

AVIATION WEEK

A MCGRAW-HILL PUBLICATION

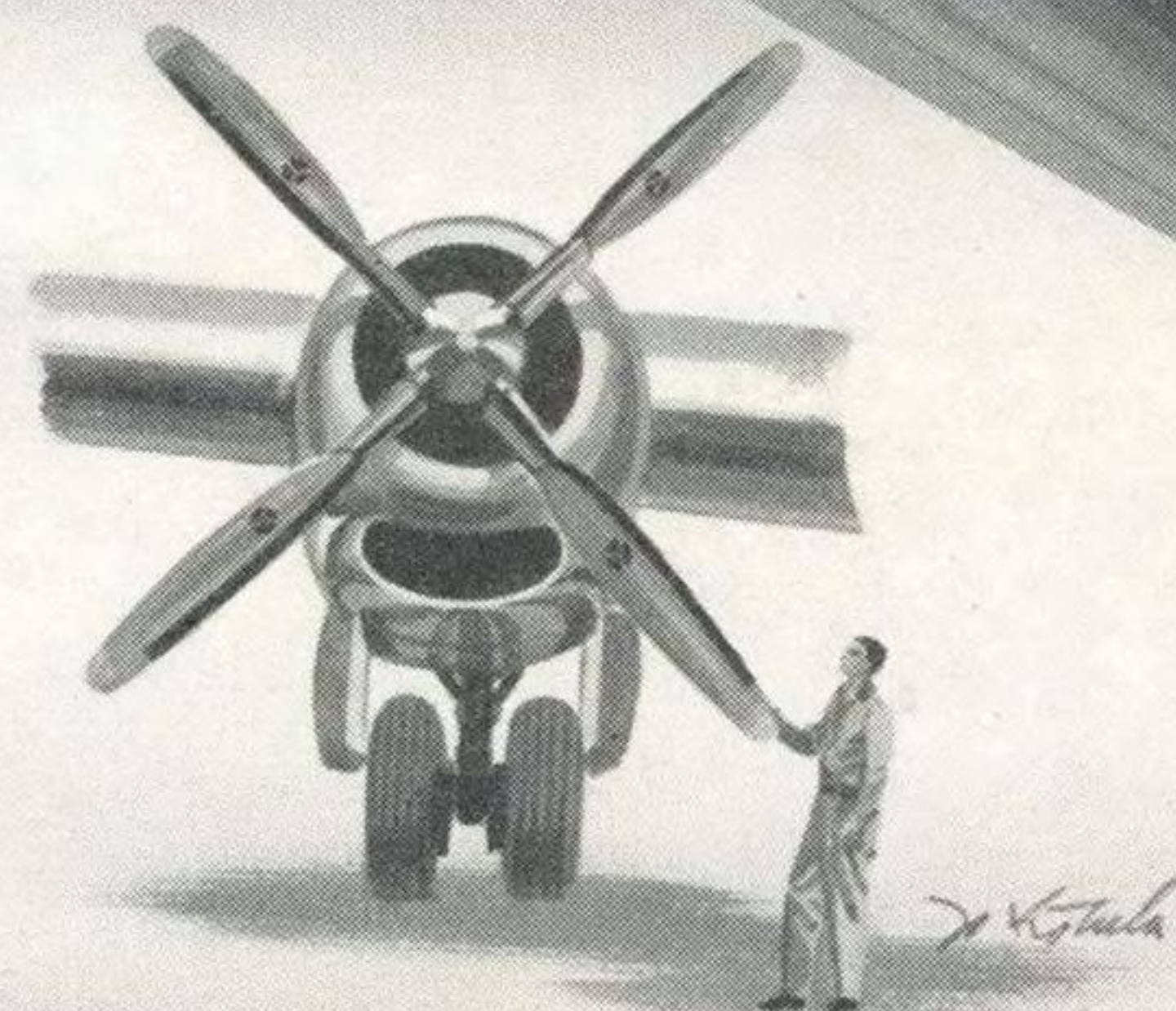
MARCH 15, 1948

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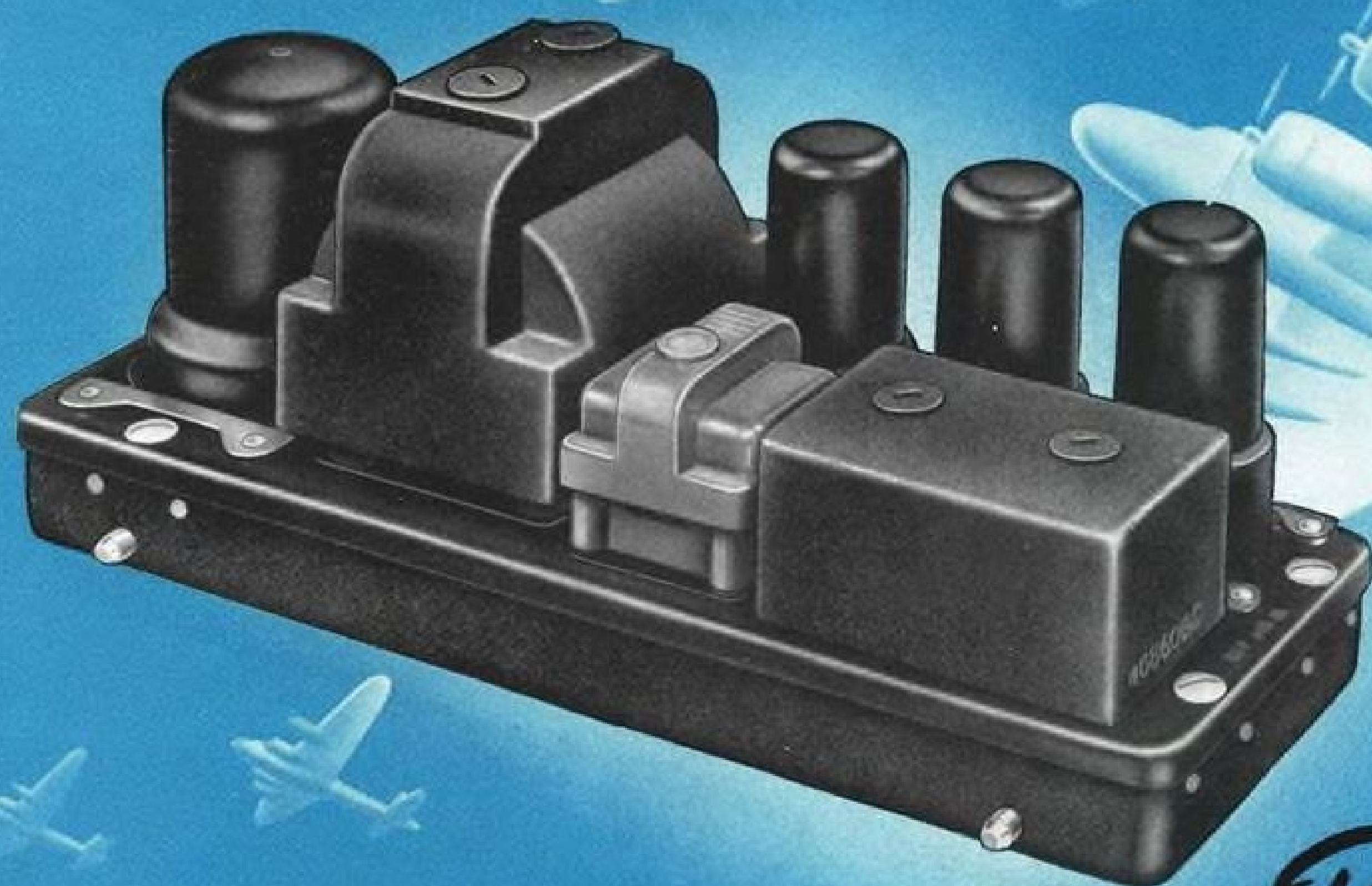
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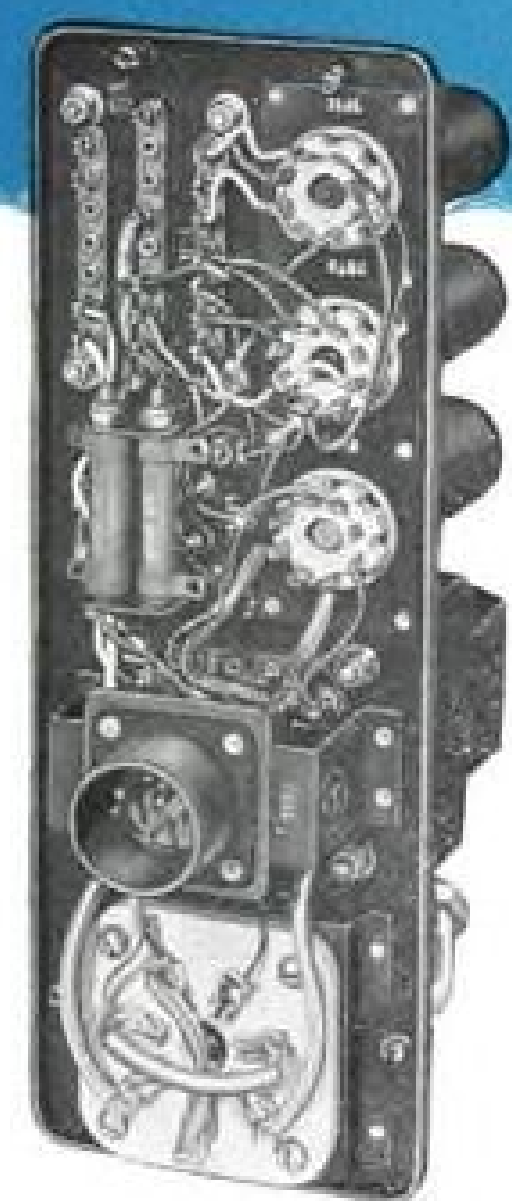


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AVIATION WEEK

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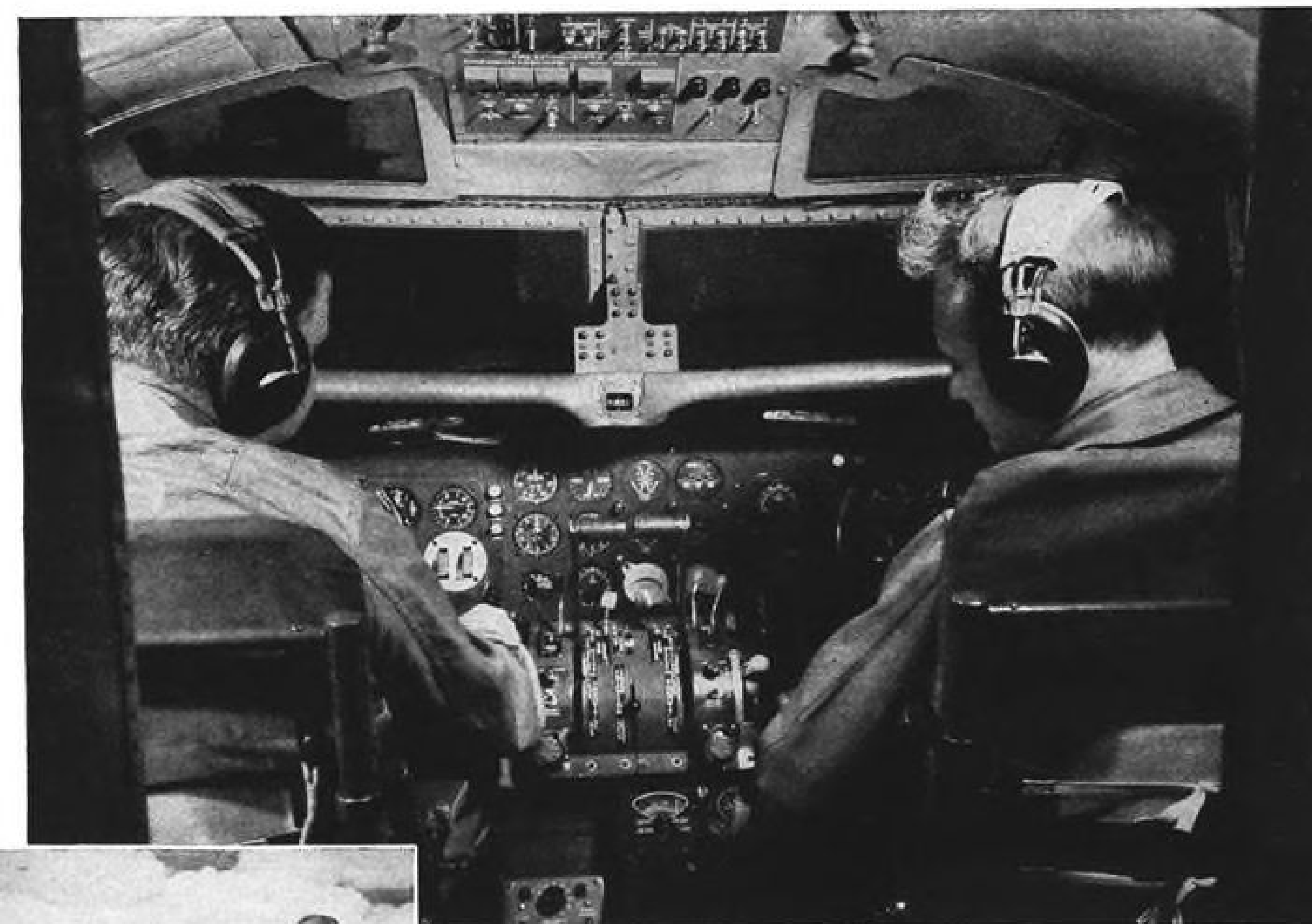
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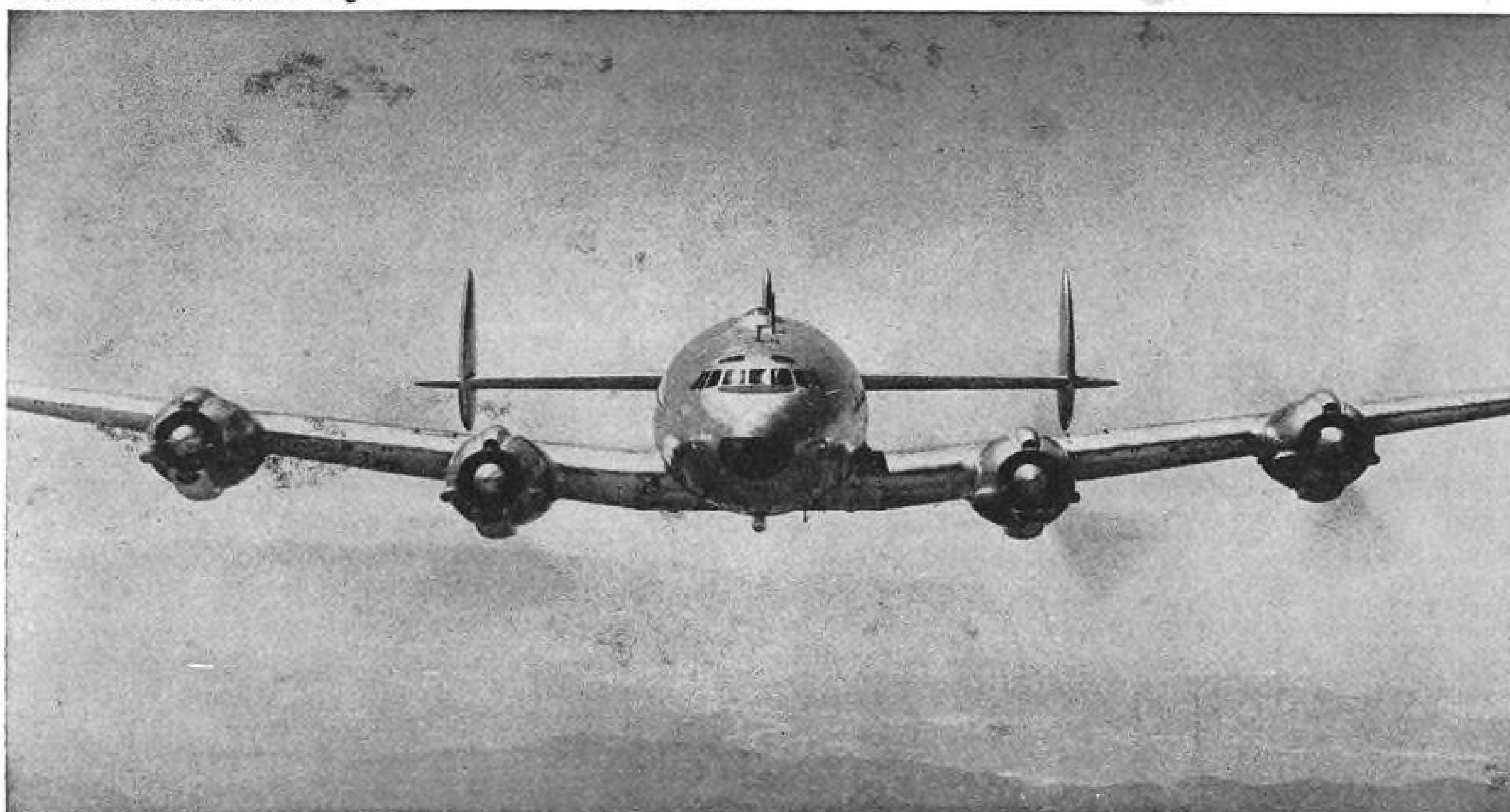
Pilot fatigue is reduced by efficient arrangement of cockpit controls and instruments. With this simple, logical arrangement, first things come first, giving a natural sequence of movements that minimize fatigue. Pilot may thus conserve energy for in-flight periods when maximum alertness is required. The Glenn L. Martin Company, Baltimore 3, Md.

