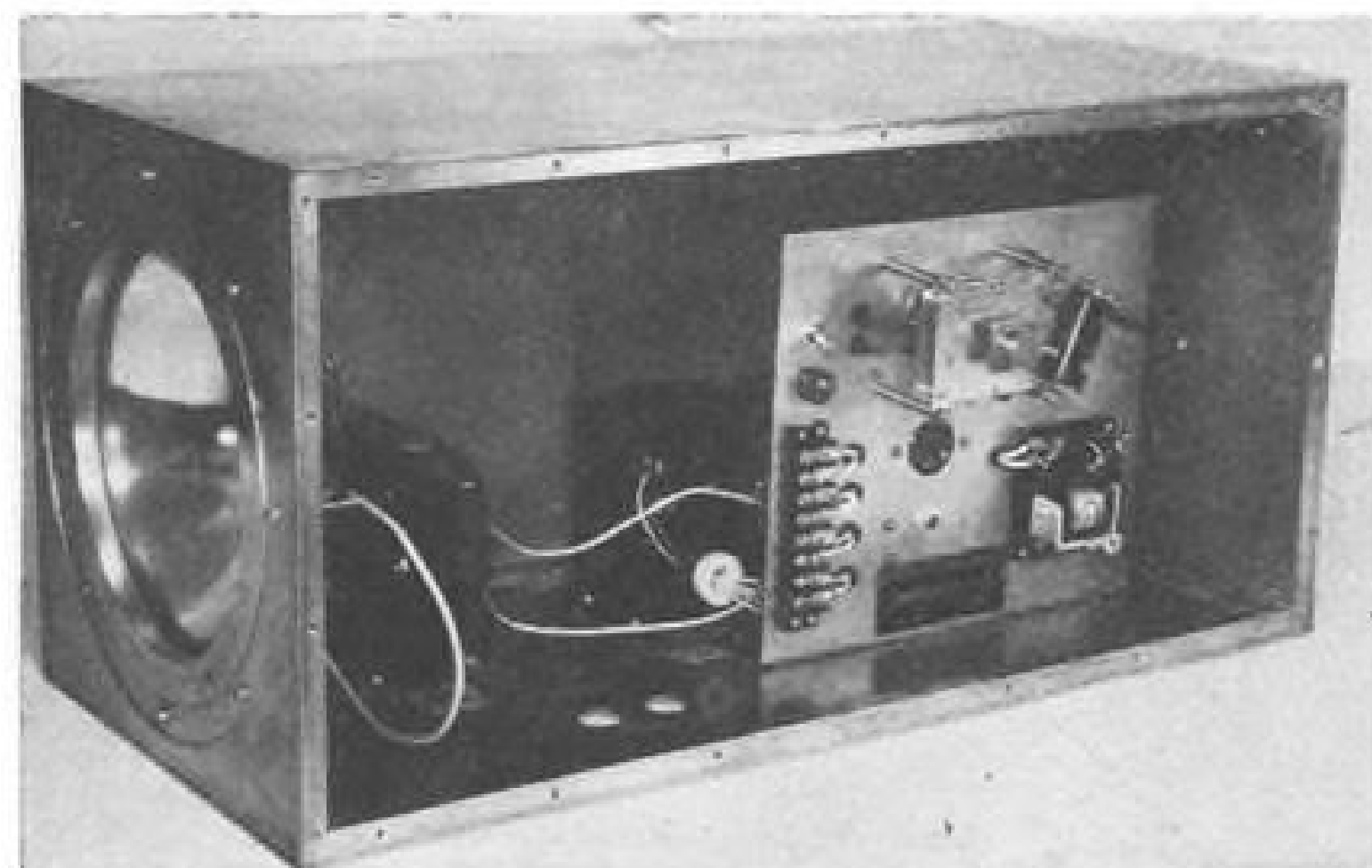
CEILING TRANSMITTER: Light source which projects pulsating beam vertically to cloud base on instrument being tested by Navy. (U. S. Navy photo)



CEILING RECEIVER: Photoelectric tube pick-up for Ceilometer, mounted on its inclinable carriage for scanning purposes. (U. S. Navy photo)



VISIBILITY RECEIVER: Photoelectric pick-up unit for Bureau of Standards measuring device disassembled for view of components.



VISIBILITY TRANSMITTER: Light source for visibility recorder shows sealed-beam light, transformer and controls of the field unit.

During its tests the device worked as accurately in daylight as it did in darkness, and has accurately recorded clouds as high as 20,000 ft. on a bright day. The graph also can be interpreted to determine the thickness of cloud layers. The electronic circuit of the unit sorts out the 120 cycle light pulses from background light, amplifies them and then translates the result into a graphic representation of existing conditions.

► **Visibility Average**—The Transmissometer (visibility recorder) developed by the Bureau of Standards uses a similar

electronic setup for measurement of visibilities designed to replace the doubtful accuracy of current methods. Transmitter lights and receiving tube units are placed at several locations around the field in order to avoid erroneous readings caused by local conditions (smoke or dust) affecting only portions of the area. The results so far have proved consistently accurate and more precise than the present visual method.

► **Pilot Aid**—Operation of the units requires no special training so that present observers could use the system im-

mediately.

Pilots would be able to ascertain more certainly the possibilities of successful completion of low approaches and instrument letdowns as well as the advisability of changing flight plans to avoid dangerous conditions.

A combination of these two devices would offer not only more accurate weather observations for CAA, but would also provide safer operation for planes during periods of low ceilings and reduced visibilities by providing pilots with precise data.

Jet Research (continued from page 30)

exhaust back pressure operation and actual compounding both geared and turbosupercharged — the majority of factors essential for successful compounding and accurate evaluation.

If there had been no overall revolution in the types of power plants the model V-1710 would have been revolutionary among reciprocating engines from the standpoint of specific weight, specific fuel consumption, cost per takeoff horsepower or any accepted criteria of engine evaluation compared to previous models, Hazen declares. But there was a revolution in types of power plant to be considered, and concurrent studies of the turboprop show that going ahead with a two or three year development on such a compound engine is a highly dubious venture. It might represent a major waste.

► **Turboprop vs. Compound**—The V-1710 is compared with a turboprop on basis of reasonable exhaust temperatures assuming same maximum temperatures as the compound engine required. Comparison is made at airplane speeds most advantageous, for long range, to the reciprocating engine and at several altitudes. Figs. 1, 2 and 3 at 5,000, 15,000 and 30,000 ft. altitude show power plant plus fuel weight per takeoff horsepower versus range in

miles for the compound engine vs. a turboprop averaging similar powers over the altitude range.

Conclusion of Hazen's comparison is that there is a great deal more certainty in developing a turboprop engine in a given time than in compounding a reciprocating engine. Same reasoning applies to the V-3420 with a similar size turboprop. Since the V-3420 approaches the maximum power reciprocating engines will give, the conclusions would appear applicable to any reciprocating engine.

It is therefore concluded by Hazen that the reciprocating engine has a future only during such time as is required to develop the turboprop in the necessary sizes.

Reduce Icing Danger With Artificial Snow

New applications of artificial rain and snow making have proved so successful in recent tests conducted by the General Electric Research Laboratories that plans are being made to undertake further investigation of artificial weather making. These will include seeding a solid overcast, modification of tall cumulus clouds at high altitudes, possibility

of forming clouds in supersaturated air, and the microstructure of supercooled clouds.

Capt. C. N. Chamberlain, Jr., pilot of the GE test plane, reported that seeding a cloud with dry-ice pellets produced large holes which looked as though someone had taken a shovel and scooped out large sections. The holes thus formed enlarge at the rate of three mph., and it was possible to dissipate a small cloud within a short time.

On the basis of these tests the scientists estimate that it should be possible for a plane to seed enough of a cloud within 15 minutes to open an area through which the plane could safely descend without danger of encountering icing conditions.

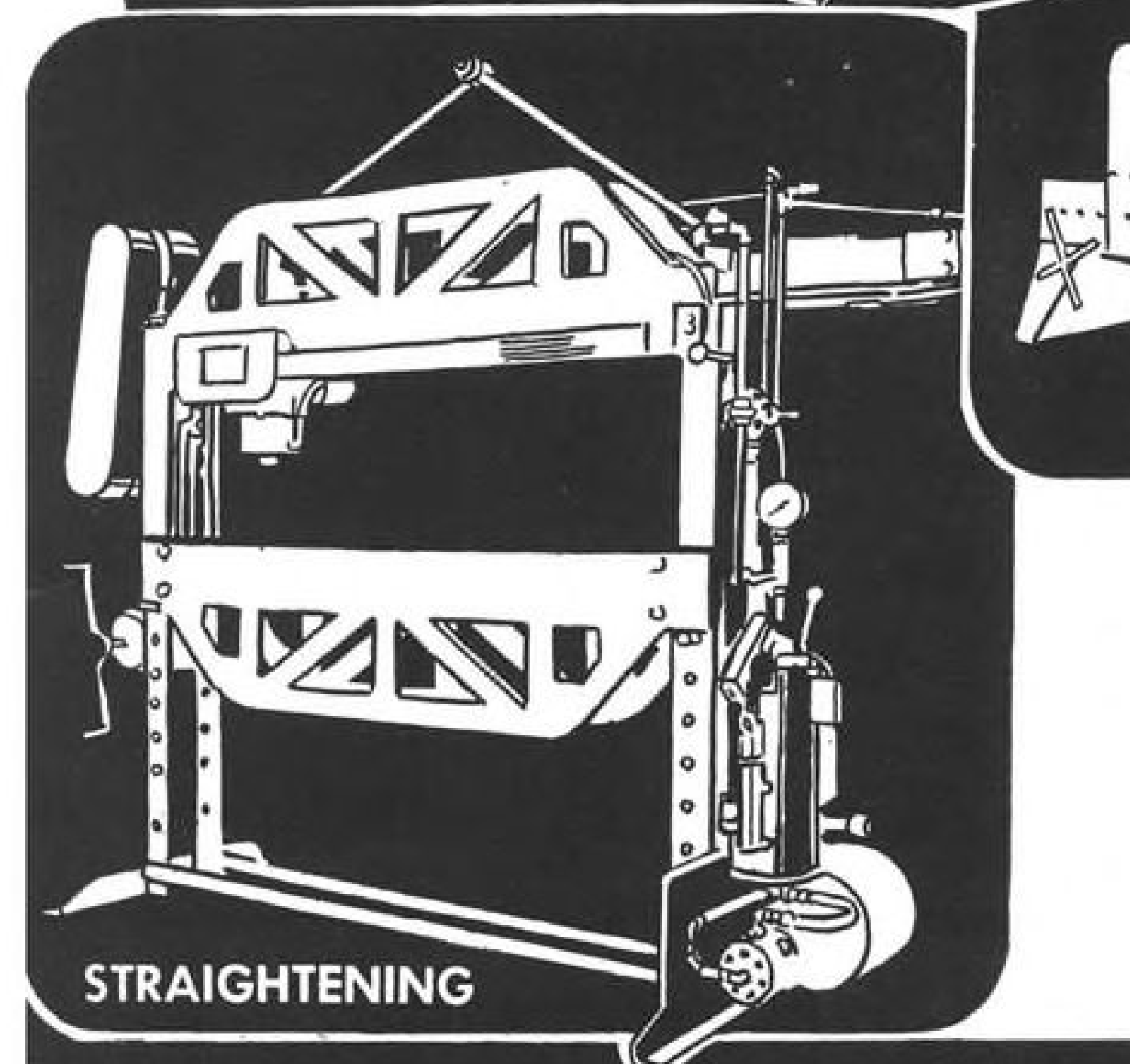
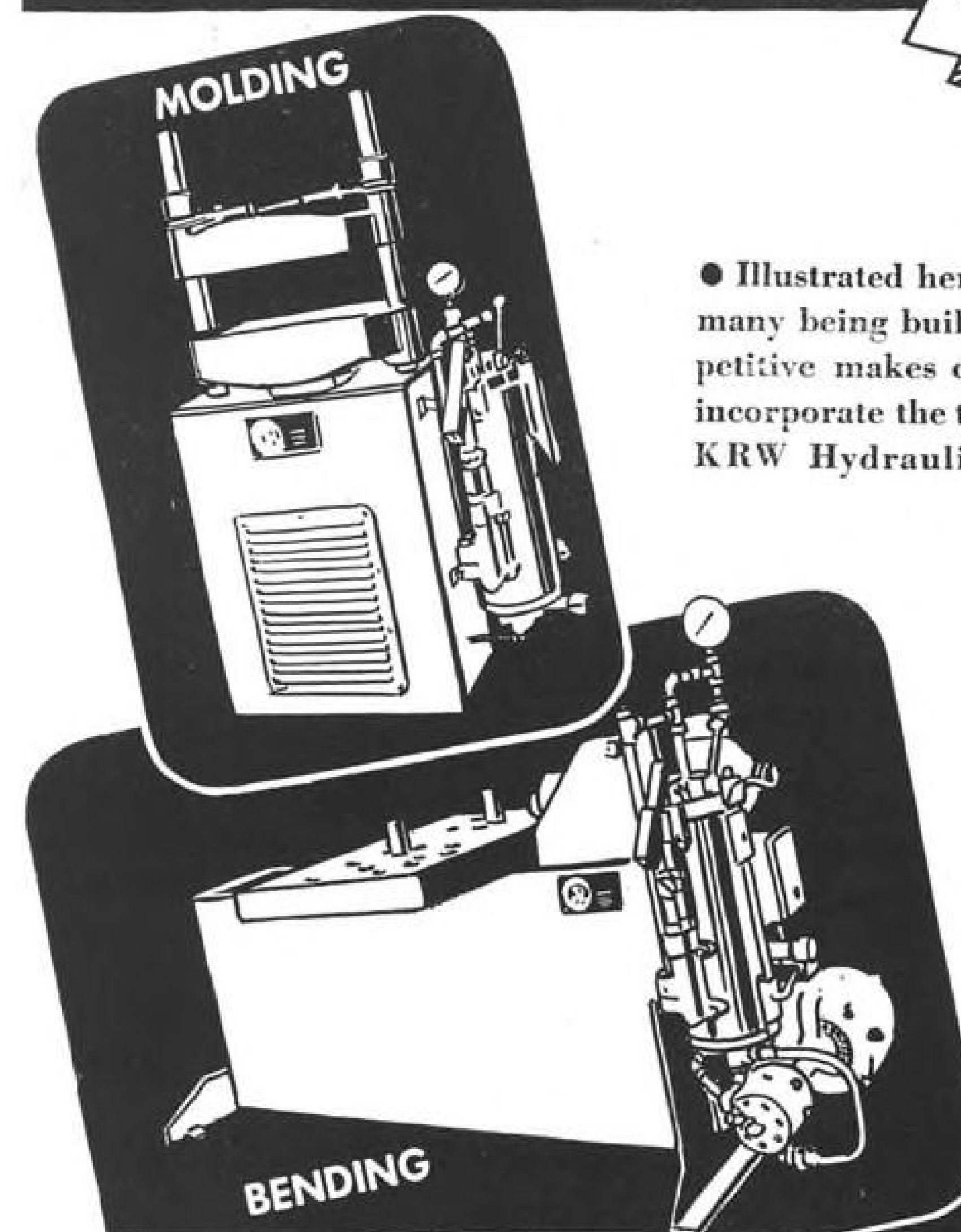
Commercial airliners equipped with seeding devices could safely operate during severe icing conditions because the major portion of the way they would fly above the icing level and at destination could open a non-icing path for themselves down to the airport.

Another consideration of the GE investigation has been the possibility of operating a ground unit for seeding the lower part of clouds over the airport for the protection of planes wishing to take off.

These applications are waiting for the development of adequate generating machines which will permit economical use of the system.

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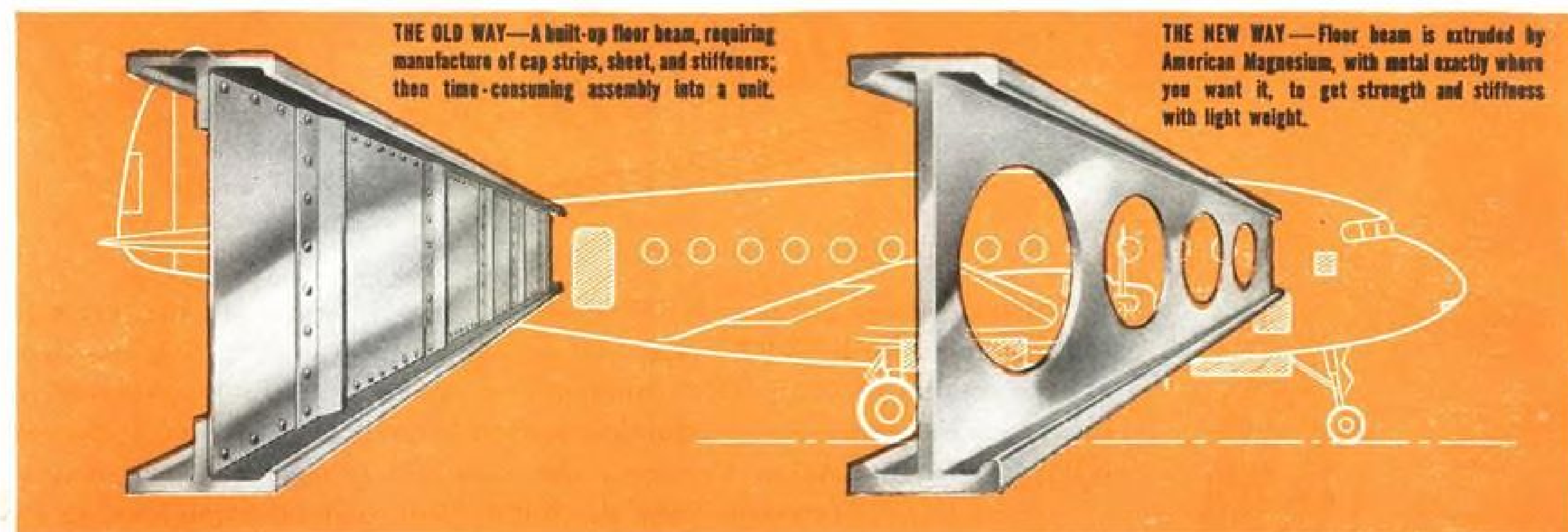
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"HOW DO WE FINISH..."

"CAN THIS BE DEEP DRAWN..."

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"CAN THIS PART BE EXTRUDED..."

NEW AVIATION PRODUCTS

Aircraft Rotary Actuator

Recommended for wide variety of low-torque intermittent-duty aircraft applications, including operation of screwjacks, gears, sprockets and linkages, rotary actuator with right-angle



takeoff is intended to facilitate location of equipment in tight spots frequently encountered in wings and control surfaces. Known as "Rotorac," device is built by Airborne Accessories Corp., 25 Montgomery St., Hillside 5, N. J. Unit features 26v. d.c. explosion-proof reversible motor, high efficiency gear reduction, magnetic brake, limit switches (externally adjustable), position transmitter (potentiometer type), and AN receptacle (including pins for position transmitter).

Aircraft Rectifier

Designed as portable ground power supply for starting, and for test and operation of equipment in airliners and jet planes, six-phase aircraft rectifier, Type E24-500T, has continuous rating of 500



amp. at 28v. d.c., and momentary load rating of over 3,000 amp. Offered by McColpin-Christie Corp., 4922 S. Figueroa St., Los Angeles, Calif., unit's 6-phase full-wave bridge circuit, equivalent to 12-phase half-wave, is designed

to give smooth d.c. output without disturbing ripple, also eliminating interfering harmonics in a.c. line. Ripple characteristic of less than two percent is intended to allow operation and testing of radio and electronic equipment. Magnesium-copper sulphide type rectifying element is used to withstand shocks, vibration, heavy momentary overloads and surges, and extreme ambient temperatures. Pulled by one man or towed by truck or jeep, cart has self-locking brake and provisions for mounting of two 50-lb. CO₂ fire extinguishers.

Airport Midget Fire Truck

Small and fast automotive unit, designed as airport auxiliary fire control aid is mounted on three-wheeled chassis and powered by 6-hp. single-cylinder air-cooled engine for 45-mph. top speed. Equipment is four 2-lb. and two 5-lb. nozzle-equipped CO₂ bottles and other devices for fighting aircraft ground fires. Truck features new combination automatic clutch and constant speed transmission to permit operation without



gear shifting and allowing fast pickup. Included also are starter, generator, battery and lights. Capable of being turned within own wheelbase length, mobile unit is built by Motorette Corp., 1560 Harlem Road, Buffalo 6, N. Y.

Linear Ball Bushing

Affording interesting possibilities in aircraft installations requiring linear or reciprocating motion, new antifriction ball bearing, fabricated by Thomson Industries, Inc., 1029 Plandome Rd., Manhasset, 6, N. Y., is complete redesign of similar unit previously offered by company. Known as Series A, device is intended to reduce starting loads, power consumption, and maintenance, and has but three basic parts in addition to balls—sleeve, pressed steel retainer, and a pair of rings pressed in ends of

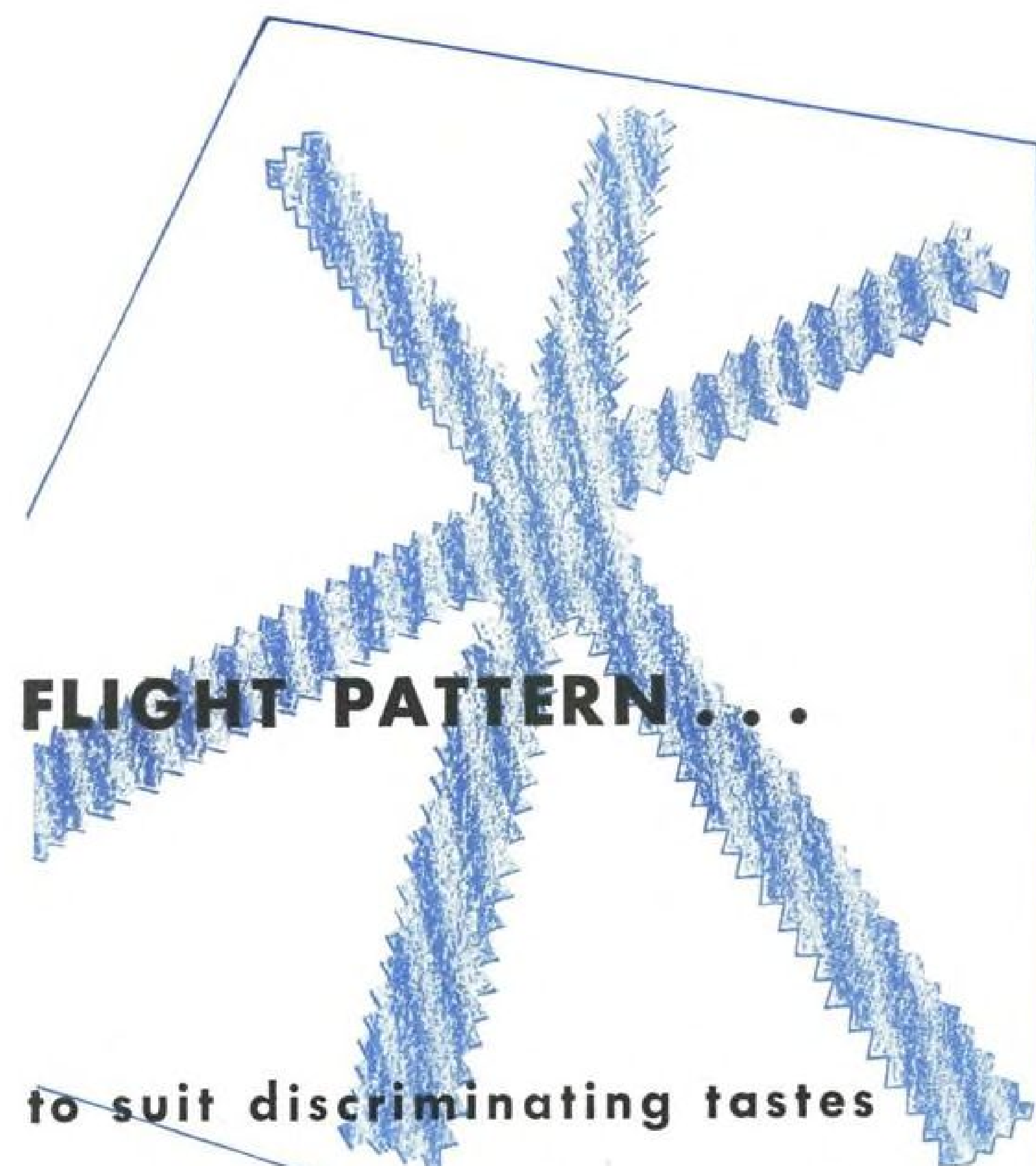
the sleeve to position and secure retainer. Feature is extremely low friction coefficient which prevents cocking and binding, and free rolling action maintains precision alignment by elimination of wear. Units are now available for 1/4, 1/2, 3/4, and 1-in. shafts.

High-Intensity Runway Light

Designed to clearly outline runways under all visibility conditions, from clear moonlight to zero-zero day, new Type HL airport light is offered by Westinghouse Electric Corp., Pittsburgh 30, Pa. Conforming to CAA Specification L-820, light comprises two



units; low-intensity upper unit variable in five steps from 16 to 1,600 cp. intensity, and high-intensity lower unit that gives additional five steps from 1,000 to 100,000 cp. High-intensity light is produced by two unidirectional, sealed-beam lamps at opposite ends of housing, each supplied from separate circuit operated off standard brightness control regulator. When used during restricted visibility, unidirectional light prevents lighted haze or fog curtains behind light. Low-intensity lamp is asymmetric lens assembly mounted on top of high-intensity housing. During normal visibility, this bi-directional element provides visual identification of runway from horizon to zenith for any direction of approach, and insures color fidelity during low-brightness operation. Color screens may be used when desired. Separate supply circuit is used, controlled by regulator operating lighting on the other runways. Another new light made by this company for large or small air-



to suit discriminating tastes

Air travelers are among the most discriminating. They are quick to appreciate and remember neat, clean and beautiful aircraft interior appointments. Bridgeport Aircraft Upholstery Fabric, specially designed for plane cabins, offers exclusive patterns and colors to fit harmoniously with other interior furnishings. Made of finest quality, closely woven wools and worsteds, Bridgeport Fabric is extremely lightweight and long wearing. It has a flat, smooth surface that does not cling to clothing and feels as soft and cool as chamois. Because Bridgeport Fabric is 100% wool, woven flat with no rough cotton backing, it will not support combustion and is highly resistant to stains and dirt. It looks neat and trim even after long cross-country hops. In addition, special construction features cut installation time as much as 20% to put your planes in service sooner. Write for complete information and free sample swatches today.



Bridgeport FABRICS, INC.
BRIDGEPORT 1, CONNECTICUT
Est. 1837

ports has bright colored cone for quickly identifying runway or strip in daytime, while light at top provides elevated marker at night. Lenses and frame are indexed, and entire assembly can be oriented by rotating lens and cone support on shaft. Rifle sights enable alignment with runway for installation or after relamping. Elevated marker light can be used on either 6.6 amp. series circuits or 120-240v. multiple circuits. Five steps of brightness are available from 16 to 1,600 cp. when 30w. series lamp is used and circuit is controlled by standard brightness regulator.

High Pressure Hose Tester

New test machine, housed in all-steel cabinet, is made by Greer Hydraulics, Inc., Brooklyn, N. Y., for static pressure testing (up to 10,000 psi.) of aircraft high pressure hose lines ranging from $\frac{1}{4}$ to 2 in. in dia. Test chamber has steel sump covered with thick Plexiglas door for ample protection and instant visibility in event of hose rupture. Pressure outlets and valves are provided to test up to nine hose lines simultaneously. Machine utilizes shop air pressure to develop hydraulic pressure by use of air booster cylinder coupled to hydraulic booster cylinder. Test fluid is stored in 10-gal. pressure type reservoir. Unit needs no external connections other than to the shop air pressure line installation.

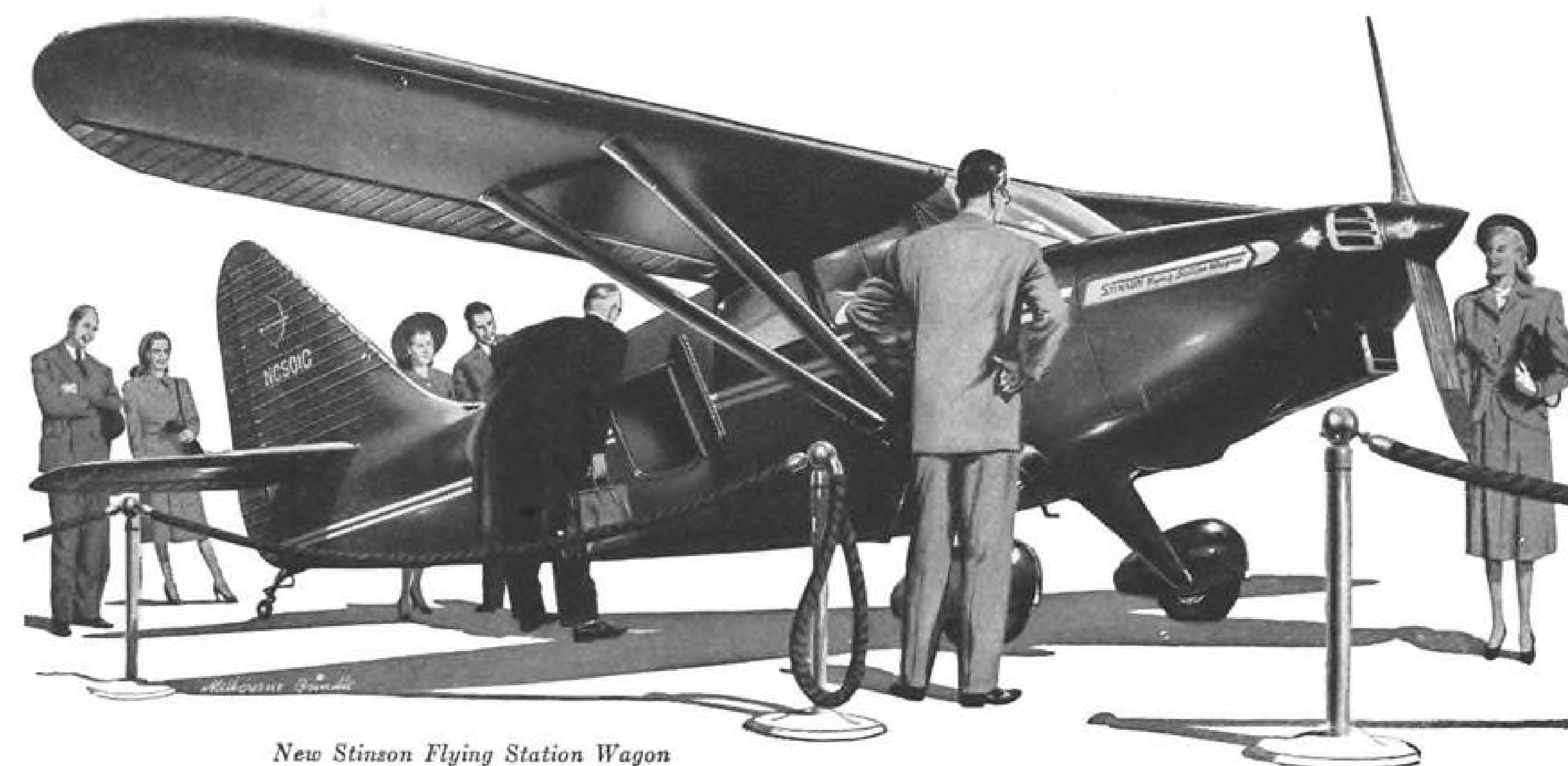
Information Tips

Field Fueling System Delivers 40 Gpm.

Airfield gasoline fueling system with 40 gpm. performance is publicized in Bulletins 1062, 1082, 110, and 1105 issued by **Erie Meter Systems**, Baldwin Bldg., Erie, Pa. Unit comprises compact above-ground cabinet-type fuel dispensing installation 25 in. wide, 31 in. high, and 45 in. long, and fitted is 50 ft. of $\frac{1}{4}$ -in. hose and nozzle to cover adequate fueling area. Also included is air eliminator, strainer, meter, register, and motor control switch. Installation is designed to be connected to separate pumping unit located some distance away (at or near gasoline storage tank). For latter purpose, company offers choice of 25, 30, and 45 gpm. above-ground cabinet-type units or submerged turbine-type pumps intended to be installed directly within the storage tank.

Analyzer Checks Ignition Performance

Electronic engine-ignition analyzer developed by **Scintilla Magneto Div. of Bendix Aviation Corp.**, Sidney, N. Y., is described in special color folder shaped like instrument itself. This oscilloscope unit, measuring 17 x 10 x 7 in. and weighing approximately 23 lb., is designed for both portable use and permanent installation on plane. Ignition system performance in each engine cylinder is shown by patterns appearing on cathode-tube screen, and accordingly any weak point or incipient defect in system may be readily identified and corrected, reducing costly delays in finding seat of trouble and also preventing potential failures. Moreover, instrument provides check on service work already accomplished, such as on mag synchronization or stagger, breaker adjustment, coil exchange, spark-plug replacement, and the like. But three leads are necessary to install unit: Power supply cord plugging into 115v. 60-to-400 cycle single-phase supply, primary lead connecting to ignition switch or any convenient point in system primary circuit, and synchronizing pick-up lead connecting to sparkplugs.



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It's here! Stepped up in range, speed, payload!

The great new Stinson for '48

New? Yes! But more important, the new 1948 Stinsons—of *proved* design—are America's most useful, most practical, personal planes.

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Long time fliers prefer Stinson dependability and safety. Beginners are delighted with Stinson flying ease and simplified control. You can learn to fly solo in ten hours or less.

Visit your Stinson dealer for a look at the Stinson Voyager or Flying Station Wagon. See for yourself why Stinson leads in popularity in the 4-place field.

For literature write Stinson Division, Dept. G, Consolidated Vultee Aircraft Corp., Wayne, Michigan.

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Stinson has new flight instruction plan for business and professional men interested in saving time and money—Write W. H. Klenke, Jr., General Sales Manager, Stinson, Wayne, Michigan.

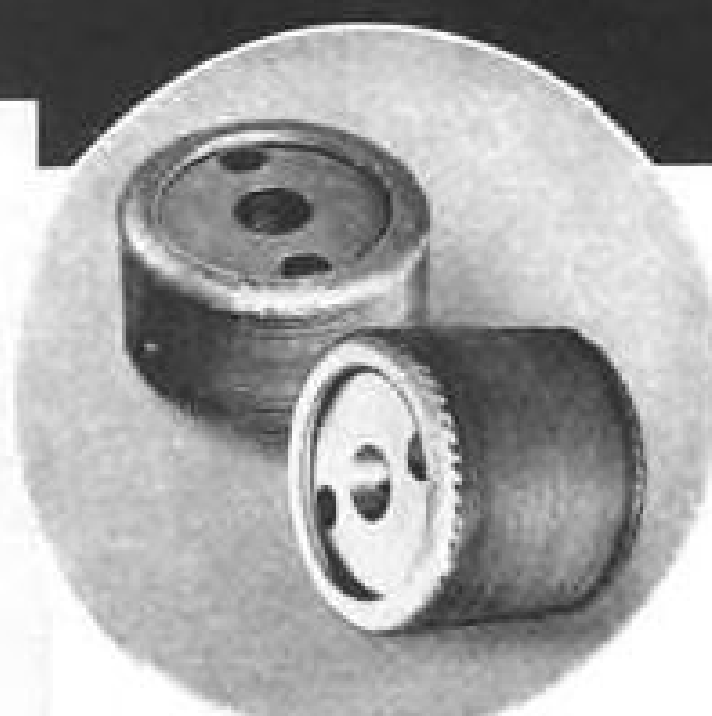
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A machine that gives you pull down, push down, and surface broaching; a machine that can be used for a wide variety of internal and surface broaching jobs—that's American's exclusive 3-Way Vertical Hydraulic Broaching Machine. You can change over from one type of broaching operation to another quickly. It requires only replacement of fixture and broaches, and addition of pull head and lugs.

For all types of broaching machines, for all kinds and sizes of broaches, for tooling and fixture design based on more than a quarter century of broaching experience—look to American, the one source for all your broaching needs. For the best in broaching—machines, tools, and engineering—see American first!



For broaching the holes in laminated commutator parts an American T-8-24 3-Way machine equipped with special broach retriever unit, foot switch, and electric controls was provided.

With the above extra equipment the operation is semi-automatic. Operator loads two parts and starts retriever unit, which lowers broach pilots through work into automatic quick connecting pull heads. Machine slide pulls broaches through work, operator unloads and starts return of machine slide by foot switch. At end of return stroke he loads two more pieces and begins cycle again.

★ ★ ★
A new circular tells the complete story of American's Type-T 3-Way broaching machine. A letter or post card will bring it to you by return mail. Write today for Circular 100.



To illustrate the wide variety of broaching jobs possible on this all-purpose machine, the Standard T-8-24 is pictured above.

This machine is operated by manual controls and the broach holders are mounted directly on the main machine slide. The operation is surface broaching the teeth in a round bar with the tooling designed to automatically clamp and eject the broached parts.

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FINANCIAL

Continuing Deficit Operations Minimizes Carriers' Dividends

Eastern's omission of dividend typifies airlines' husbanding of resources.

Action of Eastern Air Lines in omitting its semi-annual dividend took many observers by surprise. Actually, this course is consistent with Eastern's conservative policies. Although one of the most profitable properties in the industry, Eastern has persistently husbanded its earnings and it was not until 1945 that it paid its first dividend, amounting to 25 cents per share on the present stock. Last year, 50 cents per share was paid and during the first half of 1947, 25 cents per share was distributed to stockholders.

During the ten year period ending 1945, the company showed aggregate earnings of more than \$6 per share on the present stock yet paid only the 25 cents indicated in 1945. With a net deficit of \$903,308 for the third quarter of this year compared with a net profit of \$1,062,607 for the comparable period a year ago, it was a natural development for Eastern to omit the semi-annual dividend due at this time. It is possible that the reported loss could have been reduced somewhat if the company had deferred and capitalized part of the expenses in connection with its equipment integration program. This is a practice followed by most of the major carriers and tends to minimize current losses.