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THE AVIATION WEEK

'Education'... But How?

Congressmen are not the only ones concerned with getting action on the air policy recommendations. Last week, behind closed doors in New York's Empire State Building, the Board of Managers of the National Air Council considered another means to spur action. This is a proposal for a "public education" campaign that would be a long-range method of stimulating consistent support of the recommendations.

The National Air Council started life with the brightest promise of any aviation group.

It inherited the funds of the Air Power League, plus the active backing of groups and individuals who had been cool to the League. In addition, it was the creation principally of L. Welch Pogue, former CAB chairman and then president of National Aeronautic Association, Lowell H. Swenson, former NAA executive vice president, and John E. P. Morgan, then executive director of Aircraft Industries Association.

Last week Pogue, unable to attend the NAC meeting due to illness, wired a request that NAC defer action on fund-raising to finance the educational campaign. Pogue and a group of friends have retained Executive Research Inc. to draw up a plan of action for NAC. Morgan, no longer connected with AIA or NAC, will cooperate with Executive Research. Pogue asked NAC's managerial board to wait until ER's report is in.

Original Concept

NAC Executive Vice President John Dwight Sullivan declines to disclose what action was taken on Pogue's request. But he expects to release soon details of the educational program. This could indicate that Pogue's request was refused and that NAC will proceed as scheduled. It would not be the first time that NAC departed from its founders' ideas.

Concept of the National Air Council was a super-aviation organization, dictating to no other group but drawing support from and assisting all groups. It would parallel the Automotive Safety Foundation (the Council's original name was Aviation Foundation), and collect and dispense through other organizations all funds for aviation public education, assuring adequate means for consistent effort.

It was believed that this device would give aviation its most effective weapon to win at all times public backing for national air policy. Observers familiar with the original concept feel that NAC's present proposal departs from that concept and is the nub of Pogue's objection.

To the bystander familiar with the genesis of the foundation (or Council), the Pogue telegram looks like possibly the final volley in a rear-guard defense of the original concept.

More than a year ago, Pogue, Morgan and Swenson won over key aviation figures in manufacturing, transport, government, and private aviation to the foundation idea. Instead of the general aviation organizations (as distinct from the trade groups such as AIA and ATA) making the rounds hat in hand to support their special activities, most of which are educational in nature, the foundation would collect the funds from supporting companies.

General Approval

The foundation, administered by a board representing those companies, would examine activities of other organizations, assisting where desirable. The foundation would do no public work in its own name but always act through existing groups. This concept won universal approval.

But about that time the Air Power League found itself in a box.

It had started out promoting unification—a legislative proposal. Then it discovered it could not retain tax-free status as a lobby. With its hands tied on one key activity, it began poking about for a new "cause" that could justify expenditure of more than \$100,000 in idle funds.

APL Takes Over

APL first tried to win support for a proposal to absorb all non-trade aviation organizations, beginning with the Air Force Association and Air Reserve Association.

This plan fell flat. Then Pogue approached APL for its backing on the foundation idea. APL proposed to take over the foundation. In the end, a compromise was accepted. APL changed its name and made its governing board more representative. Pogue was elected to the Board of Managers of the Council.

Pogue was named to a three-man committee to appoint the key executive director. The other two members were former APL officials. Pogue's nominee for the executive directorship was voted down, 2-1. John Dwight Sullivan, former APL official, got the job of executive vice president. His initial plan was for NAC to launch a national educational campaign in its own name.

This contrasts with Pogue's basic plan for having all promotion done by existing organizations with funds allotted by the Council. And this clash in concepts imperils the long-range attainment of recommendations laid down in the two policy reports.

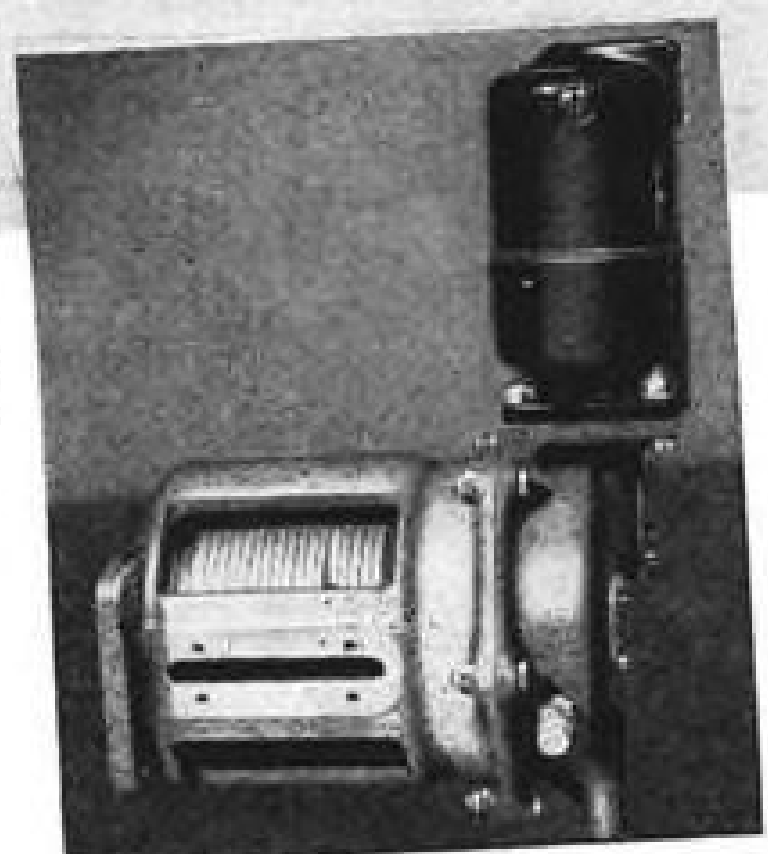
The one thing few in aviation forget is that there have been policy reports in former years. Their long-range effect always was diminished by the growth of public apathy as memory of the reports faded.

Everyone agrees that this time there must be a public education campaign to bolster the policy reports. Who will do it, and how, is part and parcel of air policy planning.



The B-36, world's largest land based bomber. It has a range of 10,000 miles, is powered by six motors and has bomb bay space equal to the volume of four freight cars.

No Problem "TOO BIG" for PACIFIC-WESTERN



The photograph shows one of the eleven Model 130090 actuators which, with variations in drum length, depending on job requirement, are incorporated in the B-36.

• ELEVEN SPECIALLY DESIGNED PACIFIC-WESTERN ACTUATORS operate the bomb bay and turret doors of this giant plane. These PACIFIC-WESTERN actuators incorporate a compact, efficient, three-step gear reduction providing a total ratio of 585:1. The actuator, consisting of motor, gear reduction and cable drum, weighs only 13 pounds but delivers 3600 inch pounds output torque.

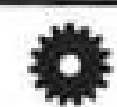
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NEWS DIGEST

DOMESTIC

Maj. Gen. Uzal G. Ent, leader of the first AAF low level bombing mission against the Ploesti Rumanian oil fields, died in Denver after a long illness. He was seriously injured in a B-25 crash three years ago.

Navy's Aerobee research rocket hit 3000 mph. and reached an altitude of 78 miles in its first test firing at White Sands, N. M.

President Truman requested Congress to liquidate the War Assets Administration by June 30. Remaining surplus disposal work would be handled by the Federal Works Agency, under the President's proposal.

Columbia Aircraft Corp. assets will be sold at public auction Mar. 17-18 at Valley Stream, Nassau County, N. Y.

FINANCIAL

Consolidated Vultee Aircraft Corp.'s annual meeting scheduled for Mar. 17 has been postponed due to auditor's inability to complete report for year ended Nov. 30, 1947. Aircraft production accounted for \$53,000,000 or about 38 percent of total sales.

Bendix Aviation Corp. reports net income of \$5,248,999 on sales totaling \$141,625,820 for fiscal year ending Sept. 30, 1947. Aircraft production accounted for \$53,000,000 or about 38 percent of total sales.

Aero Supply Manufacturing Co., Inc., reports net loss of \$129,139 for the 1947 calendar year after giving effect to a tax refund of \$124,040. Net sales for the period were \$1,206,372 compared to \$886,387 for the previous year.

FOREIGN

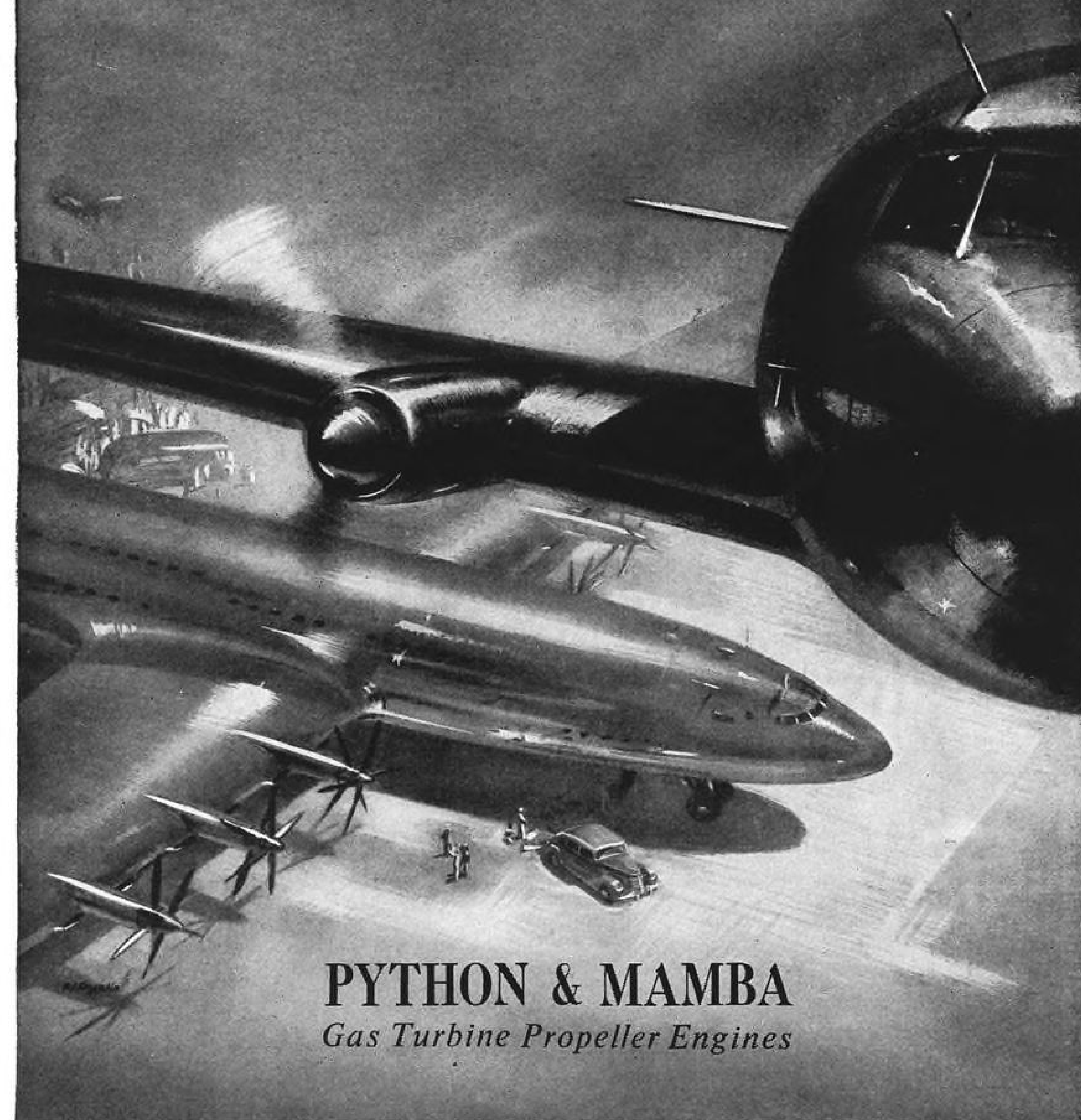
CNRAA Air Transport, China cargo airline headed by Maj. Gen. Claire L. Chennault, wartime commander of the 14th U. S. Air Force in China, has been granted a year's extension of its operating permit by the Chinese government. Its name has been changed to Civil Air Transport.

Minister of Public Works and Communications of Ecuador has been authorized by executive decree to sign a contract with Pan American-Grace Airways, Inc. (Panagra), to increase the carrier's rates for carrying airmail and to reduce schedule frequencies.

Iraq Public Health Authorities have lifted travel restrictions opening the frontier to air travel from Syria, Lebanon, Transjordan and Upper Palestine.

AVIATION WEEK, March 15, 1948

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You're looking at tomorrow!

One glimpse of the great new XB-47, built by Boeing for the U. S. Air Force, will project you far into the future. For here is an airplane startlingly different in design—as revolutionary today as was the first Boeing Flying Fortress in 1935. It is the first bomber specifically designed to take full advantage of jet propulsion.

How fast is it? The actual figures must remain a military secret, but its arrow-like lines and enormous power are enough to tell you it was designed for terrific speeds.

It's a big airplane—roughly the same size as the famous Boeing B-29—and can carry a ten-ton bomb load. Six

turbo-jet engines give it a rated thrust of 24,000 pounds, which is the equivalent of nearly three times the power of the Superfortress.

But the most significant fact about the XB-47 Stratojet is its radically new aerodynamic design.

The slim, swept-back wing and tail surfaces, sleekly beautiful body lines, streamlined nacelle mountings and tandem landing gear look ahead to the era of supersonic speed.

Boeing leadership in research and engineering gave the nation the B-17, the B-29 and the new B-50. Now it opens new vistas for American Air Power in the realm of jet-propelled flight.



Boeing test pilots Robert Robbins and Scott Oster, who flew the Stratojet on its historic first flight.

BOEING

AVIATION WEEK, March 15, 1948

For the Air Force, Boeing is building the B-50 bomber, XB-47 jet bomber and C-97 transport; for the Army, the L-15 liaison plane;

and for six major airlines, the twin-deck Boeing Stratocruiser.

Vol. 48, No. 11

AVIATION WEEK

Mar. 15, 1948

NAL-ALPA Heading Toward Showdown

Mail pay issue and court battles loom as the next skirmishes in dispute.

By Alexander McSurely

MIAMI—Conflict between the “immoveable object,” George Theodore Baker, president of National Air Lines, and the “irresistible force,” David Lewis Behncke, president of the Air Line Pilots Association (AFL), continued last week to overshadow NAL's other and concurrent labor controversy with the International Association of Machinists.

If Baker should win out over Behncke, the result will be somewhat earth-shaking in airline labor relations. Behncke has been winning his previous strike bouts with other airlines much larger than NAL. Behncke has admitted that “this is a cold, hard strike.” The fact that Daniel C. Carmell, one of the best AFL attorneys, who successfully handled some of Petrillo's musician union cases, is appearing for ALPA is indication of an “all-out” ALPA effort in the NAL case.

Baker and Behncke marshaled their legal forces for a renewal of one phase of their conflict scheduled Monday, Mar. 15, in Washington before the Civil Aeronautics Board, on NAL's application for increased mail pay.

► **Pilots Picket**—Meanwhile, at Miami last week, more than 100 striking pilots continued to take turns walking picket lines in front of NAL passenger ticket offices and at the Miami International Airport, wearing their NAL uniforms and service bars, with armbands proclaiming the strike. Out at the airport other pilots hired by NAL as “replacements” for the striking flyers were flying National's Douglas DC-4s and Lockheed Lodestars over National routes to Washington and New York, New Orleans, Key West, Havana, and intermediate stops.

NAL reported it has hired 86 of the pilots from a large number of applicants, and that virtually all had previous civilian transport pilot experience, many with major airlines. Application forms listed pilot experience with TWA, American Airlines, Pan American, Braniff, Capital, Western, Northwest, and United, in addition to TACA, Peruvian



In front of National Airlines downtown Miami ticket office at the Columbus Hotel, three National Airlines pilots, two pickets and a supervisor, are notifying the public that their month-old ALPA strike is continuing, despite the fact that NAL has resumed service with non-union pilots. Left to right, Capt. J. A. Bomar, J. K. Madison, and W. R. Brock.



Pilots from three other airlines greet National Airlines Pilot Chuck Hoenes, 12,000 hr. veteran, as he pickets Miami International Airport in the month old NAL pilot strike. In the background, a picket of the International Association of Machinists, representing the striking clerical workers and mechanics of the airline, hoists his sign into the picture. Left to right in foreground: Hoenes, Fred Cann, Eastern Air Lines, Paul Borg, Pan American Airways and E. A. Schoofs, Delta Airlines.

AVIATION WEEK, March 15, 1948

HEADLINE NEWS

11

International Airlines, Air France, KLM, and Pan American-Grace.

A company analysis of the first 77 hired reported: an average age of 33-34, about two-thirds of the group are married, ten have college degrees including one Ph.D. degree, and many of them have total hours above the 5000 mark, with one listing 10,875 hr., including 4900 hr. in DC-4s. Average of pilot logged time amounted to 4359 hr. ► **Major Issue**—A major issue of the pilots strike is whether these new pilots are hired permanently or are temporary "strike breakers" who will relinquish their posts to the strikers returning after settlement.