► **Constellation Outlay**—Eastern has completed the acquisition of 14 new Constellations involving a capital outlay of more than \$18 million and has used but \$5 million of its bank credit to finance this purchase. Working capital funds, accumulated through yearly earnings and not disbursed in the form of cash dividends, made this possible. As Eastern is now entering its seasonal profitable fourth quarter, it should not be necessary for the company to draw down any more of its bank credit. In fact, there is reason to believe that in the near future it may undertake to reduce its indebtedness.

Nevertheless, to Eastern may go the distinction of being the only domestic airline which paid a dividend on its common stock during 1947. The heavy deficits accumulated by the air carriers this year has made the question of cash disbursements to stockholders

very academic. The attention of most managements has been directed toward acquiring funds to pay off loans along with the financing of new type equipment badly needed to keep pace with the leaders.

Cash dividends, however, are being paid on the three airline preferred stock issues now outstanding in the industry. American Airlines issued \$40,000,000 in preferred stock in June, 1946. These shares carry a 3½ percent dividend rate and all payments have been made when due. Originally sold at \$102 per share, this preferred is now quoted around \$70, indicating a yield of 5 percent.

► **UAL Preferred**—United Air Lines marketed about 95,000 shares of preferred stock earlier this year in connection with its financing program. These shares had an initial indicated market price of around \$105 per share and are currently available at the same price. The dividend rate is \$4.50 per share, making the indicated yield 4.3 percent. The company has maintained quarterly dividend payments when due thus far this year. Dividend payments on this preferred were almost placed in technical jeopardy a few months ago. In its acquisition of Route No. 68 from Western Air Lines, United was directed to charge more than \$1,500,000 of the purchase price to surplus. With United's surplus reduced to \$1,242,921 as of July 31, 1947, the contemplated charge would have resulted in a surplus deficit, thus impairing its ability to meet dividends on its preferred stock. However, United applied and obtained relief from the Civil Aeronautics Board to charge the \$1,500,000 plus to "other intangible assets" and amortized it over a period not exceeding five years.

In April of this year, Northwest came to market with an issue of 390,000 shares of preferred stock in connection with its financing program. These shares were sold at \$25 per share and carry a dividend rate of 4.6 percent. Selling around \$22 at present, a yield of about 5.2 percent is indicated.

All three preferred shares have similar characteristics. To make these issues more attractive, they all contain a con-

vertible feature permitting the exchange into common stock. American's preferred stock is convertible into common at \$21 per share, which is some distance from the current price of the junior equity now selling around \$9 per share. United's preferred is convertible at \$25 per share which is only about 5 points away from the current market. Northwest's conversion can be made at \$16.67 per share, which is about 4 points above the present market quotation of the junior equity.

► **Junior Equities**—In all three instances, for practical purposes, it is the junior equities which appear to be supporting the dividend payments on the preferred stocks. Cumulative results for the year thus far indicate that all three companies have deficit operations and have failed to earn any of their respective preferred stock dividend requirements. It is believed that this is only a temporary condition which will soon correct itself with any improvement in earnings. To omit dividends when due on a preferred stock issue would seriously endanger the credit standing of the carrier involved.

The air transport industry was never noted for its dividend income producing qualities. The constant expansion required by the carriers necessitated the constant re-investment of such earnings that did appear.

American Airlines had an unbroken six year dividend record on its common stock which came to an end when the company passed the disbursement due in 1946. At best, its payments throughout the years were of a token nature.

Braniff attempted to undertake quarterly dividend payments of 15 cents per share on its common stock late in 1943. However, the coming of deficit operations forced the company to abandon this policy in 1946.

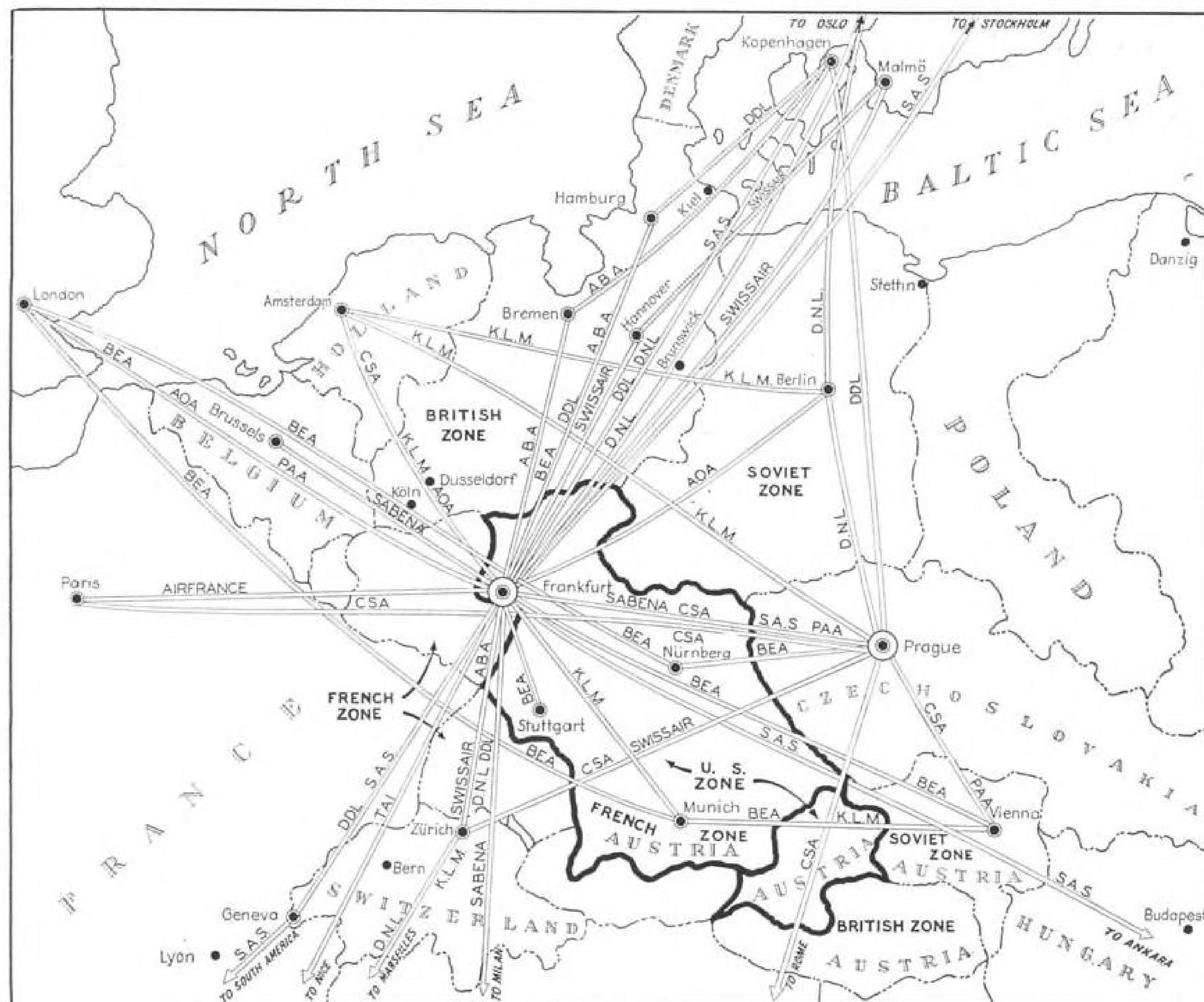
► **Delta Dividends**—Delta Air Lines had a consecutive string of dividend payments starting in 1942, which was interrupted only this year. The company also paid dividends back in 1938.

Northwest paid dividends of 50 cents per share on its common stock in each of the four years ending with 1946. Here again, the necessity of conserving cash dictated passing the dividend on the common in 1947.

All American Aviation, American Overseas, Colonial, Mid-Continent, National and Northeast have yet to pay their first cash dividend. TWA and Western must go back to 1936 for the record of their first cash distribution to stockholders.

Until such time as earnings improve and the need for further expansion stabilizes, any marked change in dividend policies appear unlikely, as it is probable the bulk of available profits will be retained.

—Selig Altschul



TODAY'S PATTERN: Routes Show Present Air Network Serving Germany.

Berlin Letter:

Air Service Vital Problem in Germany

U. S. lines may participate with extensions of present international routes; mail pay and reciprocal cabotage rights are factors. Air Coordinating Committee decision due.

BERLIN—The time has come for the U. S. to make up its mind about a number of policies necessary for development of civil aviation in American-occupied Germany.

Provision of internal service is one of the foremost issues awaiting disposition. The Air Coordinating Committee has this one and is expected to speak up soon.

It is faced with the fact that the mili-

tary is not set up to do the job and U. S. carriers are not financially in a position to undertake operation of strictly domestic routes. The course of action which appears most feasible under these circumstances and the one confidently expected involves providing internal service as extensions and offshoots to U. S. international routes and by authorizing international air carriers of other nations operating across Ger-

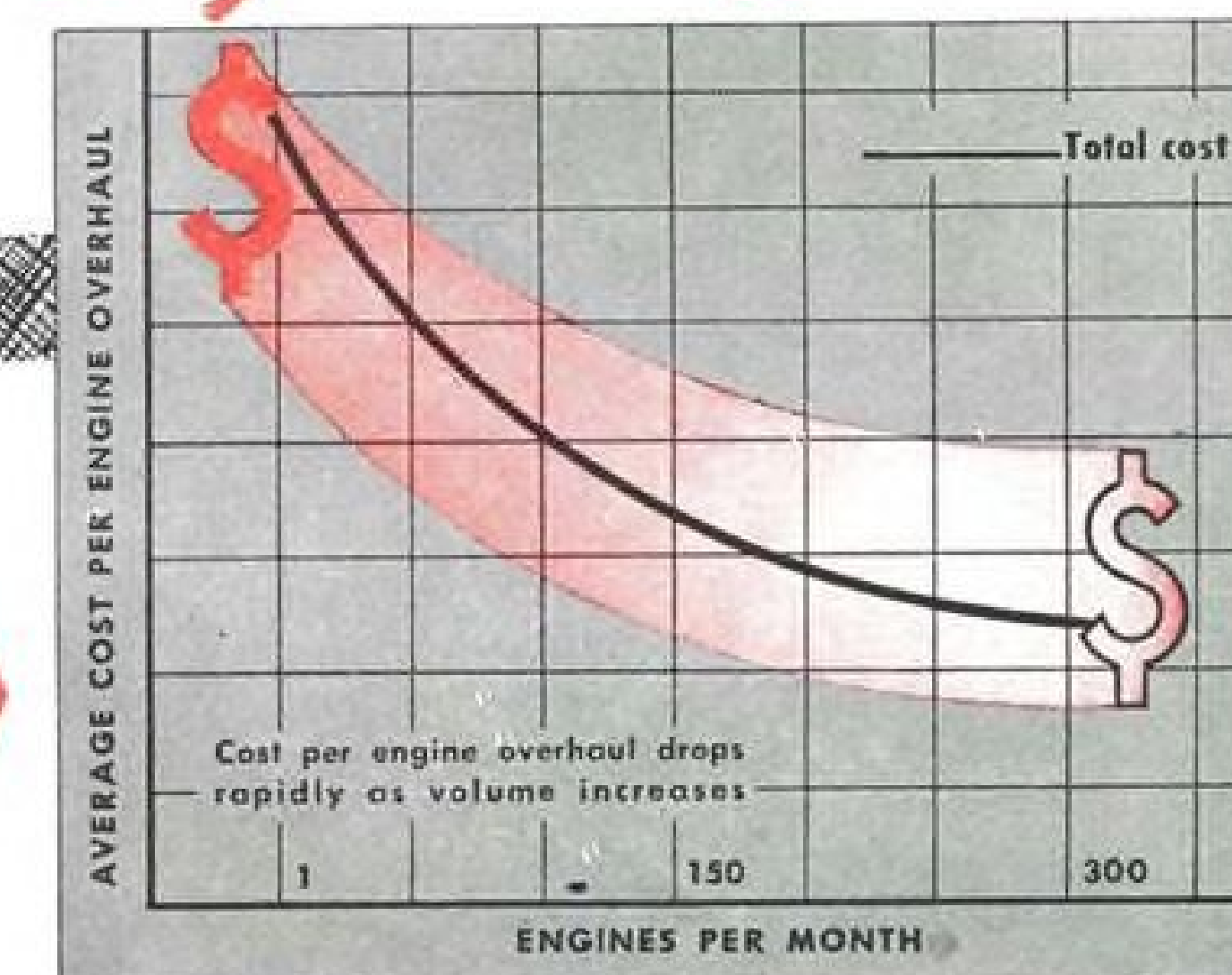
many to make additional stops within the U. S. zone.

The extent to which U. S. carriers can participate is dependent upon the granting of a mail pay guarantee, which is considered necessary initially because of the uncertain revenue factors. Whatever complementary service is to be provided by other carriers is contingent upon granting cabotage rights in the U. S. zone. A decision to grant such

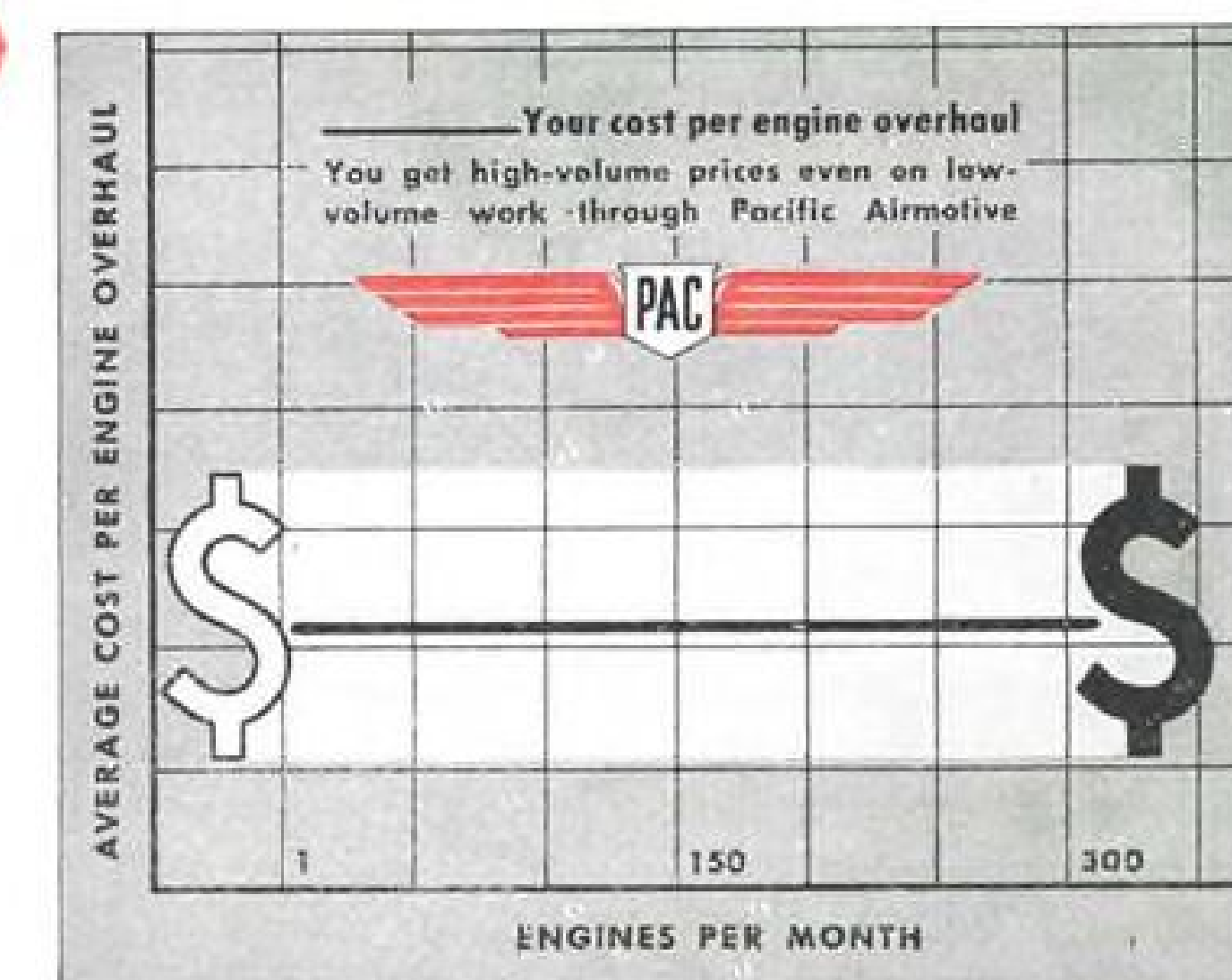
question for airline management...

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Airlines and other aircraft operators now contracting their overhauls to PAC profit in these ways: 1. Their overhead for shops and tools, and likewise their capital investments, are at the bare minimum—a factor of vital importance during low-revenue periods. 2. Their cost per engine overhaul is the

bottom obtainable figure. 3. Because of PAC's prompt service and high capacity, operators can maintain optimum regularity of service, even during peak or emergency conditions.

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SUPPLIES...PAC distributes more than 300 aviation lines through nine bases in the U. S. and Alaska. This includes engine, accessory, prop, and instrument parts and assemblies.

SERVICE...PAC furnishes engine, engine-accessory, propeller, instrument, and airframe maintenance or contract overhaul at five major bases in the U. S. and Alaska.



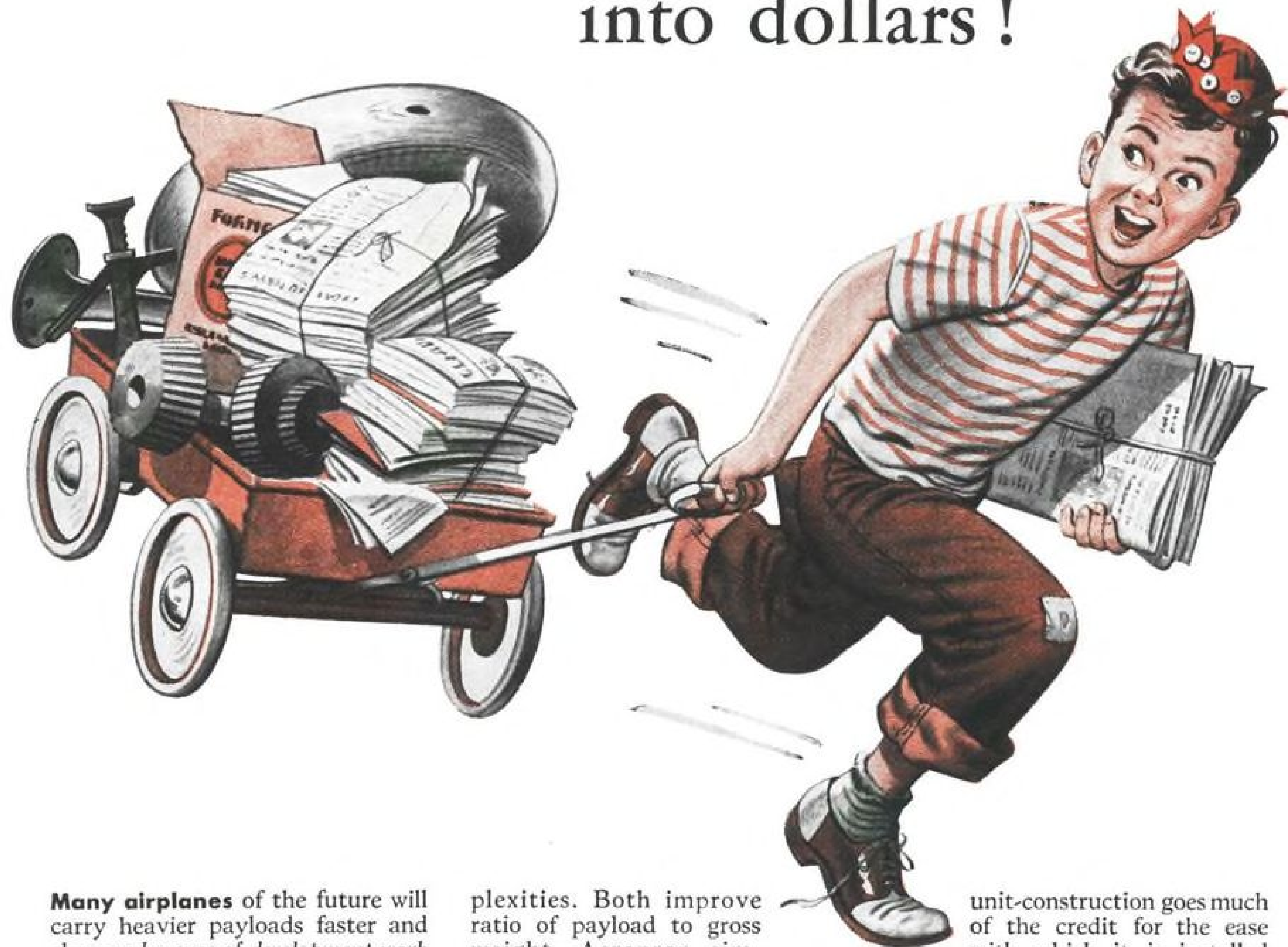
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2940 North Hollywood Way, Burbank, California

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AVIATION WEEK, November 17, 1947

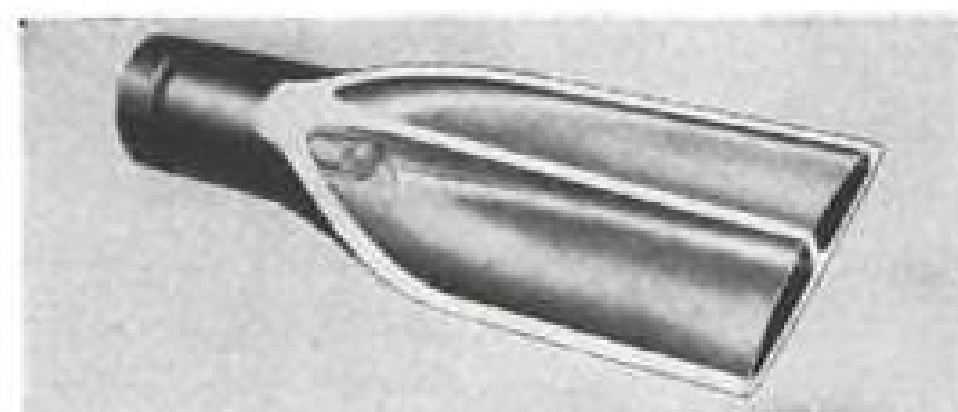
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rights in American-occupied territory, in turn, depends upon reciprocal action by the British. However, the British have indicated they will follow suit because they aren't in a position to provide internal service any other way.

The Air Coordinating Committee's action in effect, therefore, will determine the internal air service pattern for western Germany. The small French part of western Germany is not strategic to present plans but its inclusion can be expected whenever the question arises. Not so with eastern Germany. The Soviets have not been inclined to make their zone part of any internal service scheme.

Present plans call for linking the U. S. zone cities of Frankfurt, Stuttgart, Munich and Nuremberg, the British zone cities of Cologne and Dusseldorf in the Ruhr, Hanover, Minden and the port of Hamburg and the U. S.-controlled port of Bremen (an enclave in the British zone). A glance at the map on page 42 indicates that the proposed means of providing this internal service fits handily into the present pattern of international service which links the aviation-less Reich with the outside world. Frankfurt, the headquarters city of the U. S. zone and the city destined to become capital of western Germany in the event of a final east-west split, is already the air crossroads of Europe. Routes of 13 foreign airlines (representing 10 countries) and two U. S. carriers (Pan American Airways and American Overseas Airlines) have Frankfurt stops.

Soviet reluctance to grant civil carriers of non-occupying powers operating rights into or across the Russian zone and the limiting of the carriers of the other occupying powers to "corridors" has tended to diminish the importance of Berlin. (Thus far Berlin has been used by only one scheduled air carrier, namely AOA, at Tempelhof, the British and Russian each having their own airport in their respective sectors of the city and the French not operating scheduled services into the city at all.) It is worth noting that KLM recently has been granted operating rights on a trip-to-trip basis between Amsterdam and Berlin and the Czechoslovakian Airlines (CSA) has been granted operating rights on the route Prague-Berlin to the Scandinavian countries. But this action cannot yet be accepted as marking a general shift in Soviet policy.

Frankfurt, moreover, by virtue of its strategic geographical location, will continue to be the center of Central Europe's civil air operations regardless of the future of Berlin. As well as centering the routes criss-crossing Europe, it is a natural transfer point for the

proposed internal service pattern and will continue to be important in this respect even if the Soviet zone is later incorporated into the internal service pattern.

* * *

Another need is for Congressional authority for Civil Aeronautics Administration to operate facilities necessary to the safe conduct of civil air transportation in the U. S. zone. This would involve the facilities at six airports (Berlin's Tempelhof, Bremen, Munich, Frankfurt, Nuremberg and Stuttgart) and the radio services and other aids to navigation along the routes joining these airports.

At present, such facilities are inadequate to the extent of real concern for safety. The military is not set up personnelwise or organizationally to provide facilities of ICAO standard and is rapidly withdrawing its services anyway.

While a Civil Aviation Bipartite Panel has been established to handle civil aviation matters in the combined U. S.-British zones, the U. S. is handicapped in its participation for lack of such an agency to implement agreed policy in regard to aviation facilities. The British, on the other hand, have established in their Control Commission for Germany a CAA organization, which has the authority and the finances to do the job.

The idea of creating this CAA role in Germany has to be looked at from this standpoint: the Germans, even when they get a government, will not have a department of civil aviation in the foreseeable future. Thus, the functions normally performed by such an agency fall to the occupying powers.

Evaluation of the costs of civil aviation facilities is dependent upon the course of U. S. policies such as 1) extent to which Germans may be employed, 2) extent of U. S. participation in air services, 3) extent it is practicable to meet ICAO standards. Other factors which make a cost analysis difficult at this time: 1) recent records do not separate cost of aid to civil aviation from military costs, 2) absence of information on the logistic and house-keeping costs to be borne by a civil agency, 3) instability of the reichsmark.

* * *

At last something is being done about the matter of Germans travelling by air. AOA has received military government permission to carry Germans for reichsmarks on a space available basis on its Berlin-Frankfurt run. The fare will be 110 marks, a figure arrived at by doubling the prewar fare in accordance with a similar increase in Reichsbahn (German railroad) tariffs.

AOA will be permitted to accept mark revenue up to its mark expenditures. Although it is unlikely that revenue will cover mark expenses under present travel restrictions to which Germans are subjected, the mark income will represent a considerable saving for the company. Up to now AOA has had to meet its mark expenditures by exchanging precious dollars for 10 cent marks at the army finance office, while often flying empty seats which could have been occupied in part by mark-paying passengers.

The arrangement was made provisional but undoubtedly will become regular policy. It is a needed incentive for developing internal service, in view of the dubious hard currency revenue prospects.

* * *

The Germans are not only denied an aviation industry of their own but are forbidden employment of a technically specialized nature at air installations maintained by other powers in the Reich. In other words, the intention is to keep Germans out of jobs from which they could acquire detailed knowledge of aviation developments in other countries and thus develop a cadre of "know how" that might constitute a "war potential."

Although this principle has never been spelled out in terms of permissible detailed job classifications, the use of German personnel by the airlines has not yet been challenged. Still a clarification of the policy, with a view to liberalizing as far as possible the extent to which Germans can be employed, is considered desirable. This factor has an important bearing on the airlines' overhead because use of indigenous personnel is obviously less costly.

One thing the Germans will be able to do is build and operate municipal terminals. And, Frankfurt, conscious of its new position as air crossroads of Central Europe, already has made a bid in this direction. The city proposes a big city terminal building, including hotel, ticket offices, restaurants, etc. An architects competition is now on and lavish designs are in the offing. When one considers the present difficulty of finding enough window glass, cement, and lumber to repair sufficient houses and buildings to house the bi-zonal headquarters now assembling here, the prospect of putting up a modern terminal building amid the incredible ruins of downtown Frankfurt seems like sort of a mirage. But then, what plan, what policy, what hope in present Germany doesn't seem like a mirage?

—John J. Christie

AVIATION SALES & SERVICE

High Intensity Lighting Units Feature of Worcester Airport

Bartow system on all runways is first complete installation on any municipal airfield in the United States; will be used in conjunction with ILS landing facilities.

BY ALBERT E. SMYSER, JR.

The Municipal Airport at Worcester, Mass., has the distinction of being the first city-owned field with a complete installation of Bartow high intensity runway lights on all runways, according to the Line Material Co., manufacturers of the equipment. Nine other municipalities have contracted for such installations but work on them has not been completed.

The airport was started in June, 1942, but construction was interrupted during the war and its completion still is a concern of the city airport commission.

► **Landing Area**—Three hard surface black top runways have been completed: SE-NW 5,500 ft. x 150 ft., N-S 3,900 ft. x 150 ft., and E-W 3,750 ft. x 150 ft. There is little room for future expansion of present runways because the field has been built on top of a hill and already utilizes practically all available space. This lack of extra room was foreseen

by the airport commissioners, who decided to go ahead with their plans because they realized that the airports always would remain a secondary field, not in competition with major terminals.

So far it has been built exclusively with municipal funds. Results are considerably above the average for similar expenditures for airport construction on municipal sites. During fiscal 1948, however, Worcester hopes to receive a major portion of the CAA airport funds to be allotted to the state, for its own port improvements.

► **State Law**—Massachusetts municipal airports are required by law to be operated under the supervision of a city airport commission. At Worcester, these unpaid commissioners represent a cross section of leading industrial plants in the area.

The Worcester commissioners have

made numerous trips through the eastern part of the country, visiting various community airports (in different stages of construction) to learn first-hand the pitfalls, errors and corrective methods discovered during the growth of these units. One of the most noticeable results of the trips is the caution with which the commissioners are approaching the problem of carrying out the airport construction program and striving to avoid costly mistakes resulting from hit-or-miss, indiscriminate building of expensive, outsized, and misfit facilities.

► **Survey Made**—One of the first steps taken by the municipality prior to undertaking an airport construction program was a survey of the potentialities of the section to be served. Worcester air port will serve an estimated population of 615,000. Eventually the area expects a yearly movement of 200,000 passengers through its air terminal, with airline traffic amounting to about 45 schedules a day. Estimates are that 175 private planes eventually will be based at the field.

The master plan for field improvements (estimated cost \$1,751,900) calls for an ambitious program of construction: a terminal building, restaurant, hangars, shops, "T" hangars for private planes, and adequate hard surface aprons and parking sites for large and small aircraft.

► **Facilities**—Present building on the port are temporary ones. Among present facilities are administrative offices, a waiting room, ticket counters and offices for airline personnel, rest rooms, and a combination lunch counter and snack-bar.

Field facilities include the bartow lights ils, and gasoline and oil service. Fire trucks and crew are constantly on duty. Complete snow removal equipment is on hand. Taxi service to the city is available.

► **Concessions**—Contracts for gasoline sales and fixed base operations were awarded late in October. The gasoline concession went to Socony and the award for fixed base operations to Universal Aviation Corp. Universal will offer student instruction including G. I. courses, charter flights, plane rentals, and minor repair service. Because of lack of hangar space, major repairs will not be handled.

Leases call for a flat rate to the city plus 3 cents a gallon on fuel sold or used by the operator, and varying percentages of the total "take." Present contracts expire when the permanent buildings are



ALFALFA AIRSTRIP

Farmer Don Bair, at Bradshaw, Kans., operates 80 acres of his 160 as a flying field for Bradshaw Flying Service, Inc. Aside from the actual landing strip area he uses the airport acreage to grow eight acres of alfalfa, 40 acres of corn and 17 acres of wheat. A flight instructor during the war, Bair is combining farming with flying, and more than 100 people in Bradshaw (total population 330) have flown, rent or own airplanes as a result of his part-time activities. (Ross-Pix Photo)

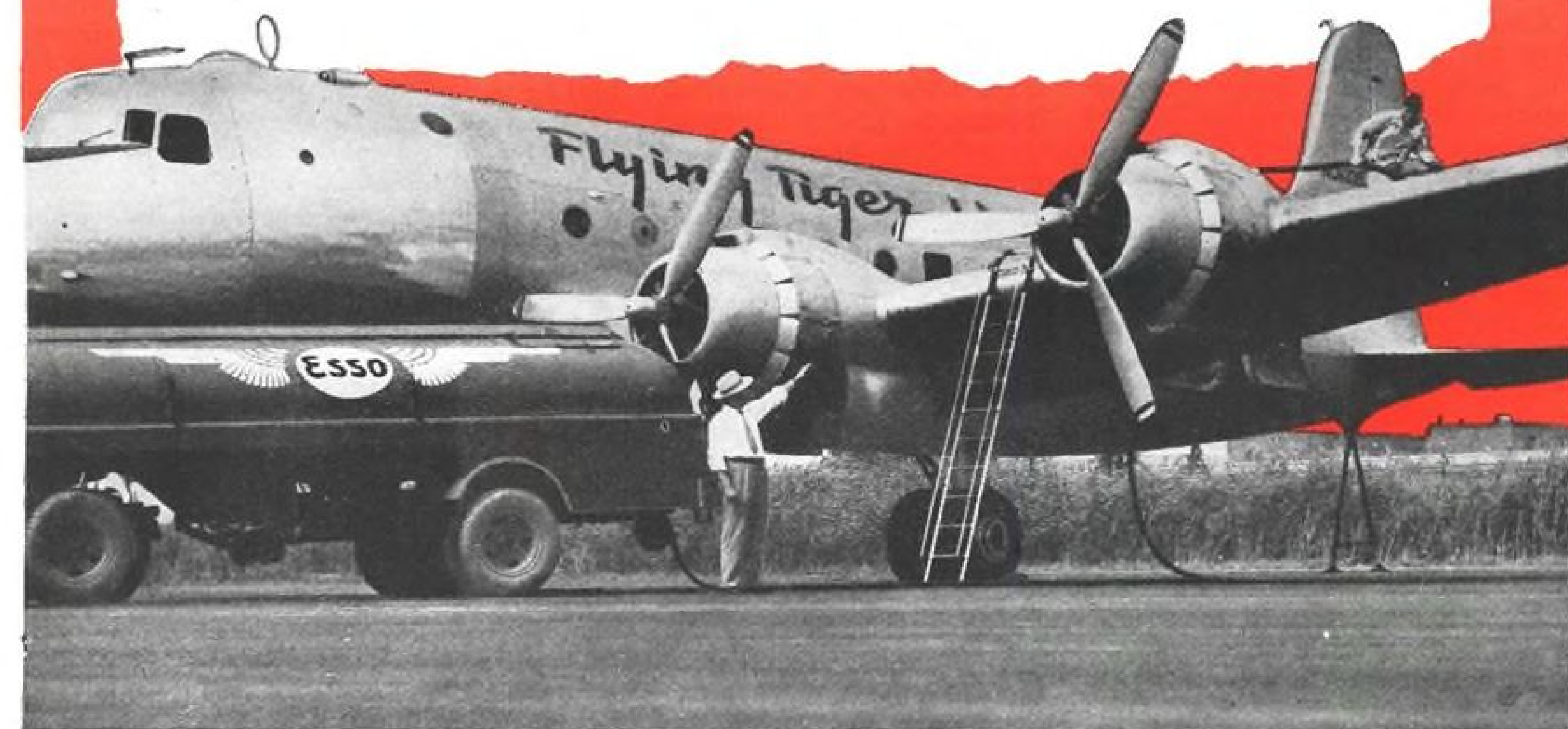
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ready for occupancy. Then requests will be made for submission of new bids and contracts will be awarded on the basis of new space available.

► **Airline Use**—Northeast Airlines now serves the city on a limited basis pending commissioning of the ils facilities. Similar service by TWA has been recommended by a CAB examiner.

CAA's airways communication station at the field has just been put into operation. It will control the present gardner range station until newer facilities—probably a station at or near Worcester—are installed.

► **Approaches**—Flight path approaches to the hill-top field are clear of obstructions and exceed the minimum glide requirements of forty to one specified by the CAA.

Manager Francis T. Fox has announced a policy of no landing fees for private operators and extends an invitation to private fliers to visit the new field, but he stresses the present lack of hanagers and tie-down equipment. Until Universal Aviation can handle tie-downs and parking, facilities will be meager.

Air Tour Cancelled

Cancellation of the seventh Annual Gulf Air Tour has been announced by Maj. Al Williams, Gulf's aviation sales manager. Major Williams said that the step was taken to lighten the load on refineries by saving thousands of gallons of gasoline and oil.

The Air Tour was inaugurated in 1937 and was an annual event until the beginning of the war. Last year it was reinstated.



HEADS NEW FIRM

Robert Sanders is president of Sanders Aviation, Inc., Riverdale, Md., new distribution and service organization which has acquired exclusive sales rights for Engineering and Research Corp.'s Ercoupe. (Aviation Week, Oct. 13)

BRIEFING FOR DEALERS AND DISTRIBUTORS

HELICOPTER BASE APPROVAL—One of the first helicopter airports and flight patterns to obtain CAA approval, apart from conventional airports which are also used as helicopter fields, is Landgraf Helicopter Co. base adjoining Compton (Calif.) Airport. The Landgraf Airport is 500 ft. by 1,160 ft. and H. K. England, CAA district airport engineer has approved it with a flight pattern for takeoffs, departures and approaches at 400 ft. beneath the Compton Airport pattern of 800 ft.

SHARING FLIGHT COSTS—Interpretation clarifying sections of CAR part 43, referring to compensation to private pilots for carrying passengers and ferrying aircraft, has been issued by Administrator T. P. Wright. Regulation does not forbid private pilots to carry passengers who share expenses of his flight. Private pilots may test-fly or ferry planes as long as no direct compensation is received for these services. However they may receive salary for normal services not incident to flying, or normal travel expenses.

ENAMEL SKYWAY MARKERS—Permanent Skyway 1 airmarkers, made of porcelain-enameled steel sheets, for use with approved CAA airmarkers in airmarking towns on the new contact-flying airway for private flyers, have been announced by Air Markings, Inc., 79 Milk St., Boston 9, Mass. Complete marker requires a roof space 10 ft. by 26 ft. 6 in. is shipped prepaid anywhere in U. S. for \$78 a set, with proper S-1, N-1 or 1 marker depending on location of airmarker site.