ALPA executive vice-president William Kilgore, and David E. Burch, chairman of the NAL Miami council of ALPA, are directing the strike's day-to-day strategy from an office in Coral Gables. In addition to picket duty, the striking pilots keep a close record of all NAL equipment movements along the system, and make a passenger count on every plane leaving Miami. They follow the "replacement" pilots through their pre-flight procedure, watching for violations of regulations. They hold frequent night meetings in an auditorium just across the street from NAL headquarters in the big aviation building on 27th Avenue in Miami.

► **Cites Precedent**—Kilgore says Supreme Court rulings have established the striking pilots' property right in their jobs. He cites the case of the Peoria & Western Railroad strike which continued for three years, after which the strikers were rehired, displacing "replacement" personnel, as a somewhat parallel situation. And he asks:

"Why does Ted Baker come around and talk to the pickets individually and try to get them to come back if he is sure of his position?"

Square-jawed, stocky Ted Baker talked forcefully but quietly as he voiced his stand:

"We asked the pilots to come back so that we could resume our flights. When they didn't come, we advertised for other pilots. All that we are hiring are going through National's regular pilot checkout course. We are spending \$7,000 a week cash outlay for training of the new pilots, in addition to overhead costs. We are not just throwing that money away. The new men are hired permanently."

► **DC-6 Checkout**—National was to begin checkout of pilots on its modified Douglas DC-6 planes last week-end, with anticipation of putting some of these back in service by the end of March on the Miami-New York run.

The pilot-airline struggle is fiercely economic. Effect of the picketing has undoubtedly cut down NAL passenger loads at the peak of the Florida tourist season. A spot check downtown at Mi-

ami and Miami Beach ticket offices showed both virtually empty except for NAL employees, while adjoining Eastern Air Lines offices, which provide competing service over much of the same territory, were crowded.

At the airport we watched one NAL Lodestar unload six passengers from Key West. The ALPA strikers' passenger counts do not entirely coincide with those of the airline, and there is a small argument over how many passengers are riding on passes.

► **Load Factors**—NAL figures show that the airline closed February with a 50.48 load factor, as against 51.98 in January, but that due to personnel retrenchments and other economies the line lost less money in February than in January.

► **Crash Story**—Almost a forgotten man in the dispute is NAL pilot Maston O'Neal, whose dismissal was at least the nominal cause of the strike. Both sides agree that O'Neal landed a NAL Lodestar at Peter O. Knight airport, Tampa, in September, 1945, and "ran out" of runway. He groundlooped the plane to avoid going off the end. No one was injured.

An NAL investigation reported that O'Neal had made an error in judgment in not going around for another landing. Witnesses said wheels touched at the 1000 ft. mark on a 3500 ft. runway. O'Neal and ALPA statements say that there was a sudden windshift when he was in his final approach to land, resulting in a tailwind which carried him down the runway to the 1000 ft. mark. Fellow pilots say O'Neal is an excellent flyer.

President Baker stated that he has no doubt O'Neal could go through NAL's pilot checkout course and be approved to fly for the line again, but he does not want to re-employ him as a pilot because of the "judgment error." He has offered him other non-flying positions with the company, he said.

► **Mediation Asked**—ALPA called for mediation in the O'Neal case after his dismissal. A dispute over the mediation machinery led to the strike call. It was first set for Nov. 12, 1947, but postponed for further discussions and finally called on Feb. 3. NAL reports they received two hours' notice before the 11 a.m. strike deadline. Soon after the strike was called, Baker notified the National Mediation Board that he would accept Behncke's proposal for a one-man neutral mediator to meet with two pilots and two management representatives.

A Feb. 7 Washington meeting brought announcement from Baker's attorneys that he had withdrawn his offer. ALPA says that the offer was sufficiently satisfactory to have ended the strike, if it had been received. NAL says the same offer was made previously di-

rectly to ALPA's representative in Miami, J. C. Christy, by telephone, without ALPA acceptance. Christy was quoted as saying: "It is up to the mediation board."

► **Seek Pay Boost**—If National gets its mail pay boost rate, sought from CAB in Washington, it will be a considerable financial bulwark. ALPA is opposing the increase on the ground that NAL's labor policy has adversely affected its efficiency of management policies.

National currently owns, outright, its fleet of seven Douglas DC-4s carrying 46 passengers each, and 12 Lockheed Lodestars, of 14-passenger capacity. It is purchasing its four Douglas DC-6s of 58-passenger capacity, valued at approximately \$3,000,000. National's replacement pilots are operating 14 daily flights, with more expected to be added this week. The airline has sued ALPA for \$5,000,000 in damages and the IAM for a similar amount as a result of press release by ALPA and a magazine article in the Machinist, IAM publication, which made "unwarranted statements that the National aircraft were unsafe." Another suit for \$750,000 has been filed against IAM because the machinists walked out in alleged violation of a no-strike clause in their contract.

► **Clerical Strike**—The machinists stopped working Jan. 24, after a recently organized union among NAL clerical workers, also affiliated with IAM, called a strike Jan. 23. NAL asserts that approximately 17 clerks in the entire system walked out, and about 100 mechanics. NAL contends that the clerks' strike was instigated so that the machinists could refuse to cross the picket lines, and thus walk out, without legally being on strike.

Some substantiation for this appears in the fact that one of the grounds for the clerks' strike was a dispute over whether the company should subcontract certain types of work. Company officials point out that this dispute affected the machinists much more directly than the clerks. NAL used to subcontract engine overhauls, now has its own overhaul set-up, but recently subcontracted its instrument repair work after deciding it did not have sufficient volume of work to warrant the expenditure for personnel and equipment in its own shop.

Reports of strike violence include threats, letting air out of tires, putting tacks on roads, putting paint remover on a car, and throwing empty bottles through the window of one employee's home. One working machinist is reported to have fired a shot hitting a striker in the leg, after threats.

NAL says its clerical personnel was not materially affected by the clerks' strike, and that a large number of the machinists who walked out have returned, and that others have been hired.

Post Office Withdraws Backing For Domestic Air Parcel Post

Opening field to non-certificated carriers seen as reason for reversal of previous stand; rates proposed.

Post Office Department withdrew its support for inauguration of a domestic air parcel post system last week.

The Department's reversal in policy—last year it aggressively pushed in Congress for air parcel post—provoked speculation among members of the House group, headed by Rep. Edward Rees (R., Kan.), that the Department might be "taking sides," aiming to block air parcel post legislation unless and until a measure restricting the field to scheduled carriers can be put on the books.

► **Donaldson Statement**—In an official statement to Rees, with regard to the Congressman's bill authorizing domestic air parcel post, Postmaster General Jesse Donaldson asserted: "This Department is not advocating that such service be inaugurated, nor has any pressure or request been made of this Department for air parcel post service."

At a subsequent hearing, Donaldson was confronted by Rees with official statements of the Post Office Department of a year ago vigorously urging immediate establishment of air parcel post.

► **Claim No Information**—Donaldson's statement reported that the Post Office "has no information available upon which to base an estimate of the volume of mail that would be carried if air parcel post service were established." In view of this, precluding establishment of rates on "a scientific basis," Donaldson urged—at least initially—high rates to assure a self-supporting service.

Rees countered that in April, 1947, the Post Office emphasized that "reasonableness of the rates," promoting vol-

ume of business, would be an important factor in determining revenue from an air parcel post service. At that time, the Kansas Congressman also recalled, the Department estimated for his committee a minimum volume of air parcel post of 1000 million ton-miles a year. ► **Proposed Rates**—"If it is the sense of Congress that the inauguration of domestic air parcel post service is in the public interest," Donaldson recommended in his statement to Rees that the Rees bill proposing low air parcel post rates and leaving the field open to non-certificated carriers be supplanted by a measure restricting the field to the scheduled carriers and setting high rates.

The rates proposed in the bill recommended by Donaldson are not only substantially higher than those proposed in the Rees measure, but also substantially above the rates proposed in legislation introduced in the last Congress by Rep. Thomas O'Brien (D., Ill.), and endorsed last year by the Department. The O'Brien bill would have restricted air parcel post to the airlines.

The Donaldson-proposed bill would establish the following air parcel post rates.

• **First and Second Zones:** 55 cents for the first pound and four cents for each additional pound. (This compares with 45 cents for the first and four cents for each additional pound in the O'Brien bill.)

• **Third Zone:** 60 cents for the first and eight cents for each additional pound. (This compares with 50 cents for the first and eight cents for each additional pound in the O'Brien bill.)

• **Fourth Zone:** 65 cents for the first and 14 cents for each additional pound. (This compares with 55 cents for the first and 14 cents for each additional pound in the O'Brien

bill; and with 20 cents for the first and 10.5 cents for each additional pound in the Rees bill.)

• **Fifth Zone:** 70 cents for the first and 24 cents for each additional pound. (This compares with 60 cents for the first and 24 cents for each additional pound in the O'Brien bill; with 25 cents for the first and 16 cents for each additional pound in the Rees bill.)

• **Sixth Zone:** 75 cents for the first and 33 cents for each additional pound. (This compares with 65 cents for the first and 33 cents for each additional pound in the O'Brien bill; with 31 cents for the first and 22.5 cents for each additional pound in the Rees bill.)

• **Seventh Zone:** 75 cents for the first and 45 cents for each additional pound. (This compares with 70 cents for the first and 45 cents for each additional pound in the O'Brien bill; with 37 cents for the first and 29.5 cents for each additional pound in the Rees bill.)

• **Eighth Zone:** 80 cents for the first and 65 cents for each additional pound. (This compares with 75 cents for the first and 55 cents for each additional pound in the O'Brien bill; with 43 cents for the first and 36.5 cents for each additional pound in the Rees bill.)

Steve Kirby, representing the industrial traffic league comprised of the country's shippers, in testimony before the House committee called for even lower rates than proposed in the Rees bill. His suggested schedule called for rates ranging from 17 cents for the first pound and four cents for each additional pound in the first and second zone to 37 cents for the first and 24 cents for each additional pound in the eighth zone.

► **Ramspeck Testimony**—Air Transport Association's executive vice president, Robert Ramspeck, emphasized the "public interest" aspect of limiting air parcel post to the scheduled carriers which blanket the country and would be able to provide service to small towns, as well as big cities, in testimony before the House committee. He argued that the Federal Government's burden of airline subsidization would be lessened if air parcel post were funneled into the airlines, since it would increase their business and earnings and also enable the Post Office to utilize space on the carriers now paid for but not used for airmail service.



NAVY JET FORCE GROWS

First production lot of McDonnell FD-1 Phantom jet fighters is pictured at St. Louis prior to delivery. Photo shows 13 of the jet speedsters prior to fly-away delivery by Navy pilots to N.A.S.

Quonset Point where the first Navy jet fighter squadron is forming. A total of 60 FD-1s is now in production and a larger quantity of the improved F2H-1 fighters has been ordered.

PAA Hits at Tie-up Of TACA, Waterman

Steamship company accused of entering air transportation by subterfuge.

Pan American Airways and Waterman Steamship Corp. have tangled in a bitter battle over the future of TACA, S. A., part of the once-prosperous TACA Airways System in which Waterman acquired a substantial interest early last year.

TACA, S.A., a Salvadoran company, has applied to CAB for renewal of its foreign air carrier permit covering routes from San Salvador, to Miami and New Orleans. PAA stated that since TACA, S.A., is wholly controlled by TACA Airways System, which in turn is now controlled by Waterman, the case involves an attempt by a U.S. steamship company to get by subterfuge routes that it could not acquire by direct application.

► **Status Challenged**—PAA declared that TACA, S.A., is not a bona fide Salvadoran company and hence is not entitled to U.S. routes on the basis of international reciprocity. Pan American emphasized that Waterman's own applications for Latin American routes have been turned down by CAB.

When Waterman acquired its interest in TACA in January, 1947, the carrier's financial position was precarious. TACA Airways System reportedly lost \$7,920,000 in 1946 alone, leaving it with an overall deficit in the surplus account of \$5,171,000 and net worth of less than \$2,380,000. Pan American claimed that but for the entrance of Waterman on the scene at this time TACA could not have continued operations for any substantial period.

► **Profits Cited**—PAA stated that Waterman, because of inordinate profits from its steamship operations, could afford to gamble on developing TACA as a method of entering the air transport field. It added that a "transfer" of profits from Waterman Steamship Corp. to a foreign flag airline would render these profits immune from Federal taxation.

While TACA, S.A., the Salvadoran company, and the TACA system as a whole are in need of more money, there are no present plans for public offering of stock. Losses were substantially smaller in 1947 than in 1946. Paul Richter, TACA Airways president, stated that Waterman will advance funds necessary for the continued existence of TACA.

► **Steamships Used**—TACA's use of steamships furnished by Waterman evoked sharp criticism from Pan American.

can. Since March, 1947, at least two (and recently three) steamships chartered by Waterman to TACA Airways Agency have brought the air carrier revenues in excess of \$450,000, according to PAA.

► **Waterman Control**—In attempting to show that TACA, S.A., is not a bona fide Salvadoran company, PAA declared that over 90 percent of TACA Airways System stock is owned by U. S. citizens and the majority of TACA officials are Americans. It added that the DC-4s with which TACA, S.A., operates to the U.S. are leased from Waterman Airlines; that Waterman furnishes maintenance facilities for the craft at New Orleans; that 34 of the Salvadoran company's pilots are U.S. citizens; and that Paul Richter, president of the parent firm—TACA Airways System—was hired by Waterman.

CIO Aircraft Conference Request Faces Tabling

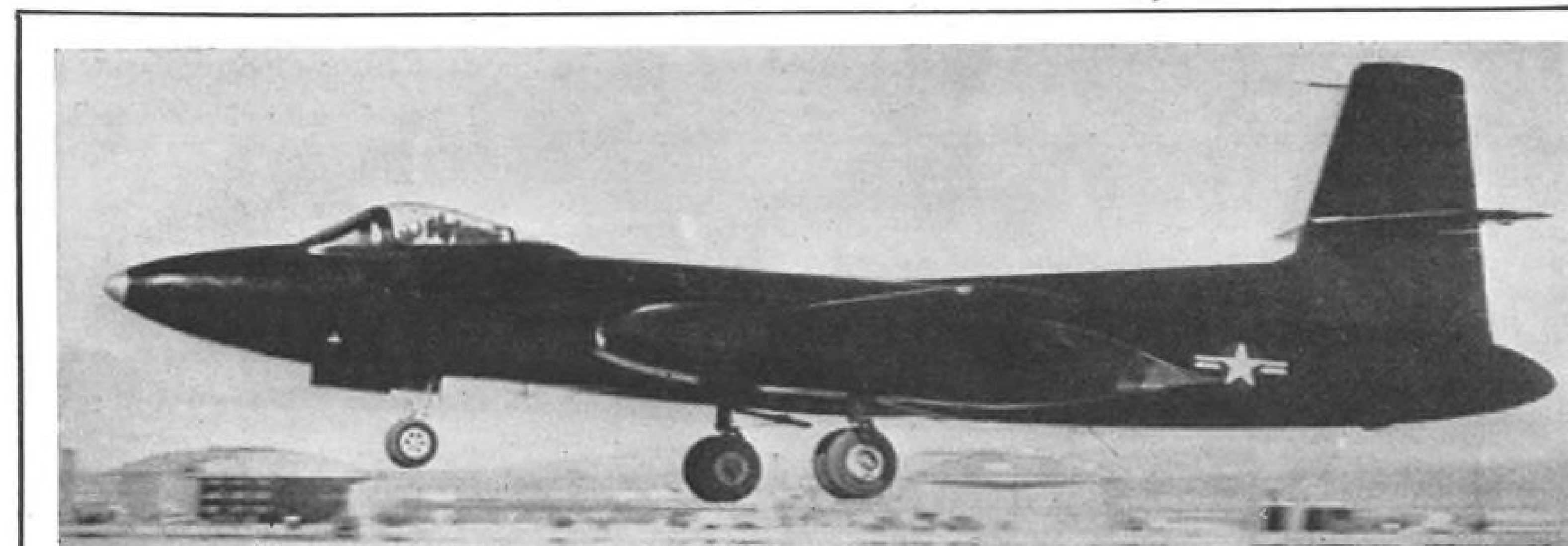
There is little chance that President Truman will grant the request of the United Automobile, Aircraft and Agricultural Implement Workers for a joint national conference of labor, management and government to study what the CIO union describes as a "sick" condition in the aircraft industry. According to White House sources Truman feels that enough studying has been done by his Air Policy Commission and the Congressional Board.

The labor-management-government aircraft conference was proposed by UAW-CIO President Walter P. Reuther on authorization of his executive board. Its purpose, he said, would be to develop mechanical skills needed to produce advanced types of military and commercial aircraft. He also expected a long-range view of the situation would provide greater military security, greater economic stability and steadier employment.

Ten Place Helicopter Crashes in Auto-Landing

Failure to flare out at the end of an autorotational approach is blamed for the accident to a Piasecki HRP ten-place transport helicopter. The nose of the craft was badly damaged. Leland "Bud" Felt, test pilot, was killed. A comprehensive investigation is now under way to determine the detailed cause of the crash.

The high rate of descent of a helicopter in autorotation (considerably higher than a conventional airplane) requires the pilot to build up forward speed during his landing approach and to execute a rapid flare out before



HEAVYWEIGHT FIGHTER TAKES THE AIR

First takeoff of Curtiss XP-87, Air Forces' four-jet fighter, at Muroc Air Base, Calif., on a 57-min. flight. Said to be one of

the largest fighter planes ever built, its empty weight is only slightly less than that of a B-17 bomber.

touching the ground to slow the landing. Although definite cause of the crash has not yet been determined, it

appears that the pilot either failed, or was prevented from, increasing the collective pitch at the proper moment.