PLANE RESEARCH AID—A bill of policy calling for Congressional appropriation for research and development to improve personal planes will be introduced at the 1947 National Aviation Clinic, at Springfield, Ill., this week for action by delegates. The bill calls for research to develop: improved wing design for lower landing speeds, higher cruising speeds, and shorter landings and takeoffs; lower cost fuels and system for running on low-flash fuels, even though higher flash fuels are needed for starting; improved devices to overcome carburetor icing and excessive cooling during engine idling; elimination of spin-stall characteristics efficient communications and navigation system that could be used by all aircraft; quiet propellers and engines. The bill sets forth that aviation has reached the point where these basic improvements must be made to decrease public resistance and increase the plane's utility and safety to its owner. The bill points out that the suggested developments would add utility, and expand the potential market for private airplanes. The bill may be one of the most controversial in the Clinic, since the Personal Aircraft Council has opposed previous suggestions by William A. M. Burden, former assistant Secretary of Commerce for Air, and CAA Administrator T. P. Wright, that a government research program for such personal plane technical developments, be instituted. Whether industry has changed its viewpoint in light of more recent developments, or whether it might go for some other type of research, than the suggested CAA projects, is likely to be aired this week in the clinic sessions.

BACK IN AIR FINANCE BUSINESS—Interstate Air Credit Corp., at Minneapolis Municipal Airport, has announced it has resumed aircraft financing, in the face of several withdrawals from aviation financing by national financing companies, and restrictions on other available credit. Harry A. Shaffer, head of the Minneapolis company, states that his plans are the same as those offered before the war, with no increase in rate or restriction of utility. The resumption was due to a number of requests from pre-war customers among dealers and distributors and airplane factories, Shaffer states.

SCINTILLA SERVICE APPOINTMENTS—Pacific Airmotive Corp., Burbank, Calif., has announced appointments of the following fixed base operators as authorized service dealers for Scintilla Magneto division, Bendix Aviation Corp., for which PAC is a distributor: A. W. Whitaker, Portland, Ore.; Central Aircraft, Inc., Yakima, Wash.; Southern Airmotive, Yuma, Ariz.; Phoenix (Ariz.) Aviation Corp., and Skyriders, Inc., Tucson, Ariz.

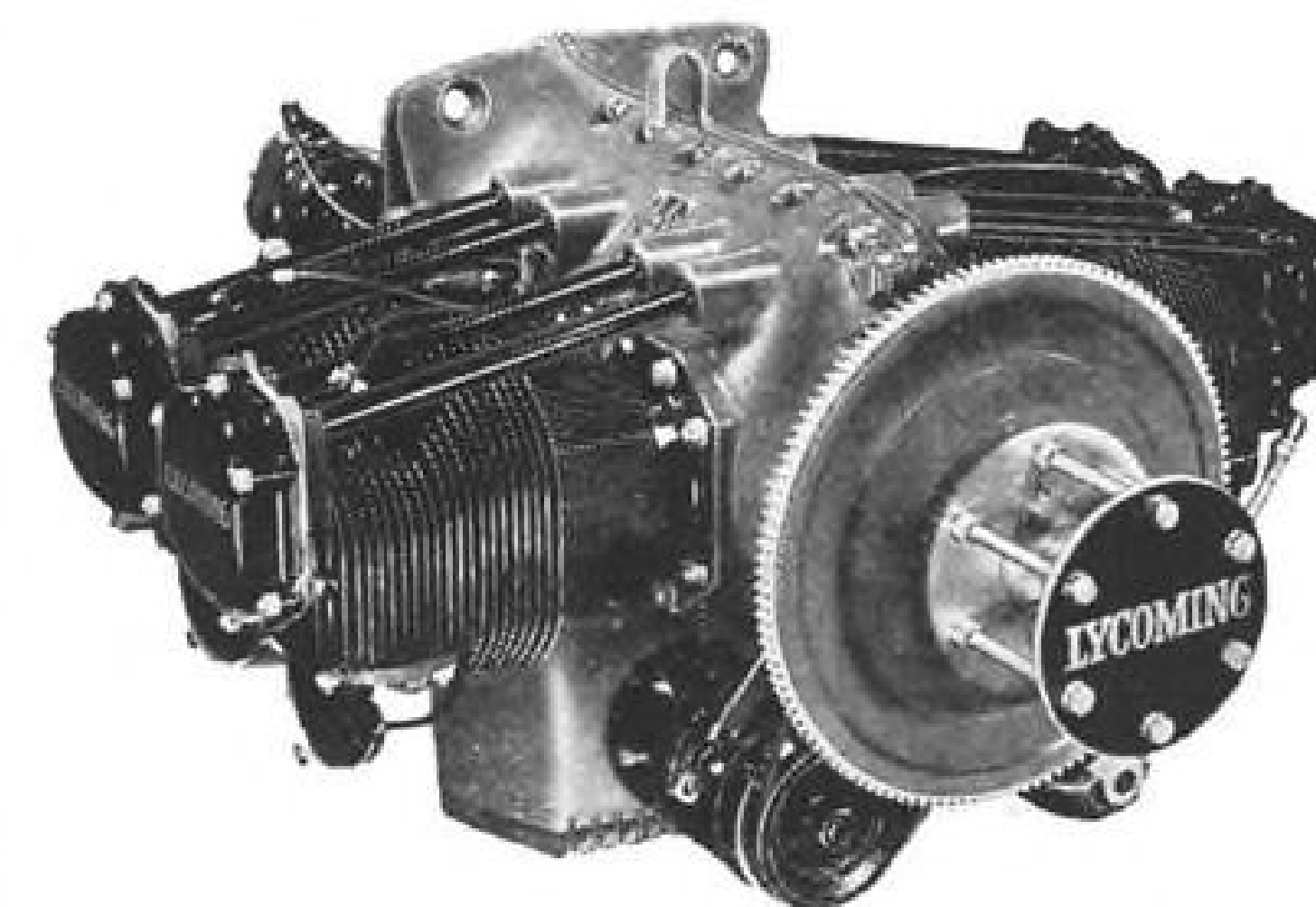
GI PICKUP SERVICE—Fixed base operators seeking to increase their GI flight school enrollments, and willing to go beyond the immediate area of their airport for business can follow the example of Aviation Industries Inc., operator at Weeks Field, coeur d'Alene, Idaho. Aviation Industries has arranged with Ira N. Kelley, a farmer near the small Idaho town of Rathdrum, to use one of his fields as a landing strip. Pilot instructors fly over to the Kelley strip, pick up GI students from the Rathdrum area, and take them back to Coeur d'Alene for instruction and landing practice at the airport. Eight students were enrolled for the pickup flight school program at the beginning of the special project.

—ALEXANDER McSURELY

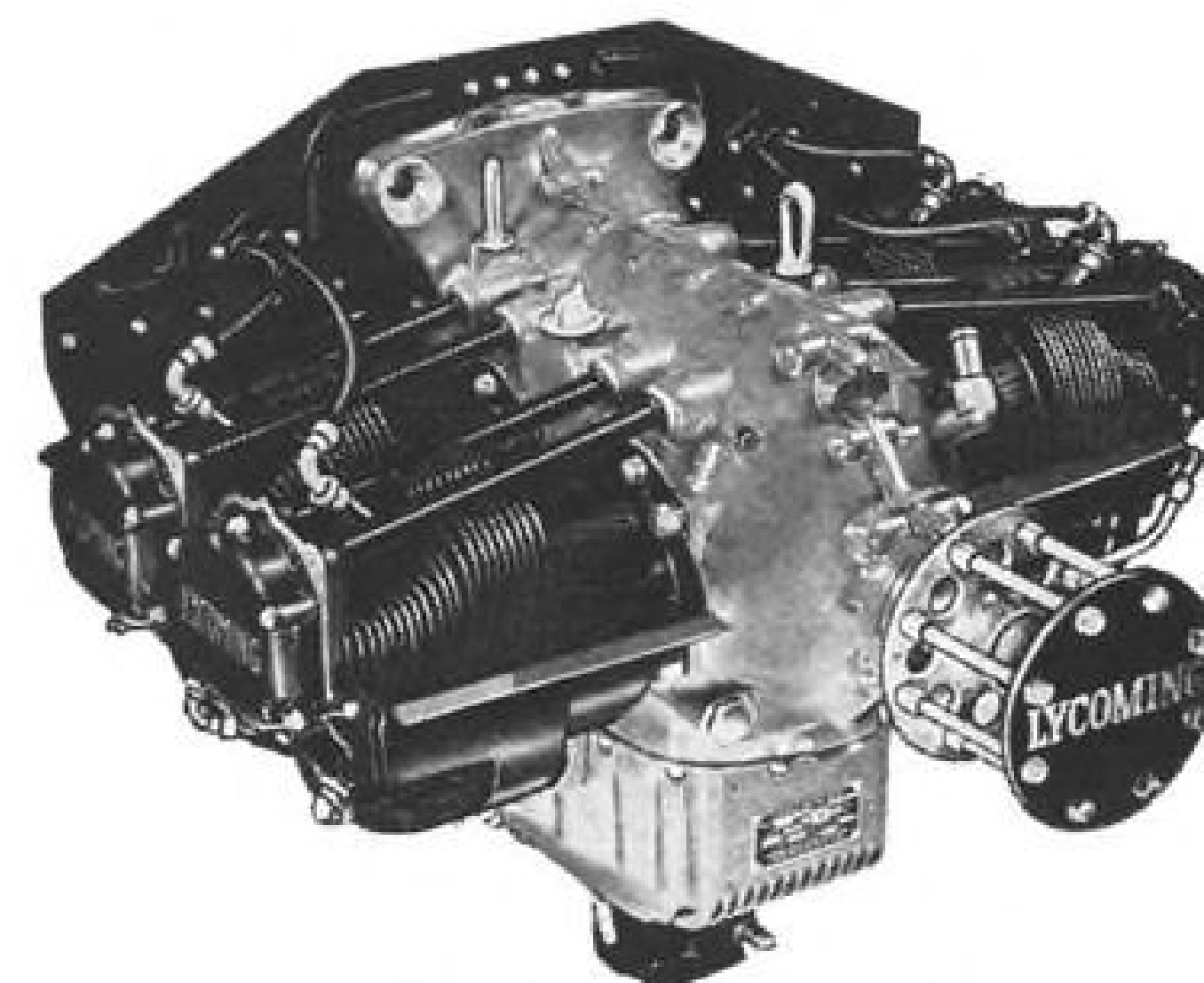
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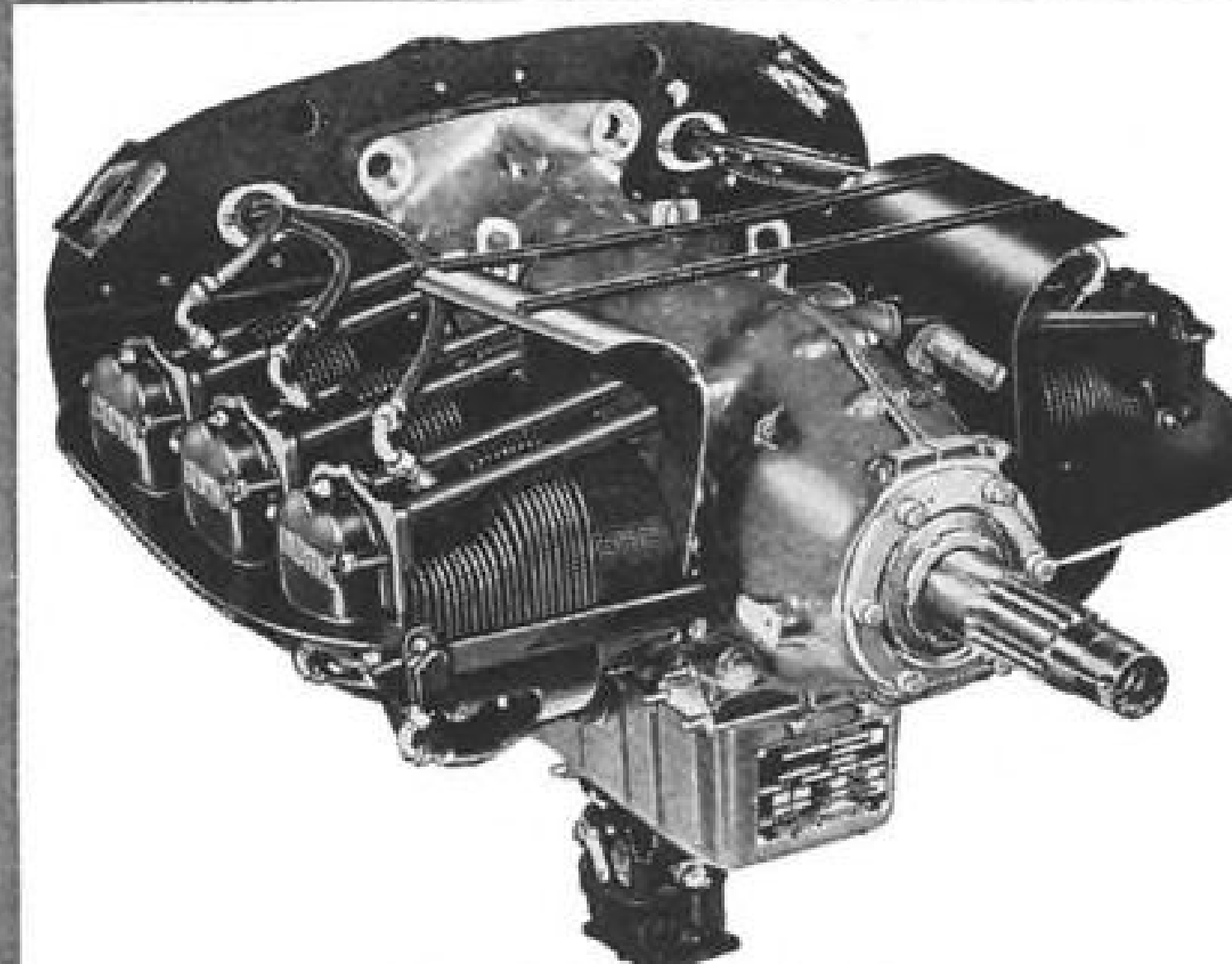
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AVIATION WEEK, November 17, 1947



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Veterans' Administration to Back Slash in College Flight Training

Assistant administrator compares flying with dancing and golf courses in defending agency stand.

By ALEXANDER MCSURELY

Unless there is a reversal by Gen. Omar Bradley, Veterans' Administrator, or adverse Congressional action, the much-criticized VA September 10 ruling affecting GI college students taking elective flight courses will stand without major modification. H. V. Stirling, assistant administrator, has informed AVIATION WEEK.

A minor modification of the ruling, apparently designed as an answer to charges that VA is interfering with college and university curriculum making is now being examined however and may be announced about Dec. 1, if approved.

► **Proposed Change**—This change would provide for a GI college student, taking elective flight training as a part of his regular college course, to pay a small portion of the flight training cost from his current allotment without the accelerated rate of charge against his allotment, which the Sept. 10 ruling requires. In effect VA would pay flight training costs at the rate of \$20 for each semester hour of college credit granted for flight training.

Since few educational institutions grant much college credit for flight training, Stirling states, the amount allowed under the proposed modification would be a minor consideration in the total cost of a flight course. The rest of the course could not be taken out of the year's college tuition allotment but would have to be paid for out of subsequent years' allotments.

► **Exclusive Interview**—In a two-hour exclusive interview, Stirling and A. H. Monk, VA director of training facilities for vocational training and education, made categorical denial of statements current in aviation that the VA policy is opposed to flight training for GIs. Significance of the denial was lessened however by Stirling's comparison, a few minutes later, of the value of private pilot training for the GI with taking a course of golf lessons or dancing instruction. Reflection of this Stirling viewpoint in actions of his subordinates in the field, is perhaps the best explanation of the VA antagonism to flight training which is reported.

Asked about reports that some VA subordinates in the field were "constraining" operators to accept conditions not in keeping with state agency require-

ments under penalty of having contract renewals delayed, Stirling retorted: "Don't the operators know what their rights are, under the Act?"

Both officials however promised to take action on any specific reports received of cases where field VA officials had exceeded their authority in dealing with local flight operators, or had used their contract renewals to enforce unfair conditions on operators.

Any AVIATION WEEK readers wishing to file such reports are invited to address duplicate copies to H. V. Stirling, Assistant Administrator, Veterans' Administration Bldg., Munitions Bldg., Washington, and to Alexander McSurely, AVIATION WEEK, National Press Bldg., Washington.

► **Ruling Criticized**—Veterans' Administration Sept. 10 ruling for accelerated payments by college students who wished to elect flight training in their college course, was sharply criticized in a resolution of the National Association of State Aviation Officials, recently at Ft. Worth.

The resolution in full follows:

Whereas, Public Law 346, as amended by Public Law 268, being the G.I. bill of rights, grants to educational institutions, approved by appropriate state agencies, the right to offer courses which in the judgment of the educational institutions should be made available as electives in the pursuance of a major academic course of study; and

Whereas, heretofore the Veterans Administration has recognized this prerogative of the universities and colleges to certify various subjects, including aviation training, as electives, since the VA has paid fees for all electives on the same basis; and

Whereas, a ruling of the Veterans Administration of September 10, 1947, effective September 1, 1947, provides that a student who elects aviation training as a part of a course of study shall have his entitlement charged to an accelerated rate for the total cost of the aviation elective, which is not true of any other elective, and which in effect denies the veteran the right to select aviation training on the same basis as other electives and sets it aside as a separate course of study, with the resultant denial to the veteran of the maximum use of his entitlement; and

Whereas, recognition has been given by the National Association of University Administrators of Air Age Education, in their written expressions, that aviation training, with flight training as a necessary component thereof, has become a definite part of the industrial, commercial and cultural life of our country, now

Therefore, be it resolved: That the National Association of State Aviation Officials, in convention assembled at Fort Worth, Texas, vigorously protests the Veterans Administration ruling of September 10, 1947, affecting aviation training as an integral part and accredited elective offered by colleges and universities under the G.I. bill of rights, and requests the rescinding of such restrictive ruling.

► **NASAO Questions**—At the Ft. Worth meeting a report on the GI flight program from 24 states was tabulated by NASAO and among results reported were the following:

Q. Has the VA attempted to control maximum and minimum hours for any flight courses?

A. Yes. (18 states). No. (6 states).

Q. During the past years has the VA attempted to knock down hourly rate charged by flight schools in your area?

A. Yes (10 states). No (11 states).

One state reported all its schools receive standard rates of \$8.50 for solo hours and \$11.50 for dual hours.

Widespread effect of the GI flight program on the aviation industry is indicated by the report which shows that approximately 1,825 flight schools in the states replying are participating in GI programs. Sixteen states reported that a total of 69,651 students have participated in GI flight programs, while the others had no total figures on participants. Twelve states reported that a total of 26,695 students have completed courses, while the other 12 had no statistics on course completion. The report estimates that the proportion in all states of GI flight students to civilian students is approximately 83 percent GI and 17 percent civilian.

► **Close Supervision**—Stirling declares that Veterans' Administration is treating flight schools no different from any other "proprietary" schools operated for profit, which were training veterans under the GI bill of rights. He points out however that VA is supervising all proprietary schools more closely than publicly-owned colleges and universities operated not for profit, for evidences of overcharges and other irregularities.

The assistant administrator asserts that many of the "gripes" from flight school operators come from men who are seeking to raise their charges, but fail to show increased costs making the higher charges necessary. He admitted however that flight schools had been

affected along with all other types of industry by increased labor, finished goods, and materials costs in the last year.

And he states that many educators and flight school operators will agree with him on his viewpoint that the flight course for the average veteran is not utilitarian, unless it leads to an aviation pilot's job. He also cites cases of flight school operators who have encouraged GI students to enroll and complete ground courses, without a physical examination, when they were not physically qualified to fly.

► **Junior College Case**—The Sept. 10 ruling, he says, was brought about by a case involving a junior college in the southwest. Stirling says investigation indicated the college had been subjected to undue pressure by a commercial flight school operator to include an aviation course among its electives. He did not cite any other similar cases, after an invitation by this writer to do so.

The assistant administrator favors reinstatement of some type of government sponsored civilian pilot training, which will enable younger students to learn to fly at nominal costs, and believes it will be of more benefit to aviation than the GI-flight training program. Average age of veterans taking GI training is 27.

At the recent NASAO convention the aviation directors voted another resolution calling upon the CAA and the Department of National Defense to consider adoption of a national civilian flight training program for continued stimulation of flight training on a national basis as necessary for the national economy and security. This move recognizes that the VA aviation training program eventually will be discontinued.

Stirling says that the old VA policy of allowing students attending colleges which had flight courses as electives, to pay for the cost of these courses from their current year's college tuition allotments (maximum \$500) was in effect a discrimination against GI college students attending colleges and universities which had no elective flight courses. Since the Sept. 10 ruling, all are on an equal footing for they are charged separately for flight training and for other college courses in any case.

Protests against the original retroactive feature of the Sept. 10 ruling, which was announced to take effect as of Sept. 1, resulted in a modification of this feature. VA later agreed that any GI student who had already signed up for an elective flight course at a college, could take the cost of that course during the current school semester or term, out of his current allotment, without acceleration of charges. But as soon as the semester or term was completed, continuing the flight course would result in acceleration of charges against his entitlement of VA funds.

Ask VA Field Check

Asserting that the Veterans' Administration has caused a lowering in standards of training for pilots, by assuming jurisdiction over training standards, the National Association of State Aviation Officials has passed a resolution protesting action of VA in "permitting dictation by certain sub-offices of requirements for GI flight training, which are in direct conflict with the prerogatives of the state approving agencies as granted in the GI bill of rights." The NASAO resolution is one of two criticising VA, urges that VA "immediately take necessary steps to correct this practice and forthwith establish closer coordination with the state approving agencies."

New Luscombe Plane Will Sell For \$6,995

Pricetag of the new Luscombe four-place Silvaire sedan, all-metal 165 hp. personal and business plane, has been set at \$6,995 flyaway Dallas, Luscombe Airplane Corp. president, Leopold H. P. Klotz announced last week.

Despite the fact that CAA tests have not yet been completed, a number of deposits for purchase of the airplane have already been received. Price is the lowest announced for an all-metal four-placer, although the four-place Stinson Voyager and Flying Station Wagon (fabric-covered) are priced approximately \$1,000 less at \$5,889 and \$5,989 fly-away, Wayne, Mich., respectively.

Closest competition will probably be between the Stinson, the new Luscombe and the new all-metal four-place Cessna 170, which made its first flight last week at Wichita. Cessna officials say their plane will sell for "around \$5,000" which presumably might end up as slightly lower than the price now quoted by Stinson.

These three airplanes and possibly a four-place Piper Super-Cruiser, at a still lower price, are likely to be the main competitors in the lower-priced, relatively easy-to-fly four-place personal plane category. A fixed-gear four-place Ercoupe may be still another entry in the competition.

A recent visit in the Luscombe Dallas plant by an AVIATION WEEK representative showed that the production line for the four-placers is rapidly filling up, with a dozen planes in final assembly stage, in addition to other assemblies in progress.

Luscombe's principal current pro-

duction continues with the two-place all-metal 65 hp. trainer special, which is pricetagged at \$2,295 until Nov. 30. Then the price goes back up to \$2,495. Klotz reports that response of fixed base operators to the bargain price as an inducement to replace worn-out trainers with all-metal equipment, has been good.

Important selling points of the new four place Luscombe in addition to its flight characteristics (described in a flight report in engineering section, AVIATION WEEK, this issue) are roominess of cabin and excellent visibility. Other interesting features are the interconnection of rudders and ailerons so that pilot can fly the plane using either rudders alone or wheel alone, and still have rudder control for cross-wind landing, and the new tapered steel tube landing gear legs, which have flexibility in all directions, something like the action of a tapered steel fishing rod or golf club shaft, although considerably stiffer. Gear is attached to a conventional oil-spring shock absorber unit at the fuselage.

Dart Campaign Offers Plane Construction Kit

Dart Aircraft Corp., owner of the stocks and inventories of the old Culver Aircraft Co., has opened a new sales campaign with the offer of a kit of prefabricated factory parts which can be assembled by any licensed A & E mechanic.

The sale of kits is aimed at schools and fixed base operators who could make double use of the material, first as a project in aircraft construction to ground school students and second as an income producer after construction when it could economically be used in flight training courses.

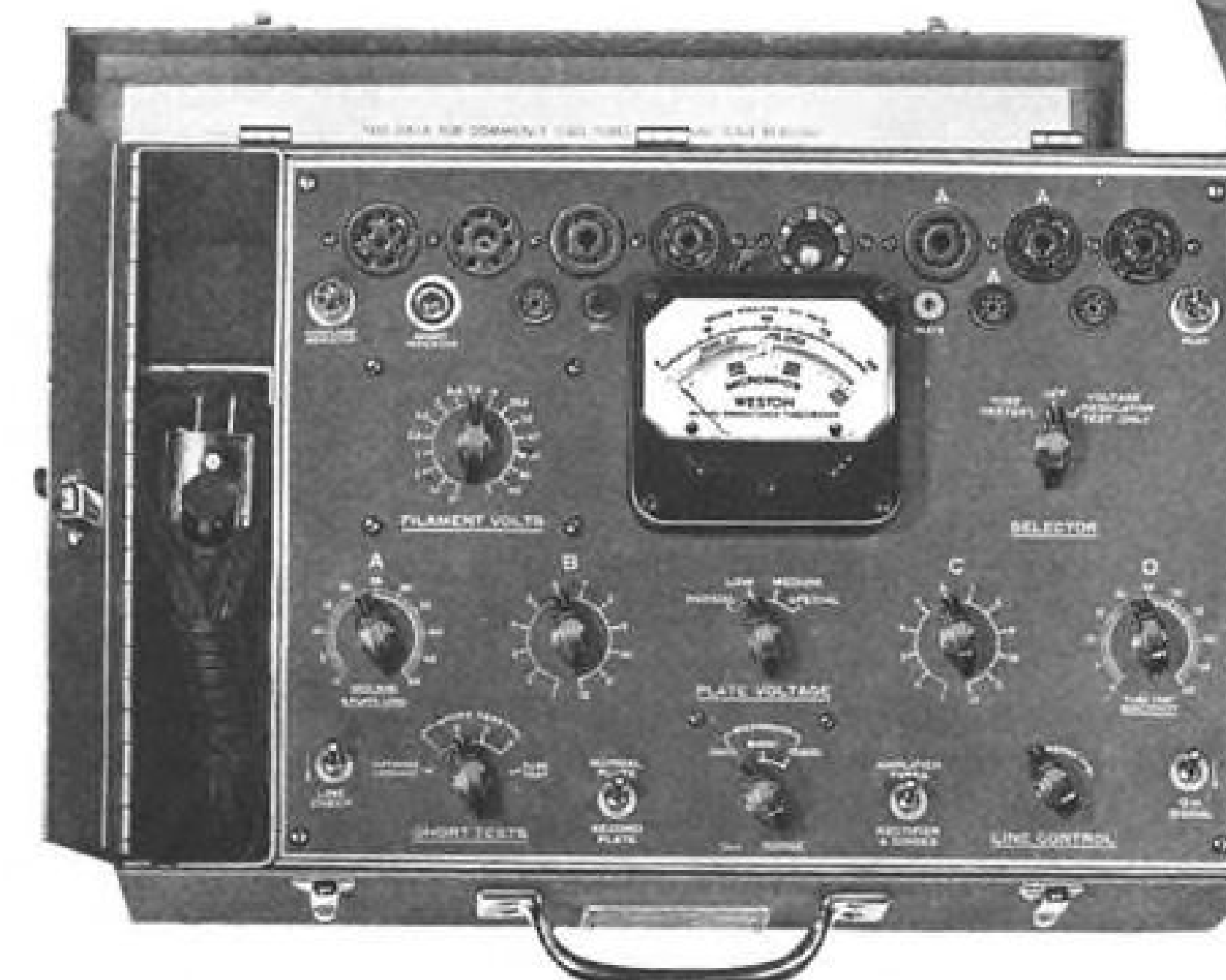
All parts of the kit are CAA approved before they leave the factory and are so stamped by the local CAA inspector. Kits are complete except for engines, allowing the constructor a choice of power plants.

Dart President Ray Applegate feels that the greatest deterrent in the aircraft industry today is the quantity of surplus planes being sold by the government. These, he says, are underselling new airplanes to such an extent that many manufacturers will be forced out of business by a lack of market for their products. His company's kit was designed to meet this competition.

Darts at the factory sell for \$4,275, the construction kits for the same plane (less engine) cost only \$1,250 F.O.B. factory; engine conversion kits may be purchased from Dart, prices ranging from \$847.80 to \$1,097.25 F.O.B. Elkhart, Ind.

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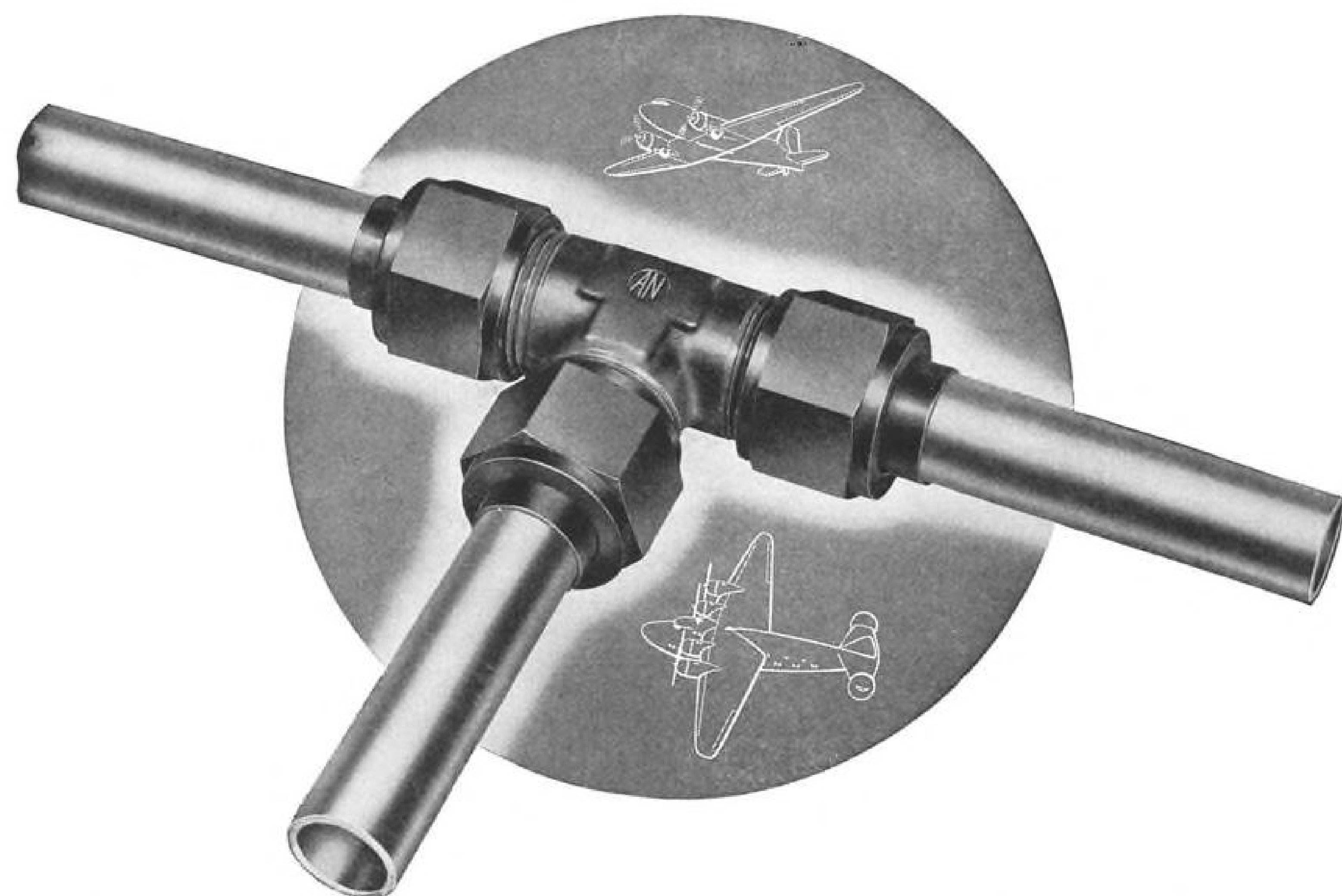


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AIR TRANSPORT

'Premature' DC-3 Retirement Fought by Scheduled Airlines

Air Transport Association also hits proposed Civil Air Regulation amendments forcing costly structural changes on four-engine equipment.

By CHARLES ADAMS

The certificated airlines are waging a determined fight on proposed Civil Air Regulation amendments which, they contend, would force the premature retirement of DC-3s and cost the industry about \$175,000,000 in engineering changes and operational losses on four-engine equipment.

Proposals advanced by CAB's safety bureau require DC-3 Lockheed Lodestar and Boeing 247-D equipment used in scheduled operations to meet the stiff performance standards of part 04(A) of the Civil Air Regulations after Dec. 31, 1950. These same aircraft, plus the DC-4, DC-6 and Constellation, would be forced to meet all requirements of Part 04(B) after Dec. 31, 1953.

► **ATA Case**—The Air Transport Association, through Milton W. Arnold, vice president in charge of operations and engineering, opposed the changes at a public hearing this month. Arnold said the airlines could not agree that every time there is a shift in philosophy regarding airworthiness design standards either (1) costly and unnecessary changes must be made in once certificated aircraft, or (2) the older equipment must be so limited in its operation as to become uneconomical.

"Safety of planes manufactured and certificated under one concept of airworthiness regulations will not be increased by requiring such aircraft to comply with a different concept of airworthiness developed at a date subsequent to the manufacture of the planes and based on different design principles," Arnold emphasized.

► **Past Record**—ATA declared that actual operating experience with the DC-3, Lockheed 18 and Boeing 247-D shows these aircraft are safe for continued service. Effect of a requirement that after Dec. 31, 1950, all aircraft operating in scheduled transportation must meet the performance requirements of Part 04(A) will be serious, the Association stated.

Latest figures show 495 DC-3s, 12

Lockheed 18s and 4 Boeing 247-Ds being operated by scheduled airlines in the U. S., Alaska and Hawaii. A recent ATA survey among the carriers indicated that about 350 DC-3s, 12 Lodestars and 4 Boeing 247-Ds will still be in use by the end of 1950.

► **Future Needs**—Carriers and the number of DC-3s they expect to have in scheduled operation on Dec. 31, 1950, are: Alaska Airlines 5, Braniff 16, PCA 23, Caribbean Atlantic 3, Challenger 4, Chicago & Southern 12, Colonial 10, Continental 6, Delta 17, Eastern 50, Hawaiian 9, Mid-Continent 25, Monarch 5, Northeast 8, Panagra 10, Pacific Northern 3, Pioneer 7, Southwest 9, TWA 70 and United 60. In addition, National expects to have 12 Lodestars and Empire 4 Boeing 247-Ds.

Compliance with Part 04(A) as proposed would, in a large number of cases, drastically reduce the allowable operating gross weights on the DC-3.

Praise for Feeders

CAB Chairman James M. Landis is still unwilling to adopt a bearish view of the nation's feederline experiment. Speaking before the American Municipal Association in New Orleans this month, Landis said the country paid far higher mail rates for the initiation of trunkline services than it is now giving the short-haul operators.

"The rate of progress of the trunks toward an economical operation already has been outdistanced by the feeders," Landis declared. "Promise of the feeder program is so great in terms of better communication and a stronger national defense that it deserves our full support until its failure is patently demonstrable."

Lodestar and 247-D, making certain airline operations economically unfeasible, ATA asserted. Financial losses which the airlines would suffer after Dec. 31, 1950, by being forced to operate the veteran aircraft in accordance with the reduced allowable payloads of Part 04(A) would aggregate about \$8,000,000 annually, the Association estimated.

► **Present Weight Limit**—Currently, DC-3s are limited to a maximum takeoff weight of 25,200 lb. Rules to be effective Jan. 1, 1951, would permit a maximum takeoff weight of 26,200 lb. (a provision strenuously opposed by the Air Line Pilots Association) from a few airports with long runways located near sea level. But takeoffs at a great number of other fields will be severely limited.

At Albany, N. Y., (elevation 283 ft.) DC-3s currently can take off from all six runways (3,500 to 3,507 ft. long) with 25,200 lb. Under the proposed new regulation, the weight limit on the runways will vary from 22,400 to 23,500 lb.—representing a payload loss of up to 14 passengers.

► **Situation at Butte**—At Butte, Mont., (elevation 5,553 ft.) DC-3s now may take off all six runways (5,545 ft. to 5,563 ft.) with 25,200 lb. Under the proposed new rules, the weight limit on the runways will vary from 22,000 lb. to 24,500 lb.—representing a payload loss of up to 16 passengers.

ATA stated that a suitable replacement for the DC-3, Lodestar and 247-D probably will not be available by the end of 1950. Application of Part 04(B) of the Civil Air Regulations on Jan. 1, 1954, will mean the elimination of the three planes from further scheduled air carrier operation since they cannot comply with the performance and structural requirements specified, ATA declared.

► **Larger Planes**—With respect to four-engine craft, meeting Part 04(B) requirements on Jan. 1, 1954, would mean changes in the DC-4 and Lockheed-49 Constellation costing up to \$125,000 per plane. In the case of the DC-6, Lockheed-649 and Lockheed-749, the cost would be up to \$25,000 per plane since they were designed and built at a later date and incorporate some of the structural provisions of part 04(B) not included in the DC-4 and L-49.

Arnold said changes on the DC-4 and L-49 would require about 90 days per plane and on the DC-6, L-649 and L-749 around 15 days. Placing the revenue lost at \$6,000 per day per aircraft,

he estimated that the total cost of making the proposed changes on 415 four-engine aircraft operating in 1954 would be in the neighborhood of \$175,000,000.

ATA noted that while safety standards for planes used in scheduled passenger operations were being tightened, nonscheduled carriers, using the same type of equipment, were unaffected.

NWA Arbitrating Wages With IAM

A novel wage demand by the International Association of Machinists (Ind.) against Northwest Airlines is being arbitrated under the Railway Labor Act before a three-man arbitration board in Minneapolis.

The union, representing some 1,500 ground employees throughout the Northwest system, is seeking wage rate increases that would give the workers the same "purchasing power" on a 40-hour week today that they had on a 48-hour week in November, 1942. According to the union, this would call for an 18 percent boost.