Jet Fuel Shortage Is Big Question

New Army-Navy specifications give hope of ending scarcity, but no results promised for two years.

By STANLEY L. COLBERT

Look for the tight jet fuel situation to clear up, but not for at least two years. Broad new Army-Navy specifications for jet aircraft fuel hold a big answer to anticipated shortage under current specifications by promising greater ranges in basic fuel characteristics.

But AN-F-58 (official title of the new specification) won't be put in to actual use for some time, and engine manufacturers are already unhappy.

They are faced with the possibility of revising engines for wider flexibility so that aircraft can operate with fuels having differing characteristics.

Already, Curtiss-Wright, Pratt & Whitney, General Electric and Westinghouse are conducting engine experiments with the new fuels.

How many brand-new fuels will become available is undisclosed. Current jet fuel yield from a barrel of crude oil is approximately six percent. Under the latest specifications, a barrel of crude may yield up to 60 percent.

► **Characteristics**—Fuels that meet the new specifications are more readily available because of an increase in the latitude of characteristics which include:

- Freezing point not above -76 degrees F.
- Aromatic content not over 30 percent by volume.
- Unlimited specific gravity.

- Reid Vapor Pressure between 5-7 psi.
- Temperature between 425 and 600 degrees F. (at end point) at the 90 percent evaporation point.

While best estimates indicate that jet fuels meeting these specifications will fill any unforeseen demands, final evaluation of the fuels will require anywhere up to two years—and possibly more. Meanwhile, some fuel experts feel that today it would be impossible to use all available jet aircraft for any period of time—current jet fuel supplies are too low.

Availability hasn't been the only problem plaguing aircraft fuel researchers. A jet fuel more volatile than JP-1 (present jet fuel, essentially kerosene) offers advantages of easier starting, slightly increased combustion efficiency and smaller deposits in some engines. Less volatile fuels offer advantages of freedom from vapor locking and evaporation losses. Military requirements emphasize the importance of very low freezing point.

Btu per gallon instead of per pound is becoming the criterion for heating value. All other factors being equal, range of aircraft depends upon this.

► **Production Problem**—Production is another problem in the current jet fuel situation. The small bands of distillates that form JP-1 are close physically to other oils used in automotive motor

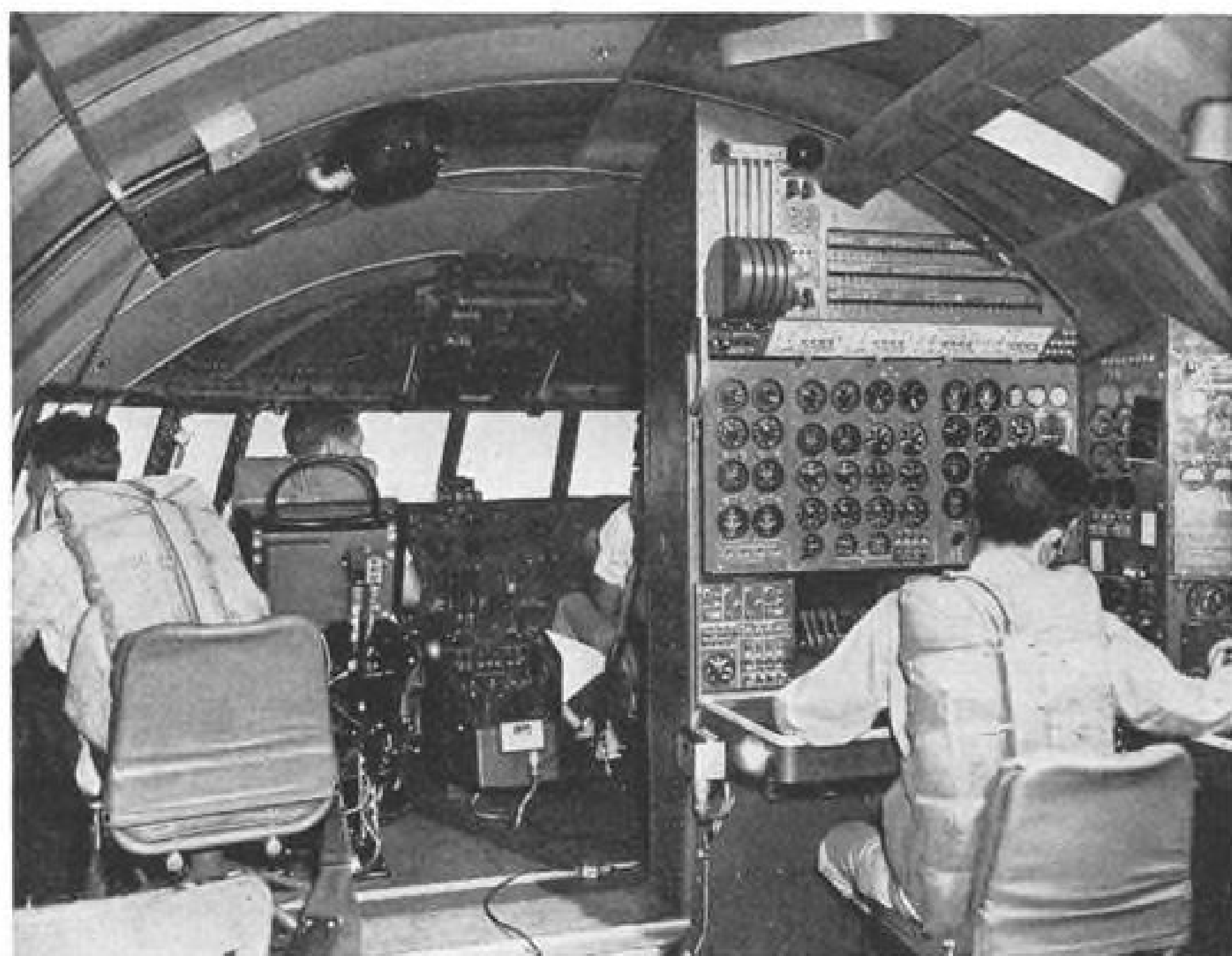
fuels. Changes in the distillation of JP-1—extracting oils either above or below it—have a direct bearing on the production of motor fuels. Disturbing the balance of oils to extract one barrel of JP-1, for example, can cause the loss of almost three barrels of motor fuels. And motor fuels continue to be the oil manufacturer's greatest source of revenue.

While military drainage on gasoline is extremely high, oil industry surveys claim that ultimate jet fuel requirements will be several times greater than aviation gasoline.

Biggest individual problem emerging from the new specification is that facing the engine manufacturers. Their engines must successfully utilize all the fuels covered by AN-F-58. Full effects of these fuels on the design problems are still unknown.

► **Commercial Needs**—Projecting their research to the future, oil researchers feel that for commercial jet aircraft, a less volatile fuel will be favored by operators because of the reduced fire hazard. They doubt that jet engines will be able to utilize heavy distillate fuels such as diesel oil and gas oil because of extremely low temperatures normally encountered, and the problem of designing a light-weight high-output engine to utilize such a fuel.

The aviation gasoline situation is relatively better fixed—but not by much. The long drawn-out winter has forced refineries to concentrate on supplying heating oil demands beyond their usual requirements. While gasoline suppliers will not admit that an actual shortage of aviation gasoline exists, they have let it be known that there is no room for new customers at the present time. But feeling is that unless military requirements take a sudden upward surge, present customers will receive all commitments.



CONSTITUTION'S COMMODIOUS COCKPIT

Lockheed XR60-1 Constitution flight deck shows arrangement of flight engineer's station and consequent simplification of pilot and co-pilot controls and instruments. Flight engineer handles all engine, propeller, fuel, oil, electrical, fire warning and fire fighting and emergency equipment items leaving only flight controls to responsibility of pilot. Unusual features include adjustable microphones mounted on arms extensible from power panel cockpit loudspeaker above pilot's seat, plane commander's seat at left behind pilot and paneled walls of entire flight compartment. Much of the equipment shown is flight test instrumentation especially arranged for recording purposes.

INDUSTRY OBSERVER

► Wright Aeronautical Corp. has been awarded the development and test contract for the Menasco XJ-37 gas turbine engine on which major aircraft engine manufacturers submitted bids last fall. The contract does not include quantity production of the huge (5000 lb. thrust) engine but covers only the extensive static test program originally specified under the Menasco contract. Menasco was forced to default this portion of the contract due to the necessity for purchasing and constructing the extensive facilities and equipment required for the job. Menasco was unable to provide the capital outlay required for the equipment.

► Air Force grounded all Convair L-13 liaison planes after finding a cracked propeller shaft on one of the craft based at Wright Field. The grounding extends only to the next inspection of each aircraft to determine the existence of similar cracks on other aircraft. About 100 L-13's of a total order for 300 have been delivered to USAF liaison and air-sea rescue units.

► Boeing is still continuing work on its mammoth B-52 project. This giant bomber, to be powered by turboprop engines still in an experimental stage, will be the largest land plane ever built. Martin's XB-51 and Convair's XB-53 originally scheduled to be in the same size category as the B-52 have been abandoned.

► Airline engineers are investigating the case of a four engine airline transport that recently lost all of its engines for from 50 to 60 seconds at 23,000 ft. in a severe snowstorm. Pilot of the plane observed that recovery of power through application of carburetor heat and alcohol would have been impossible without the presence of a flight engineer in the cockpit to handle those and other engine controls.

► Big bottleneck in rebuilding the aircraft industry may be the lack of skilled die sinkers and toolmakers. Most of those currently available are old men and they are not being replaced at significant rates by a flow of younger men into the trade. Guy Vaughan, Curtiss-Wright president, believes some form of national educational training should be organized for younger men to alleviate this potential production bottleneck.

► French are about ready to begin tests on their Coroman, a new four engine cargo plane. It was built at the SCNA du Centre's Billancourt plant near Paris.

► Bill Odom, round the world solo record holder, is en route to western China in a converted Navy Liberator transport (RY-1) to begin aerial exploration of the Anna Machin mountain range, believed to contain some of the highest uncharted peaks in the world.

► A. V. Roe, Ltd., of Manchester, England, has a \$1,200,000 order from the Royal Afghan Air Force for 12 Anson Mark 18 eight passenger transports. They will be powered with two Armstrong-Siddeley Cheetah engines. Deliveries are to start next month.

► All-weather flying center at Wilmington, Ohio, is now working on automatic navigation sequences for its automatically controlled C-54. Navigation sequences are now handled by radio homing devices and air position control that do not insure aircraft remaining within precise limits during en route navigation. Use of automatic offset course computers with the omni-range system and distance measuring equipment is planned as first step in evolving a system more suitable for military operations.

► British Ministry of Civil Aviation will increase its GCA coverage in the United Kingdom to seven sets located at London, Prestwick, Speke, Northolt, Belfast and Bovingdon and Aldermaston.

► De Havilland Vampire equipped with a ghost jet engine recently reached an officially measured altitude of 56,000 ft., just 61 ft. short of the official world altitude record held by Lieut. Col. Mario Pezzi in a Caproni 161. The Vampire was a standard fighter without armament.

► Boeing delivered eight B-50s to the Air Force in February, largest single-month total, to bring deliveries to 18. March schedule calls for delivery of 12 more. First Stratocruiser intended for Pan American Airways is scheduled to come from the factory this month.

► Civil Aeronautics Board will investigate relations of Atlas Corp. regarding its control over Consolidated-Vultee Aircraft Corp. and Northeast Airlines. Convair currently manufactures the twin-engine Convair-Liner transport for sale to airlines. A similar situation occurred prior to sale of substantial Convair stock to Atlas Corp. by the Aviation Corp. which also held large interests in American Airlines. American had the largest order for Convair-Liners.

Helicopter Forum Set For Philadelphia, Apr. 22

Fourth annual forum of the American Helicopter Society, to be held Apr. 22-24 in Philadelphia, will feature basic design, mechanical features, operations and economics of helicopters followed by an outdoor helicopter flying show. Session chairmen include Cmdr. Frank Erickson, veteran Coast Guard helicopter pilot, Harry Pack, Piasecki vice president, Paul Stanley and Walter Pierson.

Highlight of the meeting will be the Honors Dinner at which time numerous merit awards and two fellowships in the society will be awarded. Cooperating in the meeting will be the local sections of the Society of Automotive Engineers and the Institute of the Aeronautical Sciences.

AVIATION CALENDAR

Mar. 18-19—California State Aviation Conference, Hollywood Roosevelt Hotel, Hollywood.

Mar. 19—National flight propulsion meeting, Institute of the Aeronautical Sciences, Hotel Carter, Cleveland.

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

Mar. 28-31—Annual conference, Society of the Plastics Industry, Santa Barbara, Calif.

Mar. 30—ICAO personnel licensing division, Montreal.

Mar. 30-Apr. 1—Air Transport Association engineering and maintenance conference, Continental Hotel, Kansas City.

Mar. 31—Society of Automotive Engineers, metropolitan section, aeronautics panel meeting on Cabin Supercharging for Fighter Aircraft, New York City.

Apr. 1-3—American Institute of Electrical Engineers, Des Moines.

Apr. 4-8—American Association of Airport Executives, Congress Hotel, Chicago.

Apr. 18-14-15—California Aviation Conference sponsored by Los Angeles, San Francisco and San Diego Chambers of Commerce, Los Angeles.

Apr. 17-24—Northwest aviation exposition, Minneapolis auditorium, Minneapolis.

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

Apr. 22-23—AIA personal aircraft council meeting, Dallas.

Apr. 22-24—Fourth annual forum, American Helicopter Society, Philadelphia.

Apr. 27—ICAO facilitation division, Europe.

Apr. 28-30—American Institute of Electrical Engineers, northeastern district meeting, New Haven, Conn.

May 4—ICAO North-Atlantic regional meeting, Paris.

May 12-15—Aviation Writers Association, 10th Annual Convention, New York City.

May 17—ICAO facilitation division, Geneva.

May 18-20—AIA board of governors meeting, Williamsburg, Va.

May 19—Air Commerce Day at Miami, part of World Trade Week observance.

May 20—ICAO European-Mediterranean regional meeting, Paris.

June 1—ICAO second assembly, Palais Des National, Geneva, Switzerland.

June 14-15—Airlines Medical Directors Association, annual meeting, Royal York Hotel, Toronto.

June 15-17—Airport management conference, College Station, Tex.

June 16-18—19th annual meeting, Aero Medical Association, Royal York Hotel, Toronto.

LETTERS

Luscombe's Improvements

To the Editor:

This is a belated note of appreciation and commendation for the attitude expressed in your recent editorial, "Lightplanes Looking Up."

For some time there has been a general tendency to feel that improvements were not being made by lightplane companies unless the improvements were of a highly sensational nature such as roadables, helicopters, jet propelled ornithopters, etc.

Actually, Luscombe and most of the light personal aircraft companies have been striving to give the public the very best product possible under existing conditions.

The degree of success achieved can be emphasized if you will recall that prewar airplanes equivalent to our present two-place models lack many of the refinements of the current versions but cost approximately the same on the market before the war.

This is especially significant when one considers the fact that almost all of the components and purchased equipment items have steadily increased in cost to the aircraft manufacturer. As you know, Luscombe has endeavored to continuously offset increases in material and labor costs by simplifying the aircraft structure and streamlining production processes.

It is inevitable, however, that this program must eventually reach the point of diminishing returns where the economies subject to our control can no longer resist the pressure of increased costs of components.

I personally feel that the lightplane value today is one of the best in the postwar market. Accomplishments in the four-place field have been even more significant. The cost of a modern four-place personal plane with all its improvements runs only 50 to 75 percent of the prewar cost for similar performance. I do not believe any other industry can show such progress. In line with the above comments regarding the importance of little improvements which do not warrant individual recognition but collectively do give support to your own optimism, I should like to list a miscellaneous group of modifications which have been incorporated on our Model 8 Silvaire Series during the past two years.

1. All-metal construction for greater strength, more uniform flight characteristics, and simplified inspection and maintenance.

2. Nylon safety fuel cells: These units have an elongation of over 25 percent and are therefore highly resistant to rupture in event of crash.

3. All fuel tanks are now installed in the wings, thus improving the stall and spin characteristics of the aircraft by moving the operating C.G. range forward on the M.A.C.

4. The new Silflex landing gear provides better shock absorption, combats ground looping tendency, and reduces the precision required to make consistently good landings.

5. Tail wheel installation has been revised

to improve steerability and ground handling and to reduce noise that is induced by taxiing.

6. Engines of increased power provide better take-off and climb performance for small fields or high altitude operation.

7. Increased fuel capacity provides greater endurance.

8. Structural revisions for increased personnel protection.

(a) Windshield V-brace modified to insure outward buckling in event of severe noseover or collision with the ground.

(b) New instrument panel arrangement revised per recommendation of the Crash Injury Research Project to reduce possibility of head injury.

(c) Safety belts and attachments revised to double strength capacity as recommended by Hugh DeHaven of CRI.