IAM is making the same demand on Challenger Airlines, where it recently won bargaining rights, and expects to present it to other carriers.

Arbitration hearings on this and 13 other issues began last week before a panel headed by William M. Leiserson, former chairman of the National (Railway) Mediation Board. Other panel members are K. R. Ferguson, NWA vice president, and George H. Pederson, IAM official.

The union, which struck the airline last year, also seeks an additional week's vacation after 10 years of service. It wants Washington's birthday added to the six holidays already in the contract and shift premiums increased.

Pacific Northern Takes Grievances To Court

Pacific Northern Airlines, Anchorage, Alaska, has filed complaints in the territory's federal court asking that Alaska Airlines and Northern Airlines be enjoined from operating as scheduled common carriers between Seattle and Alaskan points in violation of the Civil Aeronautics Act.

PNA, which is certificated within Alaska, taps traffic to and from Seattle through a connection with Pan American Airways at Juneau. Alaska Airlines also is certificated within Alaska, while Northern Airlines is a nonscheduled carrier based at Seattle. PNA asserts that Alaska Airlines' charter trips to Seattle and Northern's nonscheduled flights on the run exceeded the number permitted by CAB.

SHORTLINES

► **American**—Inaugurated service to Midland-Odessa, Tex., and Springfield, Ill., early this month.

► **Capital**—Plans to start service to Charlotte, N. C., on AM 51 about Dec. 1. . . . Company during October flew the greatest freight volume in its history—390,051 ton miles—up 57 percent over September. Cargo schedules will be increased shortly.

► **Chicago & Southern**—Reports air-freight tonnage reached a new all-time peak in October.

► **Eastern**—Last week planned to institute a reduced 90-day roundtrip excursion fare of \$180 plus tax between 13 eastern U. S. cities and San Juan, Puerto Rico. The rate represents a cut of up to 22 percent.

► **Northeast**—A special stockholders meeting called recently to vote on issuance of 83,333 shares of preferred stock at \$20 a share has been adjourned to Nov. 24 due to lack of sufficient proxies. Atlas Corp., which owns about 20 percent of NEA's 500,000 outstanding common shares, has guaranteed to purchase any of the new preferred shares which remain unsold.

► **Northwest**—Expects to inaugurate service over its new extension to Cleveland, Pittsburgh and Washington, D. C., about Dec. 3.

► **Pacific Overseas**—Has leased Slick Airways a C-54 cargo plane for an indefinite period. POA will supply flight crews and provide maintenance for the C-54, which will operate between Burbank, Calif., and Newark, N. J.

► **Pan American**—Has reduced rates on volume air express shipments from Seattle to Alaska. . . . SCR 718 radar units are being installed on PAA's trans-Pacific DC-4s and will supplement APN-1 radar altimeters already in use.

► **Peruvian International**—Has recently reached a joint shipping agreement with Railway Express Agency.

► **Southwest**—Has signed a pact with Hertz Drive-Yourself system providing car rental service at Los Angeles, Oakland, San Francisco, San Jose, Santa Barbara and Ventura, Calif. Passengers may make advance reservations over Southwest's teletype system.

► **United**—Expects to have all its DC-6s equipped with reversible pitch propellers by the end of the year.

► **Western**—Has opened daily service linking San Francisco, Burbank, Los Angeles and Palm Springs, Calif.

CIO Union Flays Airlines on Safety

Blaming recent accidents on a lack of sufficient flight personnel, the left-wing Transport Workers Union of America (CIO) has published literature intimating that the airlines are compromising safety with false economy.

A TWU pamphlet titled "Real air safety" and found in a Pan American Airways DC-4 flying out of Miami alleged that "profit grabbing without regard to safety and the long-range interests of air transportation is a menace to all but the few who seek unwarranted monetary gains." It added that "false economies now permitted by government regulatory bodies and practiced by some airlines tend to undermine public confidence in the safety and stability of air transportation."

► **Claims 16,000 Members**—The union, which claims to represent 16,000 employees of major domestic and international airlines, is demanding that every four-engine aircraft, and every plane of comparable capacity, be manned by a basic crew consisting of a captain, co-pilot, engineer, navigator, radio operator and at least two cabin attendants. TWU's membership consists of mechanics, inspectors, navigators, radio officers, stewards, stewardesses, pursers and clerks.

At a recent hearing before CAB, the union charged that airline management has "allies within CAB and CAA whom they are able to influence and pressure." The remark was withdrawn when Board members objected (AVIATION WEEK, Oct. 20).

► **UAL Accident**—TWA claimed in its pamphlet that United Air Lines' accident on take off at LaGuardia Field, May 29, might have been prevented if the crew had included a flight engineer and that the crash of a PCA DC-4 into a West Virginia mountaintop on June 13 might have been avoided had a navigator been aboard.

The union charged that two engines failed "because of inadequate overhaul and inspection" in the Pan American Airways accident in Syria last June 19. CAB's report on the mishap has not been issued.

AA Sleeper Service

American Airlines was scheduled to inaugurate the first postwar transcontinental sleeper service last week, with DC-6s making the run between New York and Los Angeles.

Eight upper and lower berths located in the section aft of the DC-6 cabin door will be available for an extra charge of \$90. The planes will have 36 seats in the forward section.



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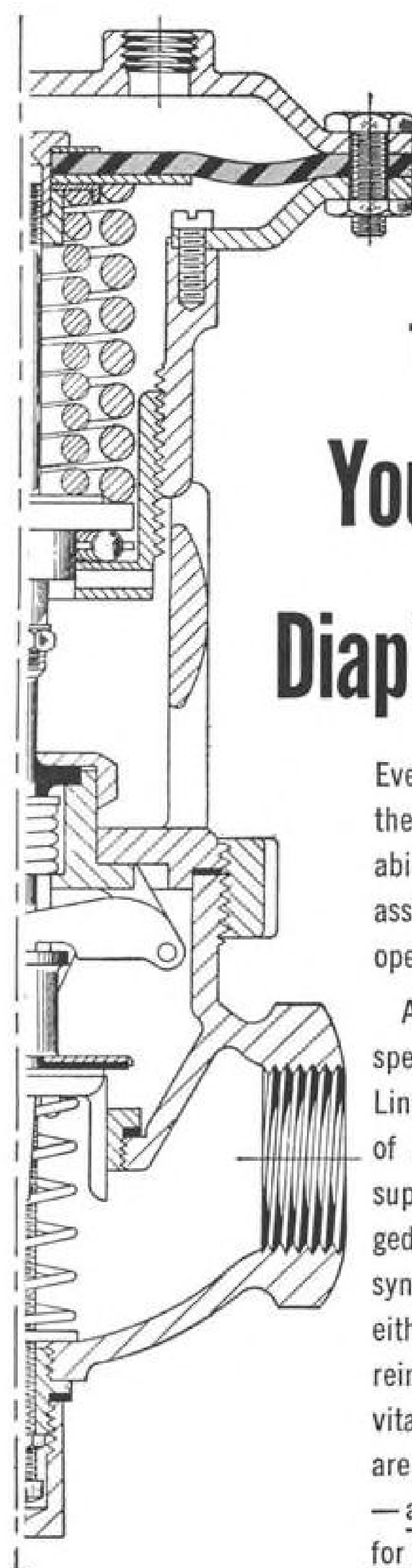


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Waterman Denied Puerto Rican Route

Request of Waterman Steamship Corp. and Waterman Airlines to operate an air route between New Orleans and San Juan, Puerto Rico, has been turned down by CAB despite Waterman's offer to conduct the service without mail pay.

The Board declared that public convenience and necessity did not require more air transportation between New Orleans and Puerto Rico because of the low traffic potential. It added that the question of Waterman Airlines' tieup with Waterman Steamship Corp. was not considered since the route application was denied on other grounds.

In requesting the link, Waterman asserted that the operation would be without cost to the government since no authority was sought to carry mail. CAB denied the validity of this view.

"Such traffic as might flow through the proposed service would be a diversion from existing certificated air carriers," CAB declared. "Such a diversion would cause a reduction in revenue to these carriers and might require that the rate of mail compensation paid by the government to them be materially increased. The fact that an applicant is willing to accept a certificate which does not authorize the carriage of mail cannot be decisive in determining the choice of carriers nor in authorizing a new route."

CAA Urges Penalty Against AA Pilot Sisto

Civil Aeronautics Administrator T. P. Wright has recommended that CAB revoke or suspend the pilot's license of Charles R. Sisto, the check pilot accused of tampering with the gust lock of an American Airlines DC-4 near Mount Riley, Tex., on Oct. 8.

Sisto's action caused the plane to plummet from 8,000 to 300 ft. before the co-pilot could pull it out of the dive, a CAB accident report had disclosed (AVIATION WEEK, Oct. 27). Wright said suspension or revocation of Sisto's license was justified because the check pilot carelessly or recklessly operated the aircraft so as to endanger the lives and property of others contrary to provisions of the Civil Air Regulations. Sisto recently resigned from American Airlines.

Service to Delaware

Delaware is slated to become the 48th state to receive scheduled commercial air service on Nov. 29 when American Airlines and TWA inaugurate daily schedules to New Castle County Airport.



BIRTHDAY SPEAKER

CAB Chairman James M. Landis delivered the main address at Key West, Fla., last month on the 20th anniversary of Pan American Airways' inauguration of daily international mail and passenger service. In commemoration of the date, special PAA planes duplicated the original 90-mile flight from Key West to Havana, Cuba. Granite shafts in honor of the event were unveiled in both cities.

American's Profit Up During Third Quarter

A net profit of \$1,272,514 after taxes during the third quarter has enabled American Airlines to trim its deficit for the first nine months of 1947 to \$1,014,779. The third quarter earnings this year were well above the \$492,585 net shown in the same 1946 period.

On Sept. 30, 1946, American had a net profit of \$370,837. The deficit on the same date this year is the result of a \$3,073,636 first quarter loss.

American stated its improved third quarter record resulted from increased gross income and continuing emphasis on operating economies. Total operating revenues for the first nine months of 1947 were \$61,496,840, up 29 percent over the same 1946 period.

Passenger revenues for the first nine months of this year aggregated \$53,888,423, up \$12,027,754 or 28.7 percent over the comparable 1946 period. Express and freight revenues in the first three quarters of 1947 totaled \$4,254,719, up 58 percent over the same 1946 period. Mail revenues increased to \$2,359,932 this year from \$2,257,604 in the first nine months of 1946.

Revenue passenger miles flown in the nine months ended Sept. 30, 1947, totaled 1,104,026,376 against 918,496,081 in the like 1946 period. Plane miles

flown increased from 45,529,518 to 47,122,438. American's fleet on Nov. 1 included 35 DC-6s, 46 DC-4s and 61 DC-3s.

Robert Wilson Takes Air Cargo, Inc., Post

Robert Wilson, formerly supervisor of ground transportation for Northwest Airlines, has been appointed regional manager of the south central states for Air Cargo, Inc., with headquarters at Dallas, Tex. He will be responsible for the corporation's field activities in Kansas, Texas, Oklahoma, Arkansas, Louisiana and New Mexico.

At the same time, Colonial Airlines named William V. McTaggart as director of cargo sales. Formerly with Taca, McTaggart has recently been assistant to the vice-president of Air Express International, New York.

Other industry developments:

- **Florida Airways**—Clyde S. Yarnell has been appointed to the newly created post of director of sales and advertising.
- **Flying Tiger Line**—George T. Cussen has become assistant to the president.
- **Lamsa**—J. R. Qualm has been named operations manager of the United Air Lines Mexican subsidiary.
- **Pan American**—Selby Calkins has become advertising promotion manager with headquarters in New York. He formerly was public relations manager of PAA's Pacific-Alaska division. . . . Capt. Horace Brock has been named division manager of PAA's Atlantic sector. . . . Robert W. Bradbury has been appointed special executive representative for the Latin American division. . . . E. S. Garrett has become manager of PAA's Miami district sales office.
- **TWA**—Gerald R. Thornton has become European sales manager.

NWA Using 2-0-2s

Northwest Airlines, which last month began using Martin 2-0-2s as second sections on runs between the Twin Cities and New York, plans to start large-scale operations with the new craft shortly. Six 2-0-2s were on hand Nov. 1, and delivery on the last of the 10-plane order is expected by Dec. 1.

CAB SCHEDULE

- Nov. 17. Prehearing conference on additional service in Hawaiian Islands. (Docket 2390 et al.)
- Nov. 24. Prehearing conference on Board's investigation of Universal Air Travel Plan Agreement. (Docket 3079.)
- Nov. 25. Hearing on Taca, S.A., foreign air carrier permit renewal and amendment case. (Docket 3016 and 3017.)
- Dec. 1. Hearing on PCA's application for unrestricted service from Chicago to Cleveland, Akron, Youngstown and Pittsburgh. (Dockets 1789 and 1790.)
- Dec. 8. Hearing on Mid-Continent's proposed service between Minot, N. D., and Regina, Saskatchewan. (Docket 628.)
- Dec. 8. Hearing on Mid-Continent's application for alternate Kansas City-New Orleans route. (Docket 1956.)

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OFFICIAL PROPOSALS

Bids: November 27, 1947 (100)

Operation of Airport

NOTICE TO BIDDERS

Sealed bids will be received by the Cumberland Municipal Airport Commission, Cumberland, Maryland, for the operation of the whole or any part, or any service connected therewith, of the Cumberland Airport up until November 27, 1947, at 7:30 o'clock P. M. The period of operation would start January 1, 1948, and extend for a year or more.

The airport is located slightly more than a mile from the center of Cumberland, Maryland, a city of over 40,000 population and a wide trading area. The airport area contains three paved runways (one over a mile long), 21 individual hangars, two larger buildings as well as an office and an apartment. Evidence of sufficient financial backing must be exhibited.

Proposals will be received in any form. Additional information may be secured from Mayor Thomas S. Post, City Hall, Cumberland, Md.

Bids should be addressed to T. Donald Shires, Secretary, Municipal Airport Commission, City Hall, Cumberland, Md.

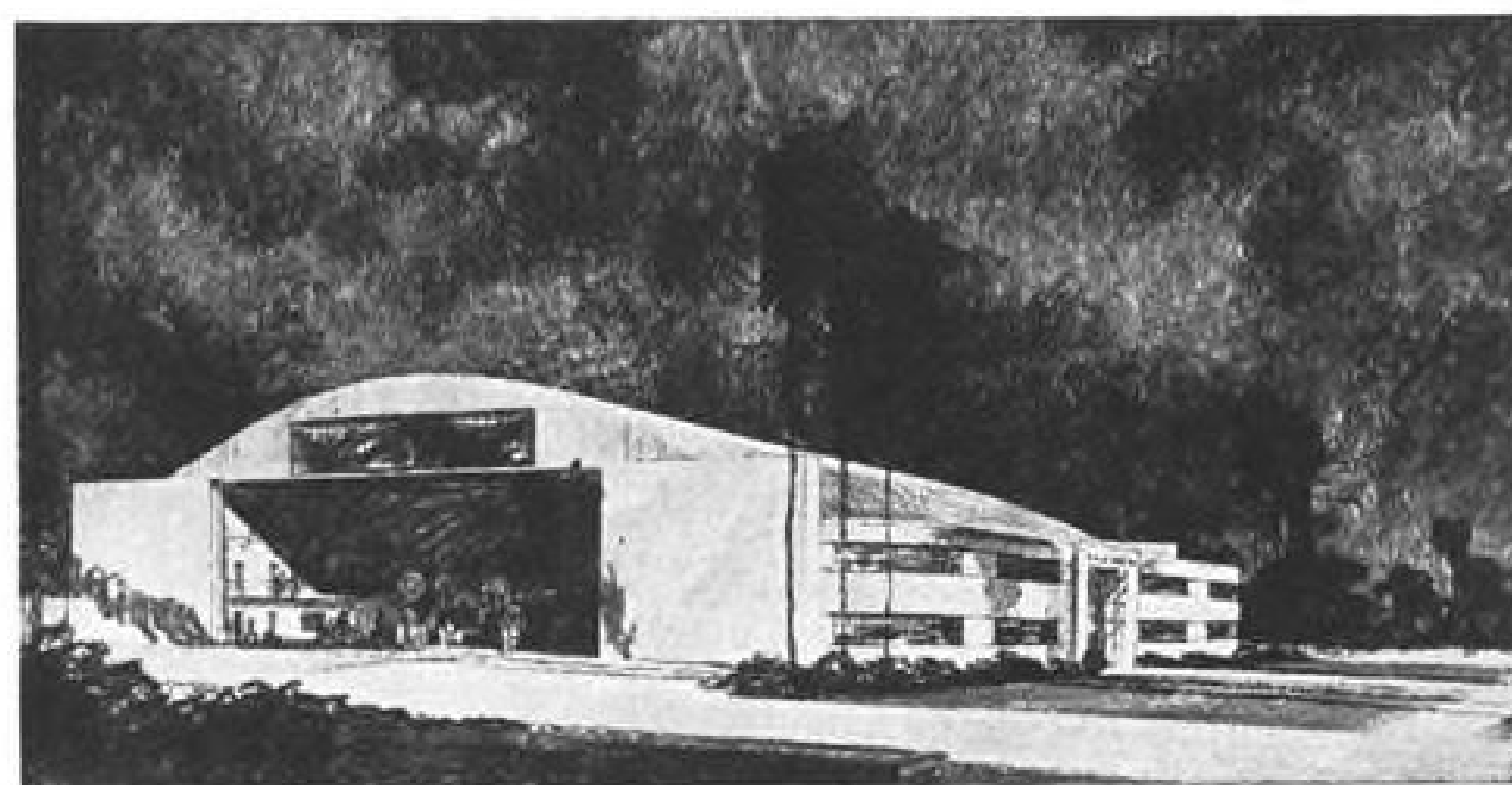
The Commission hereby reserves the right to reject any and all bids and all bids are subject to the approval of the Mayor and City Council of Cumberland.