9. Improved wheels and brakes for better ground control.

10. Improved parking brake system to eliminate service difficulties.

11. High quality flight instruments substituted for low cost units.

12. Increased structural strength by substituting 24ST alclad for 17ST in all basic structural applications.

13. Improved carburetor heater to combat engine icing conditions.

14. Developed shoulder harness (chest strap installation) as suggested by CRI and AOPA.

15. Standardized on four-ply tires replacing two-ply used on prewar models.

Utility has been improved as follows:

1. Increased engine power gives better take-off and climb with higher cruising speed.

2. Gross weight increased to provide greater useful load.

3. Electric starter adopted as standard equipment on several models.

4. Baggage allowance increased 50 percent.

5. Cruising range extended by use of large capacity lightweight nylon fuel cells.

6. Leading edge no-glare sealed beam landing lights and indirect controllable instrument lights for night operation.

7. Improved two-way VHF radio equipment with loud speaker installation.

8. New landing gear improves rough field operational ability.

9. Reduced maintenance cost due to simplified all-metal construction.

Comfort has been improved by:

1. Use of innerspring seat and seat backs.

2. Greater visibility through additional window area.

3. Cabin noise reduced by use of sound deadener.

4. Cabin heater effectiveness greatly improved.

5. Fresh air control provided.

6. Cabin volume increased to provide additional storage space.

7. More attractive and restful interior decoration scheme.

As in all businesses, the lightplane manufacturer must balance numerous theoretical desirable characteristics and features against the cost, immediate market, and other important factors. Quite often there has been a great deal of enthusiasm for an aircraft type or component based on a special feature or characteristic. Upon closer exami-

nation many of these apparently desirable developments are accompanied by very real disadvantages which mitigate against their immediate adoption by established manufacturers.

It has often been said that aircraft design is a compromise. It is equally true that final production models must also be a compromise between technical advantages and practical considerations.

I believe as you do that the industry is progressing in the right direction by actively working toward the perfection of existing types, while at the same time giving careful study and thought to the more radical types with a view toward use of the desirable features in new models as soon as circumstances permit.

Premature adoption of the popular conception of the ideal lightplane would necessitate prices so high as to seriously discourage a healthy growth of personal aviation.

In this connection, it is interesting to note that on an aircraft such as the Silvaire, a controllable propeller would increase the selling price nearly 15 percent. Crosswind landing gear wheels add another 15 to 25 percent. Each increase in price leads to a smaller market, greater unit costs; hence, still higher prices.

EUGENE W. NORRIS, V.P.-Engineering
Luscombe Airplane Corp.
Dallas, Tex.

Stinson & Crosswind Gear

To the Editor:

We were very pleased to see your editorial, "Lightplanes Looking Up." It certainly was gratifying to read an editorial that complimented the personal aircraft industry as a whole for the strides that have been made in the past years.

I would like to point out one small error. Stinson was the first personal plane manufacturer to obtain CAA approval on the Goodyear crosswind landing gear. The installation was approved on our Stinson Nov. 12, and no announcement has previously been made by us as Goodyear was not in position to make deliveries. As a matter of fact, I believe that today we are still the only manufacturer that has obtained formal CAA certification.

WILLIAM H. KLENKE, JR., Gen. Sales
Mgr.
Stinson Division
Consolidated Vultee Aircraft Corp.

Mars Omitted in Yearbook

To the Editor:

I certainly feel that AVIATION WEEK for Feb. 23 is a very conspicuous edition due to absence of mention of the world's largest air transport carrier, the Mars. I believe that you are familiar with them and that they now have 15,000 hr. in scheduled air transportation . . . The mobility of water borne aircraft surpasses the flexibility of the U. S. Air Forces' concept of strategic operations from this country.

CAPT. C. H. SCHILDHAUER, USN, Ret.
Owings Mills, Md.

ENGINEERING & PRODUCTION

Modification Business Emerges From Slump

Two prominent West Coast aircraft modification companies currently give indication that a critical slump in the modification industry may be ending.

At Metropolitan Airport, Van Nuys, Calif., Aviation Maintenance Corp. has more than doubled its payroll since emerging from mid-winter business stagnation that had forced reduction of personnel to slightly under 200.

Similarly, Pacific Overseas Airlines, at Ontario, Calif., reports the prospect of new modification orders on surplus aircraft, and expects to begin expansion of its payroll within the near future.

► **AMC Optimistic**—AMC prospects are brightened by the company's first commercial airline contract, for overhaul of four-engine aircraft of American Overseas Airlines. This is believed by AMC officials to provide an opening wedge in their campaign to sell airlines on the use of their Van Nuys facilities for pooled maintenance. AMC also expects to strengthen its 1948 position through manufacture of the Allison lightweight radar. A demonstration of the unit to Air Force officers at Wright Field was planned for this week.

POA's modification business is expected to improve steadily, but at a rate contingent upon CAB action in defining more clearly the regulation of nonscheduled carriers, principal buyers of converted surplus transports.

Credit Report

What might indicate a trend toward greater financial stability in the aircraft manufacturing industry is disclosed in the National Credit Office's report on business failures. Five aircraft firms suffered "business embarrassments" in 1947 involving a debt of \$1,187,000 as compared to eight business failures in 1946 with a debt amounting to \$11,832,000.

Total debt of the five aircraft companies averaged out to \$237,000 per failure. This is lower than the average for all but one of the industries listed in the Credit Office's metals division. Average debt per failure for automotive equipment manufacturers amounted to \$900,000; for radios and equipment \$405,000; for electrical appliances \$279,000; for steel products \$700,000; for shipbuilders \$400,000; and for wholesalers radio parts \$62,000.

Convair-Liner Progress

While assembly work started on the 100th Convair-Liner last week, American Airlines accepted delivery on the first five of its order for 75 of the craft. They will be based at Ardmore (Okla.) Training Center for operating personnel familiarization.

The 100th craft is scheduled for Central Air Transport Corp. in July.

Pan American and Western Air Lines will receive their first models in approximately three weeks, according to company spokesmen.

Republic Appoints Scanlon

Republic Aviation Corp. has appointed Martin F. Scanlon, former Air Force colonel, as director of exports with headquarters in Washington. He succeeds the late H. W. Flickinger.

Scanlon will supervise the company's role in connection with supplying air forces of Latin American countries with P-47s under the American Republics Program.

BRIEFING PRODUCTION NEWS

► **Ryan Aeronautical Co.** recently signed new sales contracts totaling \$1,000,000 in a three-day period. This business for the Metal Products Division includes exhaust systems for the Fairchild C-119 Packet cargo planes, Boeing B-50 Superfortress bombers, McDonnell Banshee fighters, Douglas Aircraft Co. and the Navy Bureau of Aeronautics. In addition Ryan's contract for production of pilotless aircraft or guided missiles has been increased for the third time.

► **Marquardt Aircraft Co.**, Venice, Calif., reports a backlog of \$1,369,000 in Air Force and Navy ramjet research contracts. Under private development by the company is a flyable jet rotor helicopter, construction on which is nearing completion.

► **Bausch and Lomb Optical Co.** has developed a streamlined astrodome which projects only two and one-half inches above an airplane mold line and can withstand a total force of three and one-half tons. The dome consists of an outer plate, which is a ground and polished optical lens reducing refraction errors to a minimum. The inner plate is plastic and houses a defrosting system. The pressure strength of the dome "out-does by far all contemplated requirements," according to Edward F. Flint, its designer.

► **Cessna Aircraft Co.** has received orders from John Deere Harvester Works for more than 12,000 hydraulic cylinders amounting to more than \$100,000, and a \$300,000 extension to its Army contract for tropical furniture.

► **Texas Engineering and Manufacturing Co.** will modify nine Martin 2-0-2 transports of Northwest Airlines to include larger carry-on baggage compartment, larger galley for full hot food service, larger coat room forward, increased baggage and cargo space. Engineering and fabrication of parts will be done by the Glenn L. Martin Co. with the parts shipped to TEMCO's Dallas plant for installation.

► **Solar Aircraft Co.** has received orders in excess of \$800,000 in a single month bringing total backlog to \$8 million. Production of jet engine parts, exhaust manifolds and guided missile components is under way at the company's San Diego and Des Moines plants.

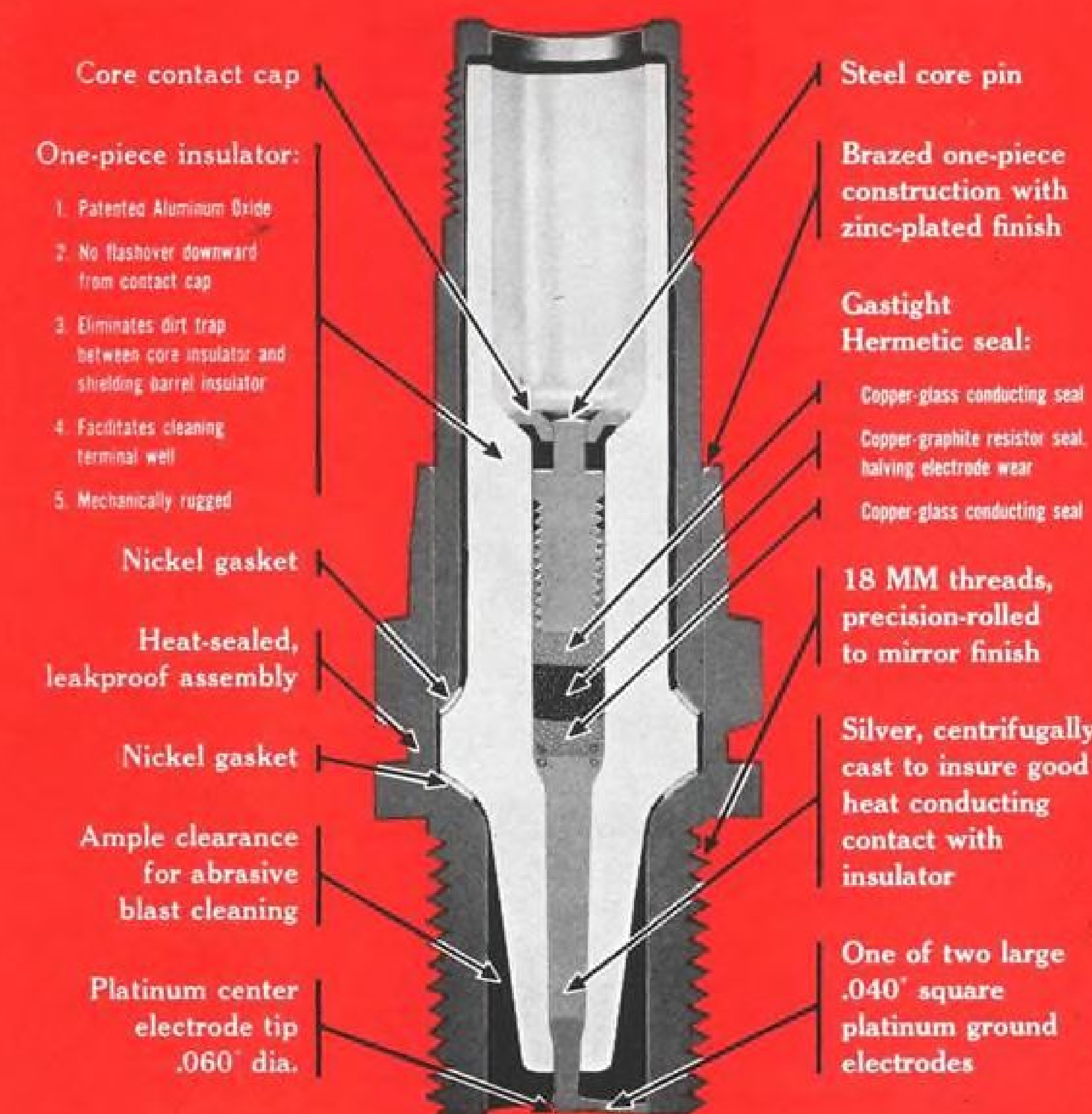
► **Aero Industries, Inc.**, is a new Cleveland firm formed by Russ Jack, W. E. Tabb and Scott Benedict, all former Jack & Heintz Co. officials, to manufacture the products of Bill Jack's new California aircraft research laboratory. Russ Jack, son of Bill Jack, says the group will specialize in aircraft hydraulic parts.

► **Aero Corporation**, Atlanta, Ga., and its affiliate, United Aero Service, Inc., Charlotte, N. C., are converting three Douglas C-47 and a Convair PBY-5a for export to South American customers. Additional equipment has been installed recently to handle the increased export sales volume of the two companies.

► **Northrop Aircraft, Inc.**, has received a certificate from the American Legion in recognition of its employment of physically-handicapped veterans, the only certificate so awarded in the U. S. Northrop has been conducting extensive non-profit research on artificial arms and other prosthetic devices for more than two years.

► **Surface Combustion Corp.**, Toledo, Ohio, has received a contract for installation of Janitrol aircraft heaters for the entire fleet of 26 transports operated by Delta Airlines. Seven Delta DC-4s are already equipped with enclosed-flame combustion heaters and nineteen DC-3s are being modified. In addition to cabin heating, the system also includes ducts to the windshield to provide anti-icing protection.

SETS NEW PERFORMANCE CEILINGS



AC's great new Type 181 Aviation Spark Plug is currently approved by Pratt and Whitney and C.A.A. for the Hornet E-3 (R-1690), Twin Wasp C (R-1830), Twin Wasp D (R-2000), Double Wasp (R-2800), and Wasp Major (R-4360).



AC's new Aviation Spark Plug for commercial plane engines incorporates a combination of engineering features not to be found in any other plug . . . features which set new ceilings in performance, length of life, durability, and ease of servicing. Heading the list of these features is AC's patented one-piece aluminum oxide insulator. Look at the cutaway view and you'll see the others.

In all respects, the AC-181 is in step with the latest trends in engine design . . . and fully meets their needs.



Aviation Sales Dept. • AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION • Flint 3, Mich.

AVIATION WEEK, March 15, 1948

meet the
"flyweight"
champion!...



This 3 kva G-E "flyweight" champion weighs in at only 8 pounds



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FOR AIRCRAFT

light...small...reliable...

These autotransformers are really "flyweights"! Ounce for ounce G-E "flyweight" silicones deliver more than 3 times the kva of the conventional autotransformer with Class A insulation. They'll carry your load and save space and weight too.

Silicone autotransformers won their "title" the hard way. A long service record with the U.S. Army Air Forces furnishes proof of their ruggedness and dependability. On commercial aircraft, too, they are "tops" for operating landing lights and other vital aircraft equipment.

In addition to these silicone units, G.E. offers the following major types of standard aircraft transformers:

Ballasts for fluorescent lighting
Ignition transformers for cabin heaters, wing de-icers
Ignition transformers for jet engines

General-purpose transformers, single- and three-phase, for lights, instruments and accessories

Phase-changing transformers for gyro instruments

All General Electric aircraft transformers are designed to:

1. Give dependable operation at altitudes up to 50,000 feet.
2. Operate in ambient temperatures from -70 C to 71 C.
3. Tolerate normal frequency variations in power supply.
4. Withstand vibration and shock.
5. Keep weight and size to a minimum.

General Electric facilities and engineering "know-how" are available to help solve your aircraft transformer problems. Contact your nearest G-E sales office, or write *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL  ELECTRIC



LINER PRODUCTION FLOW

Aerial photo of Consolidated Vultee plant at San Diego, Calif., (above) is superimposed with flow lines showing Convair-Liner production progress. Parts and small sub-assemblies are fabricated in Building 1, extreme left. Flow is to Building 2, center foreground, scene of major assembly and mating of center wing section with fuselage. Final assembly starts in Building 2 and moves into Building 3, at right, where interior trim assemblies are manufactured and installed. In Building 4, background, transports receive final added parts and adjustment for tests. Photo at left (by Ross-Pix) shows overflow of C-Ls in varying stages of assembly parked just outside Building 2. These are fed back into Building 2 line in sequence of delivery dates.

Martin Board Elects D. A. Evatt Treasurer

Daniel A. Evatt, financial executive, has been elected treasurer of The Glenn L. Martin Co., Baltimore, and will take over his new duties immediately. Evatt has served several large eastern and midwestern industrial organizations. He is a specialist in federal and state tax matters and has wide experience in corporate finance. Announcement of his election followed a directors' meeting.

Previous associations include Parker, Davidson and Elsholz, Detroit accounting firm; Vacuum Oil Co.; Firestone Tire and Rubber Co., Akron; Talon, Inc., Meadville, Pa., and his own consulting firm in New York.

The company also has appointed Neal V. Musmanno as staff assistant in personnel and public relations and Chauncey F. Bell as manager of the service and spare department. Bell joined the company in 1939 as a draftsman, working on the Mars, the B-26, and wind tunnel and research design. In 1943 he was made assistant technical supervisor of the B-26. Until his promotion he was in charge of 2-0-2 service.

In other personnel actions:

Pacific Airmotive Corp., appointed John G. McKean, treasurer. Before joining the company, McKean was vice president and treasurer of Aviation Maintenance Corp. He had been assistant general service manager of Lockheed Aircraft Corp. for four years. PAC also announces appointment of E. Van Vechten as general operations manager, a new position in which Van Vechten will retain his present duties as director of procurement and materiel. He will be responsible for operations of main plants at Burbank and Linden as well as other PAC bases. Van Vechten formerly was purchasing agent for United Air Lines and West Coast sales manager for Weatherhead Co.

Canadair Limited, Montreal, announced two promotions of leading executives: T. J. Emmert as vice president; and R. A. Neale as assistant to the president. Emmert joined Canadair in January, 1947, and was formerly assistant to the president and assistant general manager. He has 12 years aircraft experience. Neale with 19 years aircraft experience, will continue to be responsible for factory operations and will assume additional administrative duties.

Bendix Aviation Corp., export division, appointed Theodore Voorhees, assistant general manager. Prior to joining Bendix in 1947, Voorhees was regional manager in Bombay for U. S. Steel Export Corp. Before that he held executive positions with General Motors Overseas in India and Java.

Texas Engineering and Manufacturing Co., appointed R. R. Millsap Tempco sales representative for Swift planes in Western United States.

E. I. du Pont de Nemours & Co., Inc., appointed Harold E. Goldsmith as regional sales manager for the Boston region of the

Fabrics and Finishes Dept. to succeed Sumner B. Woodbridge, who retired after 41 years with the company.

B. F. Goodrich Co., appointed John R. Hickman director of field sales personnel to succeed Dale Cramer, on temporary leave of absence for health reasons.

Jack & Heintz Precision Industries, Inc., appointed Paul J. Papanek service manager of the aviation division. Papanek was formerly flight test engineer with Goodyear Aircraft Corp.

Norma-Hoffmann Bearings Corp., elected Charles P. Collins president and director. Collins resigned his present duties as secretary and general counsel of SKF Industries and assumed his new office Feb. 1. He is a member of the Bar in the states of New York and Pennsylvania, and various bar associations.

Champion Spark Plug Co., announces the following new territory representatives: A. M. Bridges, George Axt, H. F. Snodgrass, H. R. Dunn, P. H. Hunter, Richard V. Bennett, H. G. Straub.

Boeing Airplane Co., appointed Rex Delaware superintendent of its service center to succeed Ed Hudson, who has gone to Alaska Airlines as vice president. Brooke S. Harper, former sales representative under Hudson, was named manager of the service center.

Westinghouse Electric small motor division, appointed J. P. Barbour acting manager of the aircraft sales department. He worked in East Pittsburgh, Pa., and East Springfield, Mass., before going in 1937 to Lima, Ohio, where he formerly was sales engineer.

Allis-Chalmers Manufacturing Co., announces resignation of James M. White, vice president in charge of manufacturing. He will remain in an advisory capacity to President Walter Geist for the next six months.

NACA Expands Its Facilities

\$28,200,000 to be spent on new equipment to aid high speed flight research.

National Advisory Committee for Aeronautics plans an expansion program calling for \$28,200,000 worth of new research equipment and modifications to existing facilities to increase their speed and capacity. The urgent need for this equipment, according to Dr. Hugh L. Dryden, NACA Director of Aeronautical Research, "arises directly from the recent technological revolution and from the international situation." Major projects of the program include:

► **Gas Dynamics Laboratory**—An entirely new facility costing \$6,401,100 to be located at Langley Field, Va. This laboratory will contain eight supersonic jets ranging in speed from Mach number 1.2 to Mach number 10; a flow tube to study pressure wave propagation, facilities for supersonic compressor research; optical benches for developing low-density flow research instrumentation and equipment for simulating supersonic flow at extremely high altitudes. Principal purpose of this new laboratory is the study of low density high velocity airflows such as characterize the flight of missiles at 5000 miles per hour at an altitude of approximately 200 miles.

► **Induction Aerodynamics Laboratory**—Modernization of this equipment at Langley Field to increase both the quantity of air and the speeds and pressures developed in the tunnel would cost \$2,443,700. Used to study problems of internal flow in aircraft; new jet engines of greater power and rate of air handling demand greater capacity for this facility.

► **Flutter Tunnel**—This unique tunnel, located at Langley Field, is used to check on flutter phenomena at high speeds, but the tremendous increase in aircraft and missile speeds since the original planning of this tunnel demand its repowering to provide tunnel air speeds up into the transonic speed range, at which flutter difficulties are already proving acute. New power equipment will cost in the neighborhood of \$953,900.

► **Flight Research Laboratory**—Because present hangar facilities at Langley Field are too small to accommodate large aircraft, such as the Boeing B-29, Douglas C-54 and others, the Flight Research Division at the Langley Laboratory plans the erection of a large hangar to cost \$3,608,300. More than a hangar, the building will include numerous shops, offices and sheltered working space for the installation of delicate re-

search instrumentation and other related equipment.

► **Seven-by-Ten Foot High-Speed Tunnel**—Originally designed to operate at high subsonic speed, this tunnel has been modified over the past two years increasing its speed into the transonic realm. This increased speed has placed such severe stress and vibration on the tunnel that repeated repairs have been necessary. The NACA plans \$699,000 worth of modification and re-strengthening work on this tunnel to accommodate the increased loads. These repairs will save nearly one million dollars over the cost of building an entirely new tunnel, which would require 18 months of valuable time.

► **Sixteen-Foot High-Speed Tunnel**—Due to the heat generated by the high-speed running of this tunnel, special air cooling apparatus is required. Filter equipment is badly needed since the present absence of such a device admits dirt into the tunnel through the air cooling intake which has the effect of sand blasting the models, requiring frequent re-finishing of their surfaces. Cooling and filter equipment will cost \$851,000.

► **Propulsion Sciences Laboratory**—An entirely new facility to be erected at the Cleveland Laboratory, this novel installation will contain refrigerating equipment capable of reducing the temperature and pressure of air at the rate of 80 lb. per second, more than 140 tons of air an hour! To cost \$10,000,000, this new laboratory will permit the testing of jet engines under conditions approximating an altitude of 30,000 ft.

► **High Energy Fuels Laboratory**—Another new facility, this laboratory will cost \$500,000. It will contain equipment for research on new aircraft and missile fuels containing greater energy per gallon than any presently available. Because of the dangers in the preparation of such fuels for test, this laboratory will be located at a safe distance from the present research buildings.

► **Air Dryer for Supersonic Tunnel**—Because the air supply for supersonic tunnels must be dry (to prevent condensation shock waves from marring supersonic flow patterns), special air drying equipment is required. Present air drying equipment is used alternately for the altitude wind tunnel and the small supersonic tunnels at the Cleveland Laboratory. Because this dryer must remain idle for a time after becoming saturated with moisture, the two tunnels cannot be operated continuously. A new air dryer, to cost \$225,000, is needed, to provide this continuous operation.

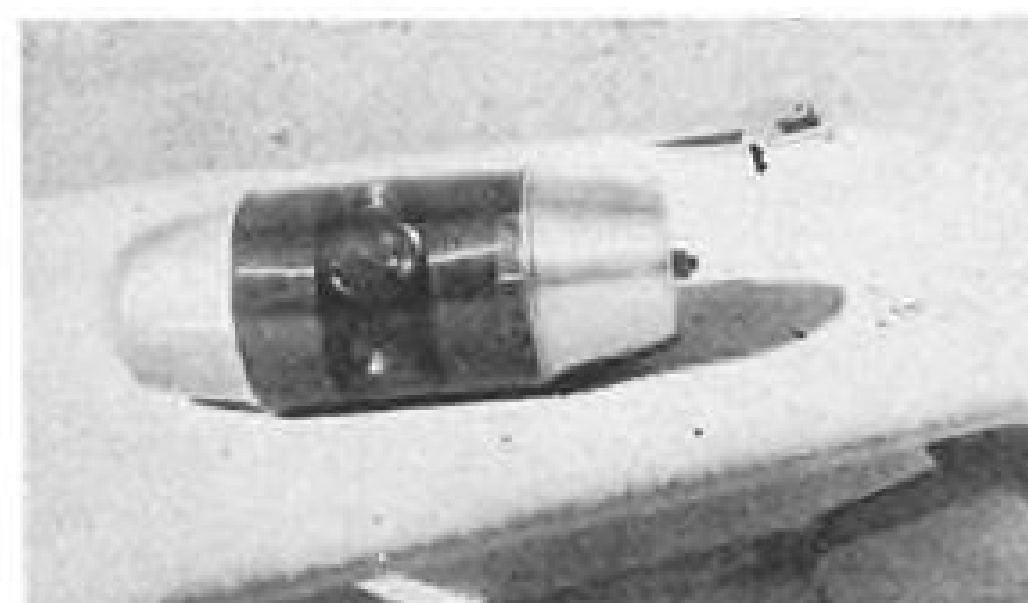
Guide Light To Aid Plane Crash Search

A light which would guide searchers to the scene of an airplane crash has been developed by R. A. Shellabarger who is now negotiating for its manufacture.

One of the lights would be clamped to each of the wings of a transport in such a way that the impact of the crash would throw the lamp several yards from the plane. The same motion would close the battery circuit and turn on the light.

The crash indicator light is egg-shaped, 4 in. in diameter and 12 in. long, and weighs about 4 lb. The main support shaft through the center has a spring to cushion the jolts as the light falls end over end, since it is balanced that way rather than for a rolling motion. Two six-volt batteries (self contained) furnish power for approximately 100 hours continuous operation.

The metal-incased light is covered first with sponge rubber, then with $\frac{1}{8}$ in. sheet steel, another coat of sponge rubber and finally a thin stainless steel cover, to protect it from exposure. This shock protection extends to, but does



not cover, a narrow band of plastic around the circumference through which four lights shine, two of which, it is said, will always be visible. A high strength plastic, resistant to heat and cold, and of whatever color required by the Civil Aeronautics Administration, is used for this light strip.

The Los Angeles office of CAA has put the light through preliminary tests which have indicated clear visibility of the unit up to 10,000 ft. altitude. Tests for visibility in brush and other more severe conditions are in progress. CAA has requested the inventor to prepare specifications on the light's intensity and full operating data in a form suitable for military evaluation.

Shellabarger says that there are a number of ways of attaching the light to an airplane wing so that it will be secure under all conditions except the high impact of a crash. He added that aircraft engineers would doubtless improve on the clamping method he had suggested. It has been estimated that the lights can be manufactured for sale at a price of \$75 each.

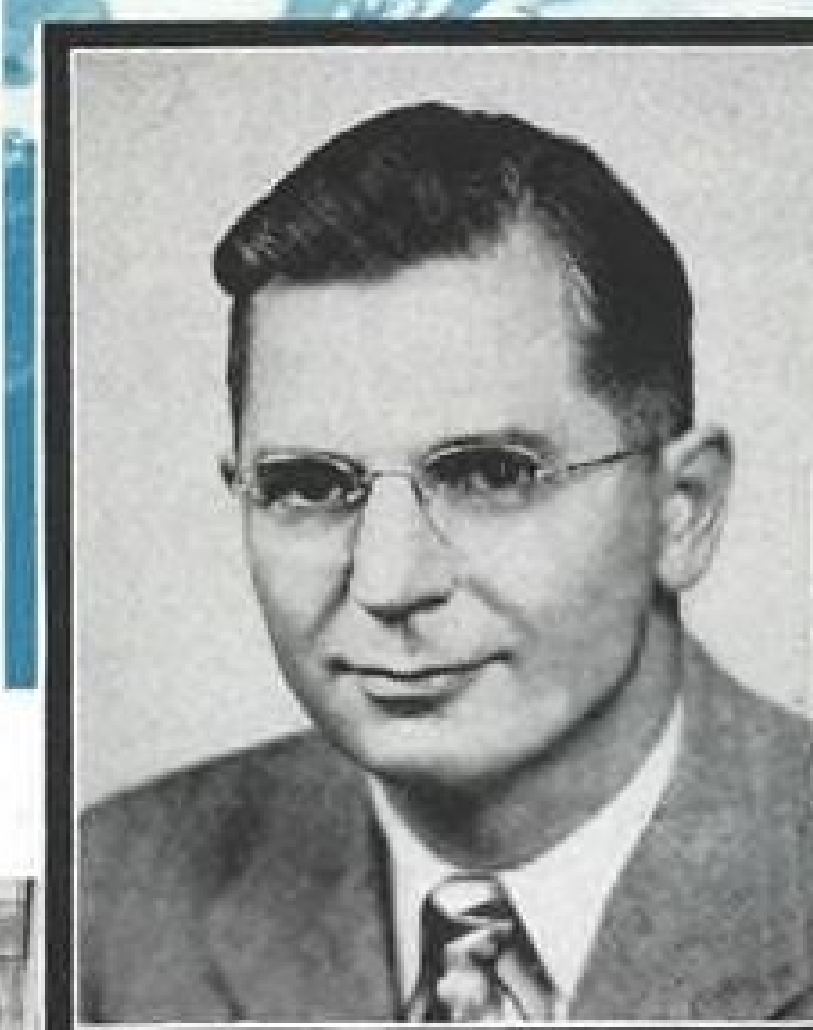
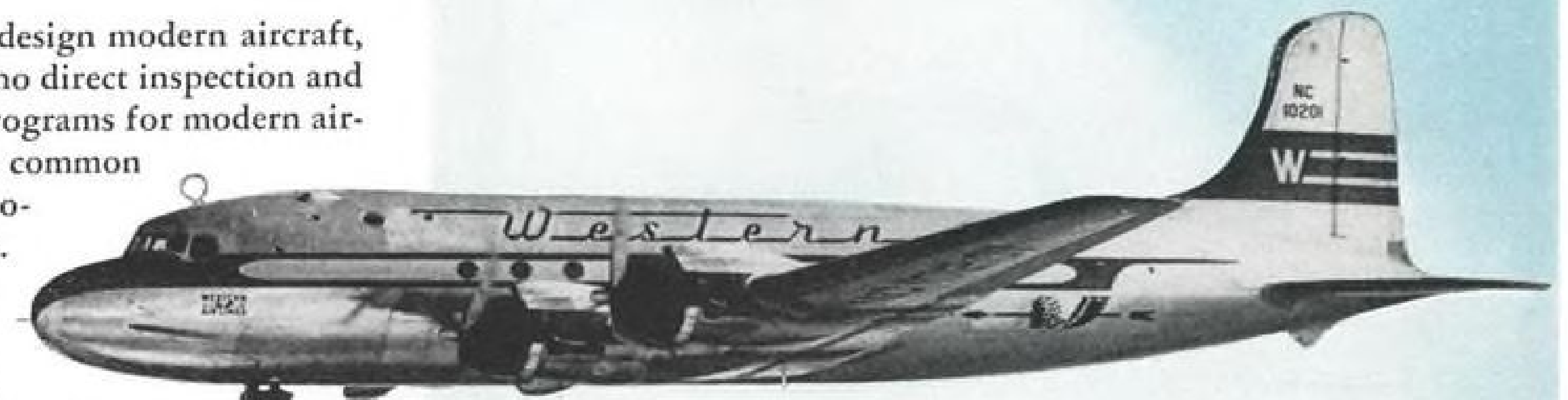
Meet the Men Who Keep 'Em Flying!

(NO. 3 OF A SERIES)

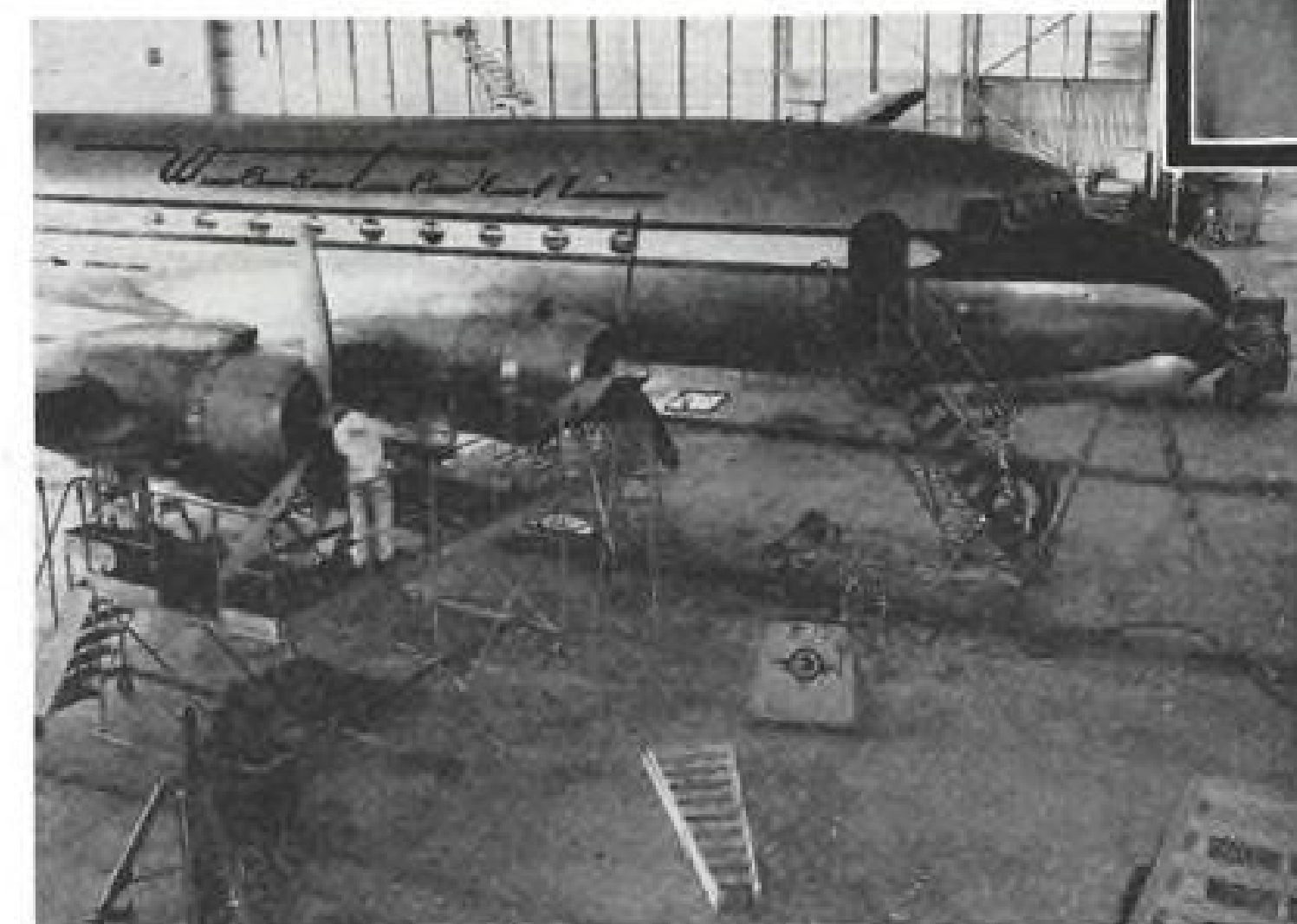
The men who design modern aircraft, and the men who direct inspection and maintenance programs for modern airlines, share a common objective: absolute perfection. Designers strive for perfection in creating new, improved aircraft; maintenance directors strive to maintain that perfection. To both groups, the achievement of that objective is based upon meticulous attention to every detail, however trivial.