MUNICIPAL AIRPORT COMMISSION:
BY: T. Donald Shires, Secretary

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AVIATION WEEK, November 17, 1947

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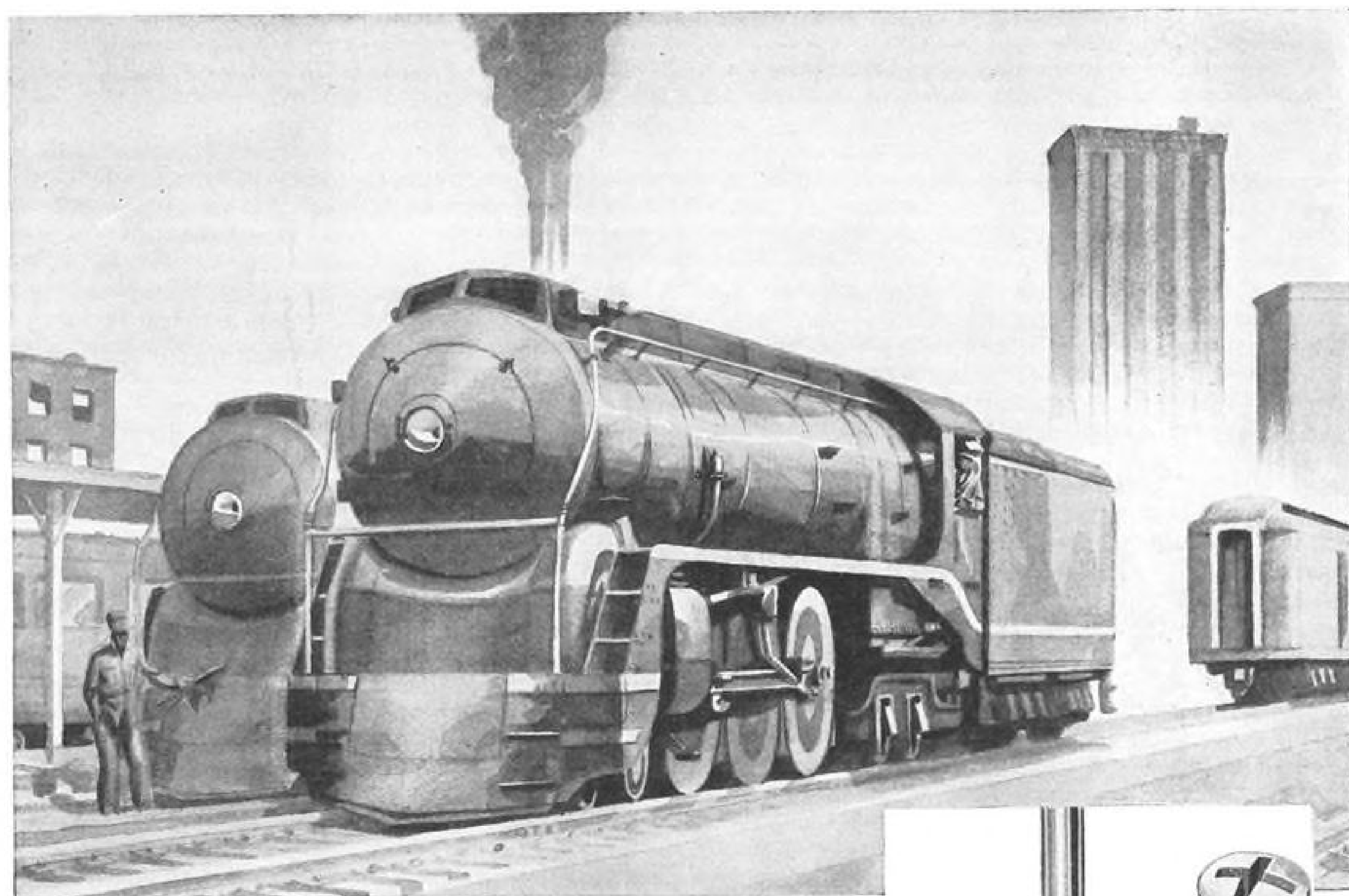
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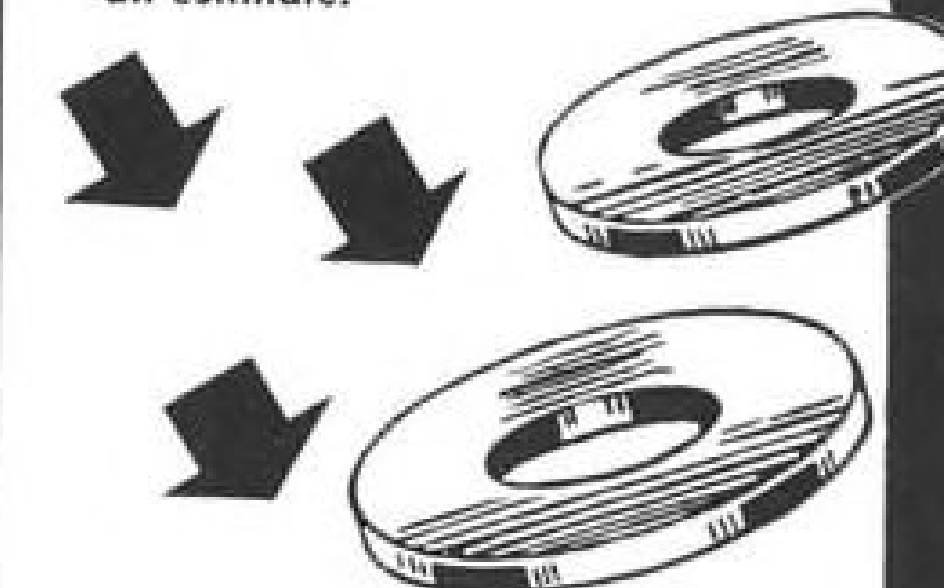
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EDITORIAL

We Stand Alone

According to well informed aeronautical engineers both in this country and abroad, Britain's early lead in jet-propelled high speed flight has been wiped out. More ominous is the growing realization that England's entire high speed program is hopelessly bogged down.

These factors support such conclusions:

The Air Ministry abandoned piloted high speed flight research over a year ago, following the death of Geoffrey DeHavilland;

The supply ministry has taken a decidedly dim view of the country's pilotless flight research program now in progress, in view of the abundance of U. S. data on the subject, showing us to be about two years ahead of the British;

The jet-bomber program seems badly snarled, with two designs contracted for a year ago now far outdated by U. S. types.

So, according to reliable advice from across the Atlantic, the Air Ministry's feeling now shapes up about like this: Let the U. S. carry the ball on high speed research, and on jet bomber development. Let Britain concentrate on jet airliners with their attractive commercial possibilities.

Looming in the immediate future are short rations for Britain's military aircraft business, both research and development. The lesson should be obvious to the men in Washington with responsibility for appropriating funds for the only air force that could be given the ability to preserve the peace of the world.

The DC-6 Will Win Out

The quick and voluntary action of American, United and National Air Lines in grounding their DC-6 transports following the safe landing of a flaming Six of American at Gallup, N. M., is courageous and heartening. It was not only the best possible decision, despite momentary negative publicity, as the public relations people say. In the long run it will do far more to increase the public's confidence in airline safety policies than any number of defensive press releases which would have attempted to explain away any danger in continuing to operate the airlines' newest transport. The grounding action was taken by the lines, and with the manufacturer's recommendation, despite a rather strong conviction among engineers that they already knew the source of the difficulty.

Fortunately, the industry itself moved so rapidly that it forestalled any similar grounding order by the Civil Aeronautics Administration for these three airlines.

Although a difficult and discouraging experience at the moment, we forecast that the DC-6 will come through it not only unscathed in public reputation, but building new confidence as a result of its improvements.

The Passenger Loses

With a flurry of publicity, American and United Airlines have begun originating and terminating all of their limousines at a new airline terminal in Chicago. The room is well furnished, with an information desk, a bulletin board of arriving and departing flights, a news and cigar stand, public telephones, comfortable furniture, and of all things, wired music.

The newspapers say the new terminal is designed "to increase the convenience of air travelers." That is sheer baloney.

After twenty years of widespread public wailing about remote locations of airports, inferior service of limousines at outrageous fares, and general agreement in the industry that ground operations must be revolutionized for the convenience and speedy handling of the public, what do we see being done by two of our major airlines? (It is said the other airlines will follow, we hope not).

They choose a location on the barren Chicago River front where few passengers ever wanted to go, at LaSalle and Wacker Drive, outside the famous Loop, remote from the hotel center, blocks from the subway, no closer to the elevated, not even on a trolley line. The only possible means of public transportation for the unfortunate passenger to reach or leave the terminal is the elusive taxi, and did you ever try rustling a cab on a rainy evening in downtown or suburban Chicago?

Temporarily the limousines are still picking up passengers in the Palmer House area, where most people buy their tickets from most of the airlines' luxurious salesrooms. (You can't buy a ticket at the new terminal. That would be oversimplification). For a few days the limousines passed up the Stevens Hotel completely, on their way to the airport. After all, even though it may indeed be the world's largest hotel, it was declared off limits of the new limousine route. Lusty squawks from the suffering public, however, resulted in resumption of service to the Stevens.

Although airline people claim the city demanded that limousine congestion at the Palmer House be eliminated, the new location is atrocious and if it sets a pattern for similar action in other cities the airlines are in for more trouble, and red ink, than they realize.

More and more, the airlines are forgetting the passenger. This is the best proof we have seen lately.

ROBERT H. WOOD

Aircraft instruments are mounted *at lower cost* with this **SPEED NUT**

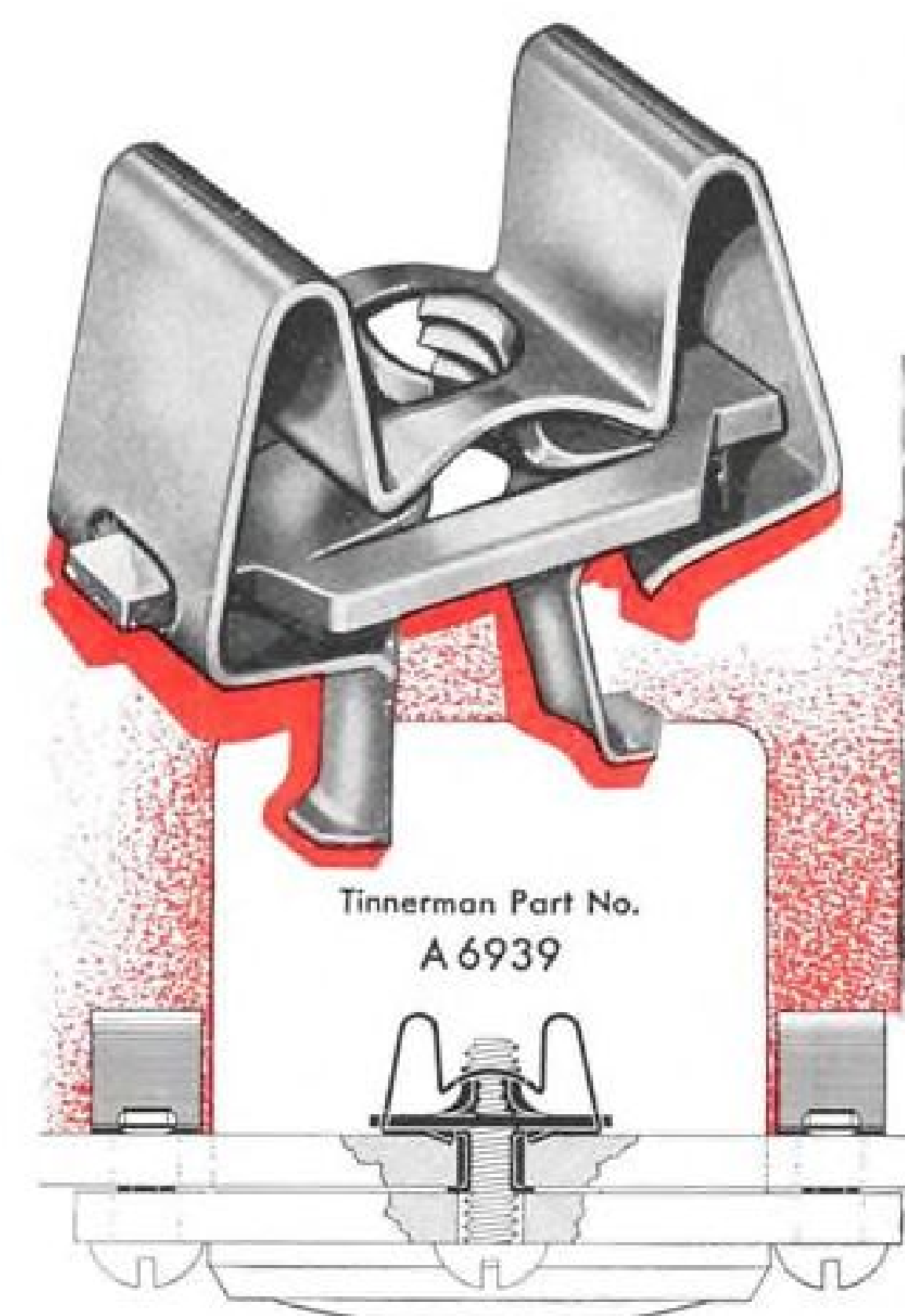


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*Meet the exacting requirements
of commercial aviation*

Edison resistance type temperature measuring systems satisfy all the temperature measurement needs of commercial aviation. These systems are rapid in response, light in weight, and rugged throughout, as well as easily serviced, calibrated, and overhauled.



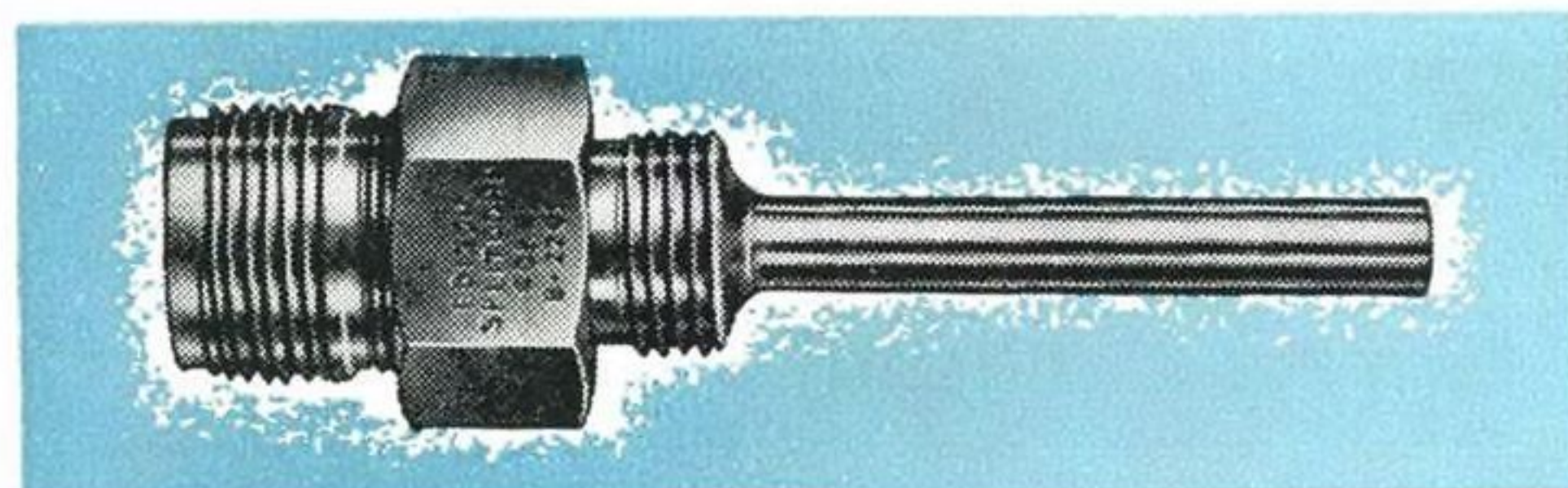
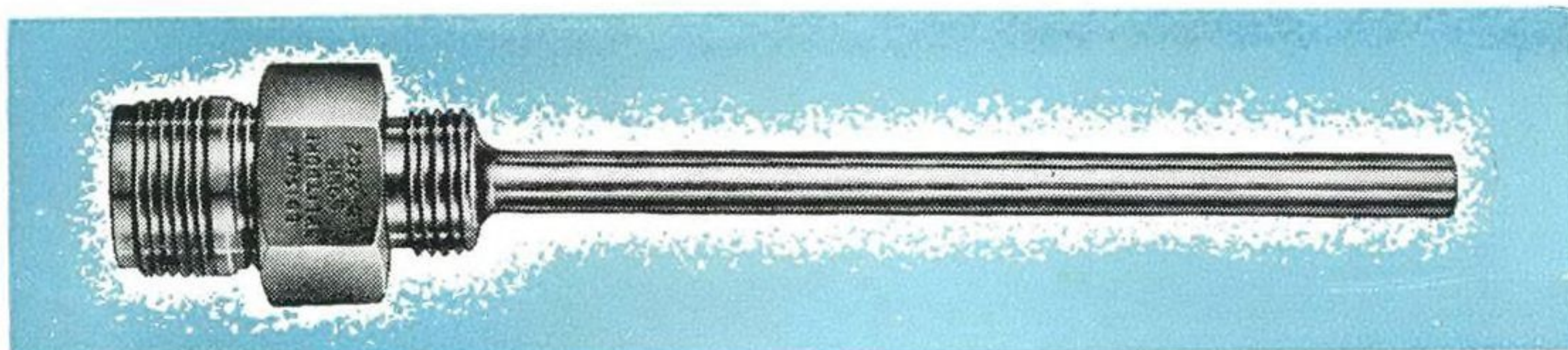
Single Thermometer
Indicator



Dual Thermometer
Indicator



Triple Thermometer
Indicator

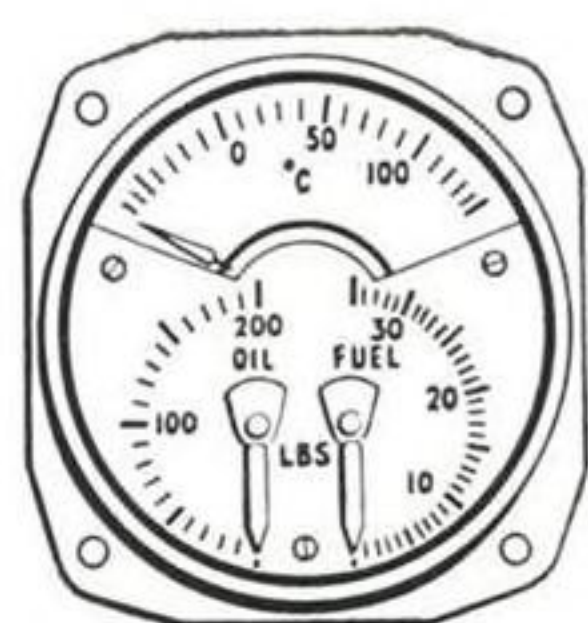


▲ Long Stem Resistance
Bulb (AN5525-2)

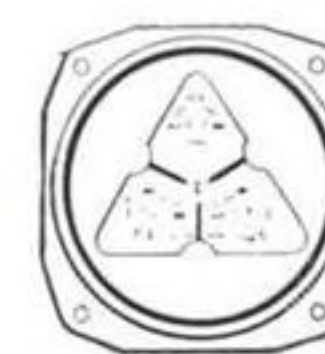
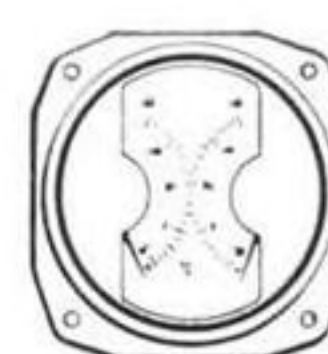
◀ Short Stem Resistance
Bulb (AN5525-1)

Write for descriptive literature on instruments or systems in which you are interested.

Other EDISON aeronautical instruments



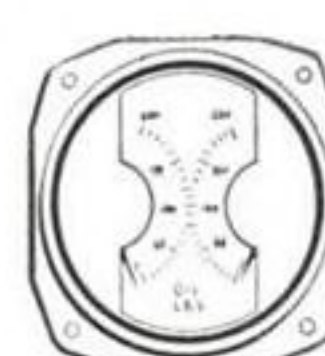
Engine Gage Unit,
incorporating
Electrical Oil
Temperature
Indication



Cylinder Head Temperature
Indicators with matching
Resistance Bulbs



Oil Pressure Gages
Fuel Pressure Gages



EDISON Aircraft Systems and Instrumentation

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