The universal use of OSTUCO Tubing in modern aircraft is an outstanding example of the importance of details. The inherent strength-without-weight advantage of OSTUCO Aviation Tubing is only one important contribution to the creation of more efficient aircraft. Other details which figure prominently in the choice of OSTUCO Tubing include OSTUCO'S continuous research, precision craftsmanship, years of engineering leadership, an amazingly low record of rejects and, finally, prompt delivery of the finest aviation tubing available.

Small things in themselves, yet each detail helps bring the objective, absolute perfection, a step closer to realization.



Stanley R. Shatto, Vice-President of Maintenance and Engineering, Western Air Lines



One of Western Air Lines' fleet of four-motor transport planes gets a thorough inspection and overhaul in the WAL shops.



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Greater Blades for Bigger Jobs

Now—A New Blade Construction Principle Opens New Horizons for the Aeroprop

With the successful development of the tubular blade principle, Aeroproducts announces another great stride forward—Aeroprops with tubular blades engineered for engines up to 10,000 horsepower.

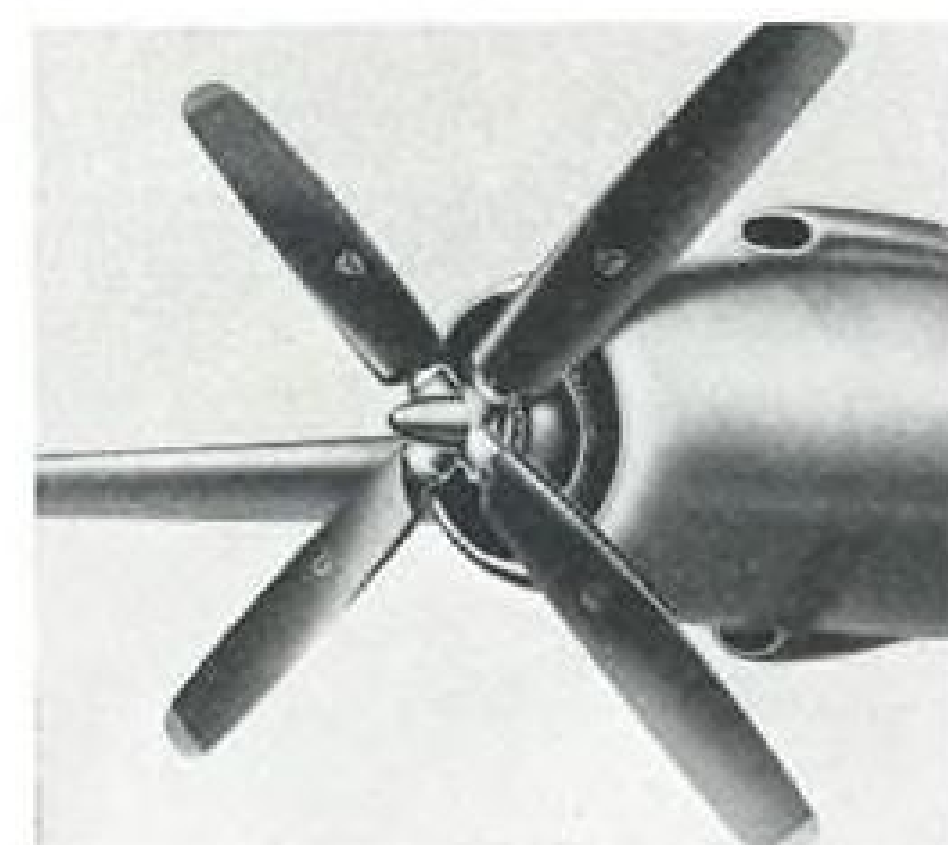
There are two salient advantages offered by the Aeroprop with tubu-

lar blades. It gives high power-absorption at high efficiency. It gives strength-weight ratios comparable to or better than those of ordinary hollow blade construction, yet it is available in larger sizes. Thus engines of greater horsepower may be used within diameter limitations of present propeller installations while larger blades for more powerful engines become feasible.

Tubular bladed Aeroprops have passed all required military tests. Like all Aeroprops, they are pro-

duced with selected features—reverse pitch, instant-feathering, de-icing, etc. Models with application up to 10,000 horsepower are in production or design.

Like all Aeroprops these propellers demonstrate again that Aeroproducts—backed by the vast research facilities of General Motors—can help today with your planning for tomorrow.



This is the Aeroprop—Available in single or dual-rotation, with hollow tubular or hollow ribbed-steel blades. Regulator, hub and blade assemblies are designed for unit installation or replacement. It is strong, light, simple.

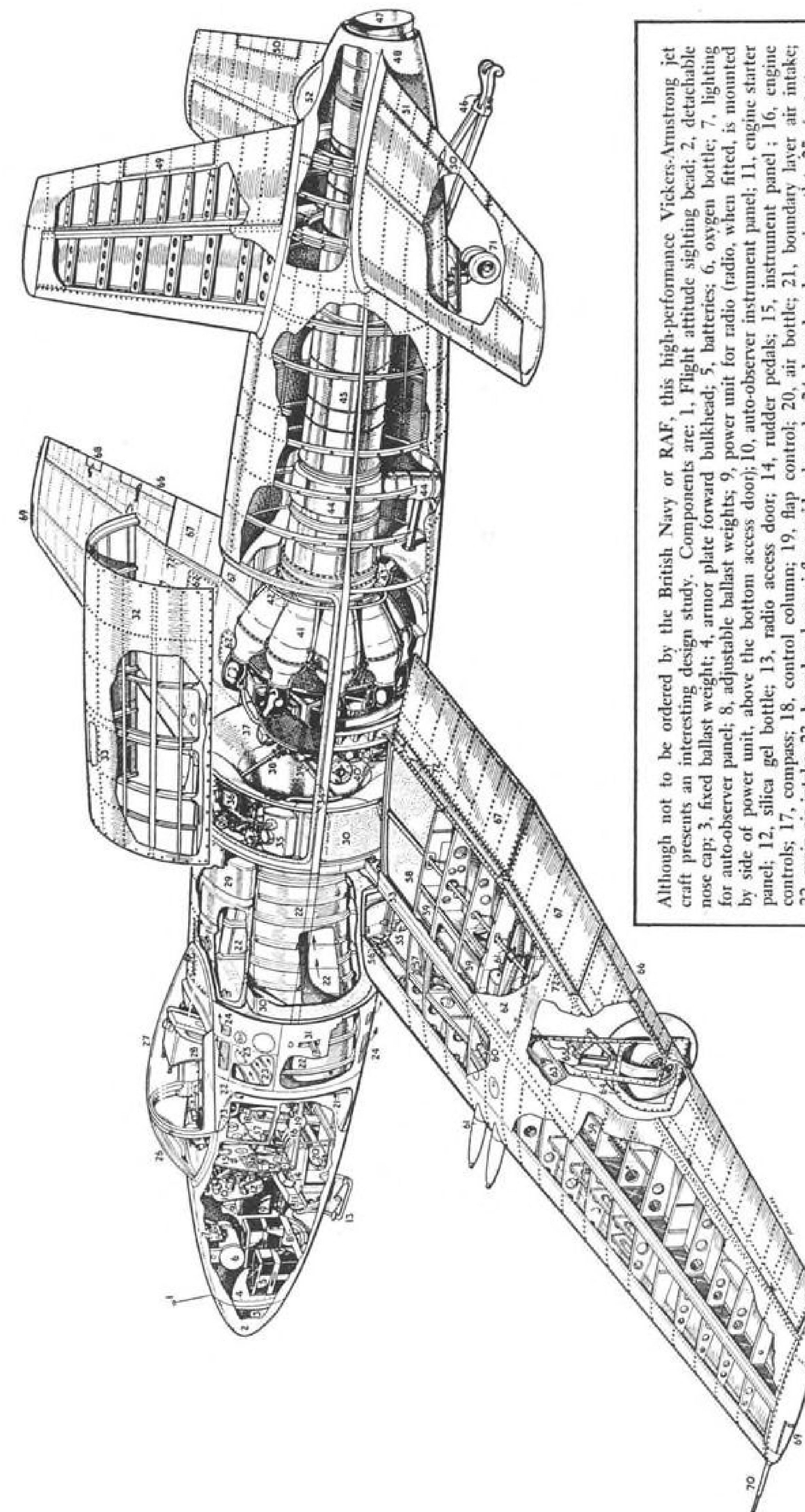
Tubular Blade Cross Section. (A) Main structural member—seamless tapered tube flattened and formed. (B) Air-foil contour—one-piece die-formed sheet of steel silver-brazed to tube; trail edge roll-welded. (C) Aeroproducts' light, cellular blade-filler material bonded to steel stabilizes secondary vibratory stresses.

Aeroprop

BUILDING PROPELLERS FOR AIRCRAFT TODAY
DESIGNING PROPELLERS TO MEET TOMORROW'S NEEDS

AEROPRODUCTS DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

ALBUM OF DESIGN DETAIL



Although not to be ordered by the British Navy or RAF, this high-performance Vickers-Armstrong jet craft presents an interesting design study. Components are: 1, Flight attitude sighting head; 2, detachable nose cap; 3, fixed ballast weight; 4, armor plate forward bulkhead; 5, batteries; 6, oxygen bottle; 7, lighting for auto-observer panel; 8, adjustable ballast weights; 9, power unit for radio (radio, when fitted, is mounted by side of power unit, above the bottom access door); 10, auto-observer instrument panel; 11, engine starter panel; 12, silica gel bottle; 13, radio access door; 14, rudder pedals; 15, instrument panel; 16, engine controls; 17, compass; 18, control column; 19, flap control; 20, air bottle; 21, boundary layer air intake; 22, main air intake; 23, boundary layer airflow guide channels; 24, boundary layer air outlet; 25, foot-step; 26, bullet-proof windshield; 27, double-walled sliding hood; 28, ejector seat; 29, top main fuel tank; 30, port side tanks; 31, retractable foot step; 32, engine cover (removed); 33, extra air intake (for ground running); 34, plenum bay pneumatic seal; 35, hydraulic header tank; 36, auxiliary gear box; 37, engine end of air intake; 38, auxiliary gear-box drive; 39, engine diagonal brace strut; 40, engine starter; 41, Rolls-Royce Nene engine; 42, fire-extinguisher ring; 43, bearing cooling air outlet; 44, jet pipe volute bleed; 45, removable jet tail pipe; 46, deck arrester hook (down); 47, end of tail jet pipe with 10° forward rake on top lip; 48, detachable tail cone; 49, rudder trim tab; 50, elevator trim tabs; 51, elevator spring tab (port only); 52, tail parachute housing (test equipment only); 53, main wing spar; 54, rear spar attachment; 55, undercarriage fairing door; 56, hydraulic jack actuating undercarriage fairing door; 57, undercarriage operating jack; 58, port wing fuel tank; 59, ammunition boxes built into wing structure; 60, undercarriage hinge; 61, 20-mm. gun; 62, gun bay access panels; 63, dive recovery flaps; 64, undercarriage fairings; 65, shock absorber leg; 66, aileron spring tabs; 67, trailing edge flaps; 68, electrically-operated trim tab (starboard only); 69, navigation lights; 70, pitot tube; 71, steerable tail wheel; 72, wing lift spoilers; 73, knockout escape panel (each side of cockpit).

SEA ATTACKER

“Droop Snoot” Configuration Aids Jet Fighter Landings

Leading edge flaps improve lift characteristics of high speed wings for slow approach. Piloting technique is greatly simplified.

By ROBERT McLARREN

In high speed aircraft, the low drag characteristics of the section are of considerably more importance than the lift, resulting in a progressive decrease in lift coefficients for basic airfoil sections in recent years.

This deficiency has been accommodated by the vastly increased speeds of military aircraft; since the lift of a wing varies as the square of the speed, the low value of the lift coefficient is of only minor consequence within the cruising and high speed ranges of modern aircraft.

The price that must be paid for such low drag sections is unusually high take-off and landing speeds, unless a great deal of attention is paid to the development of high lift devices such as slots and flaps. Unfortunately, above a given value of flap chord and deflection angle lies a region of diminishing returns, so that improvements in lift coefficient through flap development does not offer any substantial gain in the future.

► **Nose Flaps Studied**—A promising solution to this aerodynamic impasse was investigated by the Germans during the war, and W. Kruger carried out wind tunnel tests at Gottingen during 1943-44 on a “nose flap,” a hinged section of the wing which rotated forward of the nose at 60 deg. to the chord.

This device performs the same major function of the trailing edge flap—it increases the wing camber and thereby provides a useful increment in the lift coefficient. Further work on “Nasenklappe” design was carried out by H. Koster of Adlershof and the results of this research became available in this country after V-E Day.

In order to check the German results and, further, to examine the application of a nose flap to a modern high-speed airfoil, such as is used on jet fighter craft, the National Advisory Committee for Aeronautics tested two types of nose flaps on an NACA 64-012 airfoil in the two-dimensional low-turbulence pressure tunnel at the Langley Memorial Aeronautical Laboratory during the fall of 1946.

These results have been published in TN 1277 and indicate that the lift coefficient of a laminar flow airfoil can be increased as much as 30 percent by

the use of a leading edge flap, and as much as 57 percent with the leading edge flap used in conjunction with a trailing edge flap. This would mean, in a typical example, a 20 percent decrease in landing speed, or a reduction from 100 to 80 mph. in the landing speed of a jet fighter, more than half of which is directly attributable to the nose flap.

► **Increased Stall Margin**—A second effect of the leading edge flap is an increase in the angle of attack at which the maximum lift coefficient is obtained, indicating an increased stall margin. Both of these increases (in lift coefficient and stalling angle of attack) theoretically result from the action of the nose flap in reducing the magnitude of the pressure peaks and the adverse pressure gradient characterizing conventional airfoils near maximum lift. This is because the nose flap is aligned with the airflow approaching the wing leading edge, resulting in the flap carrying a substantial amount of the lift without the presence of excessive pressure peaks.

The tests indicate, however, that positions of the flap less than the optimum, cause a breakdown of the airflow over the aft portion of the wing before the angle of attack is great enough for the flap to contribute substantially to the lift. Similarly, excessively great nose flap deflections create large pressure peaks on the leading edge of the flap at low angles of attack. For these reasons, leading edge flap mechanisms must act quickly, and preferably be of the two-position type (“up” and “down”) to prevent the selection of intermediate positions through error.

► **Pitching Moment Effect**—A criterion of high lift devices is their effect on the pitching moment characteristics of the basic airfoil. The major stability problem created by trailing edge flaps is their creation of a comparatively large negative (nose down) pitching moment requiring fast trim changes by pilot.

Tests indicate, however, that the effect of nose flap extension is relatively small in comparison with trailing edge types. With nose flaps extended at low lift coefficients, they create negative pitching moments but as the lift coefficient is increased, the nose flap creates positive pitching moments cor-

responding to a forward movement of the aerodynamic center. This latter follows from the fact that area has been added ahead of normal leading edge.

This behavior indicates that nose flaps should not be extended by pilot until the airplane has slowed to a speed producing the high lift coefficient required for flap extension. Proper coordination of leading and trailing edge flap extension will minimize the negative pitching moment of the latter and alleviate the trim changes required in conventional aircraft.

First production aircraft to feature leading edge flaps is the new Grumman XF9F-2 Panther Navy jet fighter. It features a highly developed nose flap configuration in which the entire wing leading edge is hinged downward for landing and takeoff, in contrast to the plate-type panel suggested heretofore.

The Grumman configuration provides higher efficiencies than those on which test results have been reported and piloting technique is greatly simplified. This “droop snoot” is a major factor in the fast fighter’s ability to get off a carrier deck quickly and to come aboard slowly under perfect control.

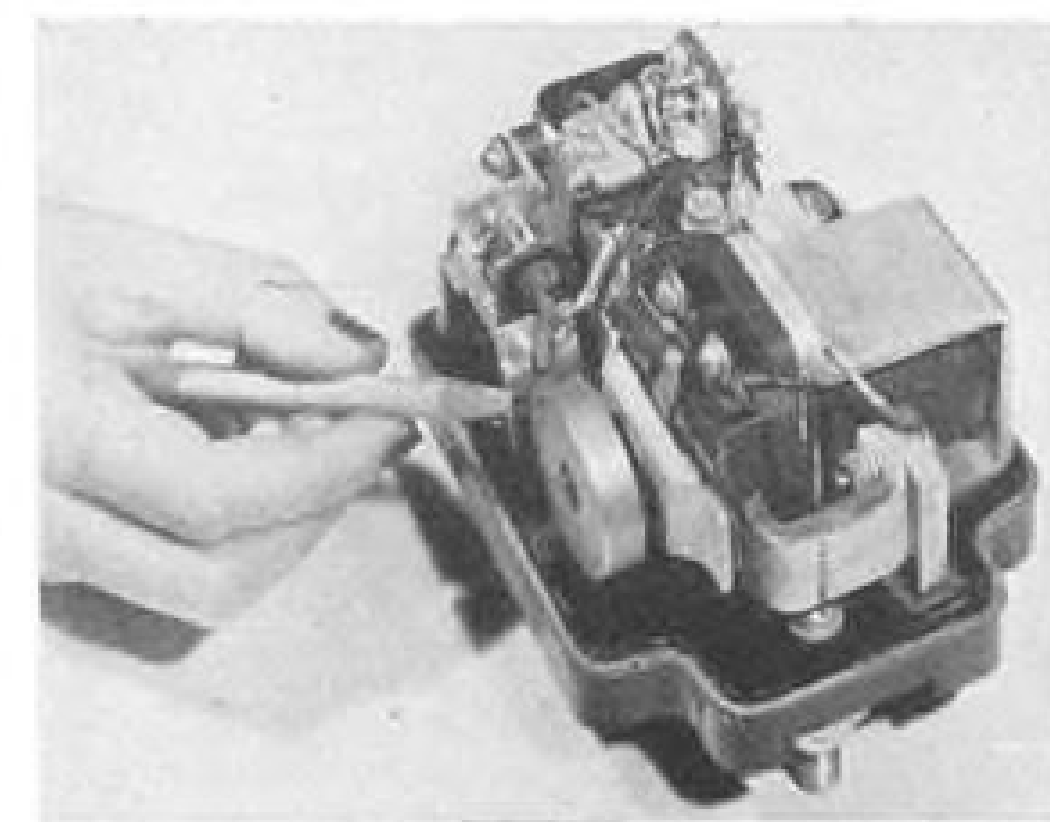
Added Weight Eliminates Relay-Contact Rebound

Successful elimination of contact rebound on electromagnetically closed relays has now been accomplished.

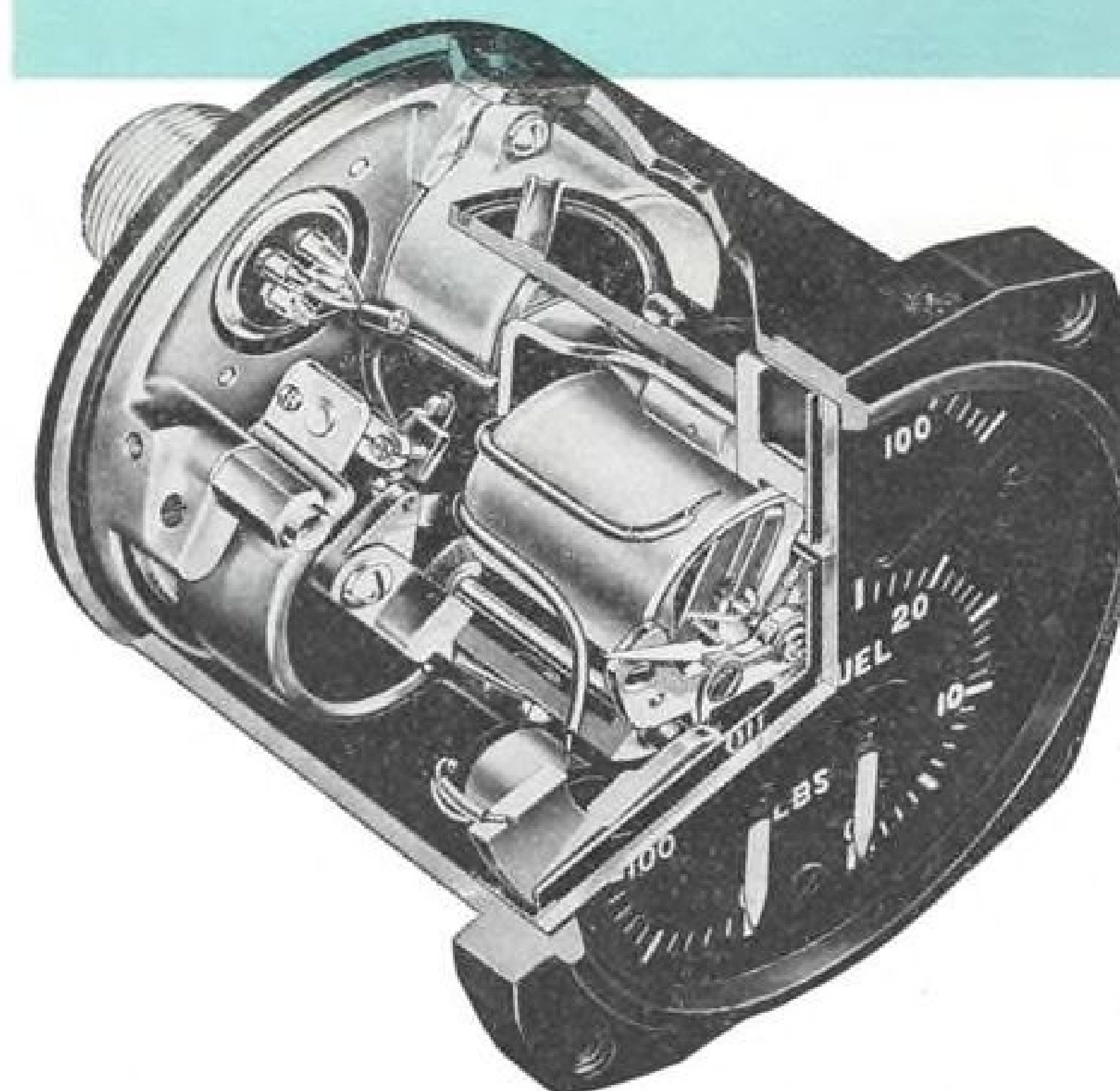
Rebound freezing of contacts due to arcing has long been a major source of failure of these units. According to B. O. Austin, Westinghouse Electric Corp.’s section manager at Lima, Ohio, additions of an inertia member to the moving contact bar provides momentary increase in the spring pressure at the instant the moving contact bar tends to rebound.

A typical application of an inertia member can be seen in the accompanying illustration. Here, the inertia member takes the form of a circular weight, spring mounted on the contact bar.

This principle has been applied to a number of aviation contactors, resulting in the elimination of contact freezing from rebounding.



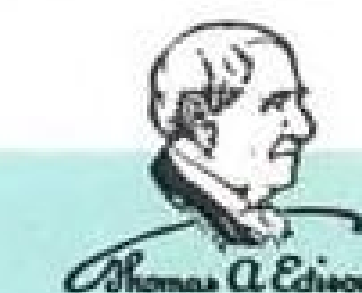
The EDISON Engine Gage Unit gives you these facts at a glance



- 1 Oil Temperature (electrical)
- 2 Oil Pressure
- 3 Fuel Pressure (vented)



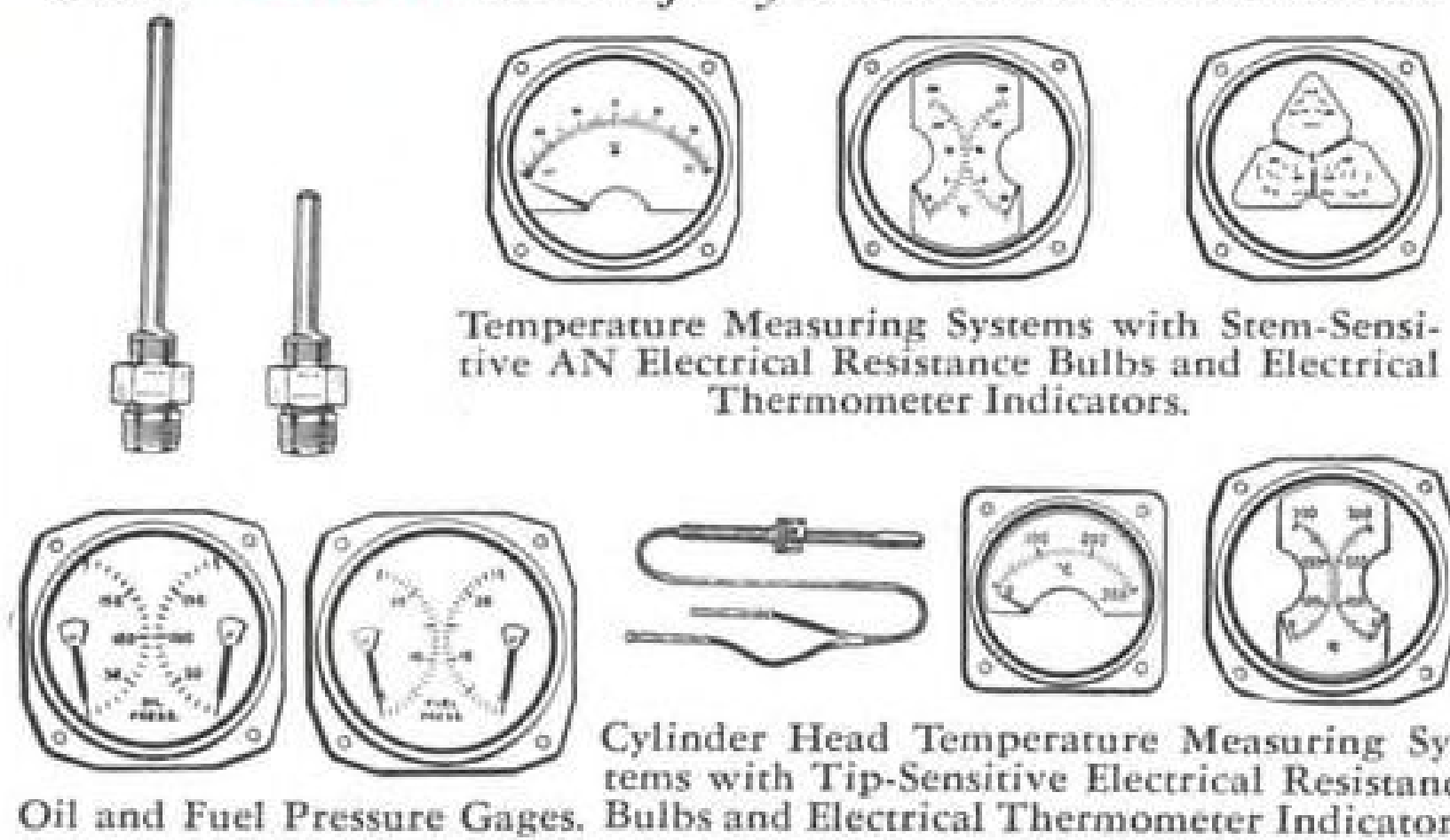
Unit is accurate, rugged, and self contained. Any one of the three independent movements may be removed without affecting the calibration of the other two. Standard ranges and dial treatments are available.



EDISON Aircraft Systems and Instrumentation

Thomas A. Edison, Incorporated
Instrument Division
124 Lakeside Avenue
West Orange • New Jersey

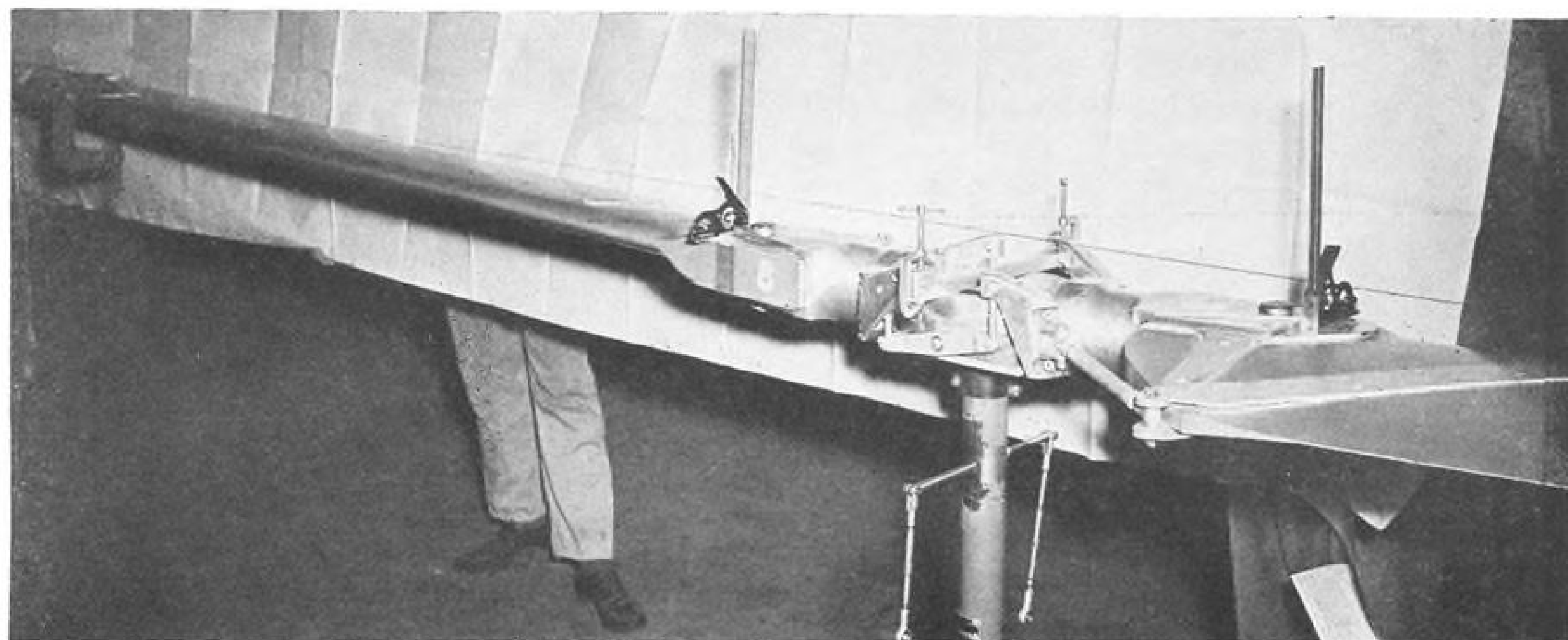
Other EDISON aircraft systems and instruments



Temperature Measuring Systems with Stem-Sensitive AN Electrical Resistance Bulbs and Electrical Thermometer Indicators.

Cylinder Head Temperature Measuring Systems with Tip-Sensitive Electrical Resistance Bulbs and Electrical Thermometer Indicators.

Write for literature on instruments or systems of interest to you.



Simplified system of rotor blade alignment developed by Bell Aircraft Corp. and used by New England Helicopter Service. Use of two squares and string eliminates necessity of employing surface plate, dial indicator, level, and protractor. Alignment is attained by tacking string at the center of gravity position on each blade so that it passes over the previously scribed point on rotor hub.

'Copters Checked In Service Role

Commercial "case-history" discloses needed refinements.

Engineer-operator team vital for design improvement.

Though great strides have already been made in stretching helicopter overhaul periods, many small—but important—design problems must be licked before rotorcraft can economically assume a wide commercial role.

There's a succinct reason: These craft have one vital factor in common with other types of aircraft—it takes experience and a running operation to learn how they can be improved and to iron out the "bugs" that inevitably appear. This has been true of every aircraft ever designed.

The real pioneers are the operators who learn these things the hard way. And by way of the usual path—cluttered with headaches and steep bills—New England Helicopter Service, of Hills-grove, R.I., has contributed a big share of the helicopter know-how that exists today.

NEHS completed a year of operation in January. So far there has been more red ink than black on the company ledgers, but things are looking up. President Leon W. Plympton, Jr., seeing good profits just ahead, claims little credit for licking the big problems of the first year. Key man behind the scenes is his chief mechanic—Linden Crossley.

► **Maintenance Consideration**—Crossley reports big advances in the past 12 mo. Most of the credit for this he gives willingly to service engineers of the Bell

Aircraft Corp., who from the beginning have taken every suggestion seriously and have always tried to improve their commercial helicopter.

Maintenance costs, still high, are far lower than they were a year ago, when NEHS went into business with one of the first Bell machines sold to a private operator.

Crossley points first to the improvement in teardown procedures. In the beginning there was a complete teardown of the main flight components every 50 hr.—a procedure that was due to the fact that even Bell's experts were not sure how long many parts would stand up under the stress of commercial service.

Today, a major overhaul is necessary only after 300 hr. of operation, with minor overhauls at 100-hr. intervals. This, to Crossley, is the major advance of the initial year. He looks forward confidently to the time when majors will be necessary only every 600 hr.—with resulting cuts in costs for parts and labor.

Main job, aside from teardown and reassembly for majors, is process of having key parts Magnafluxed or Zy-gloed to detect strains and evidence of possible future fractures.

The 100-hr. minor overhauls entail almost no inspection and are held mainly to pack grease at points of wear. And even this is on the way out.

Bell has developed a kit which will make it possible to grease the machine without a teardown. These fittings may be added to such assemblies as the main rotor grips, stabilizer bar core, tail rotor universal joint, and control disks.

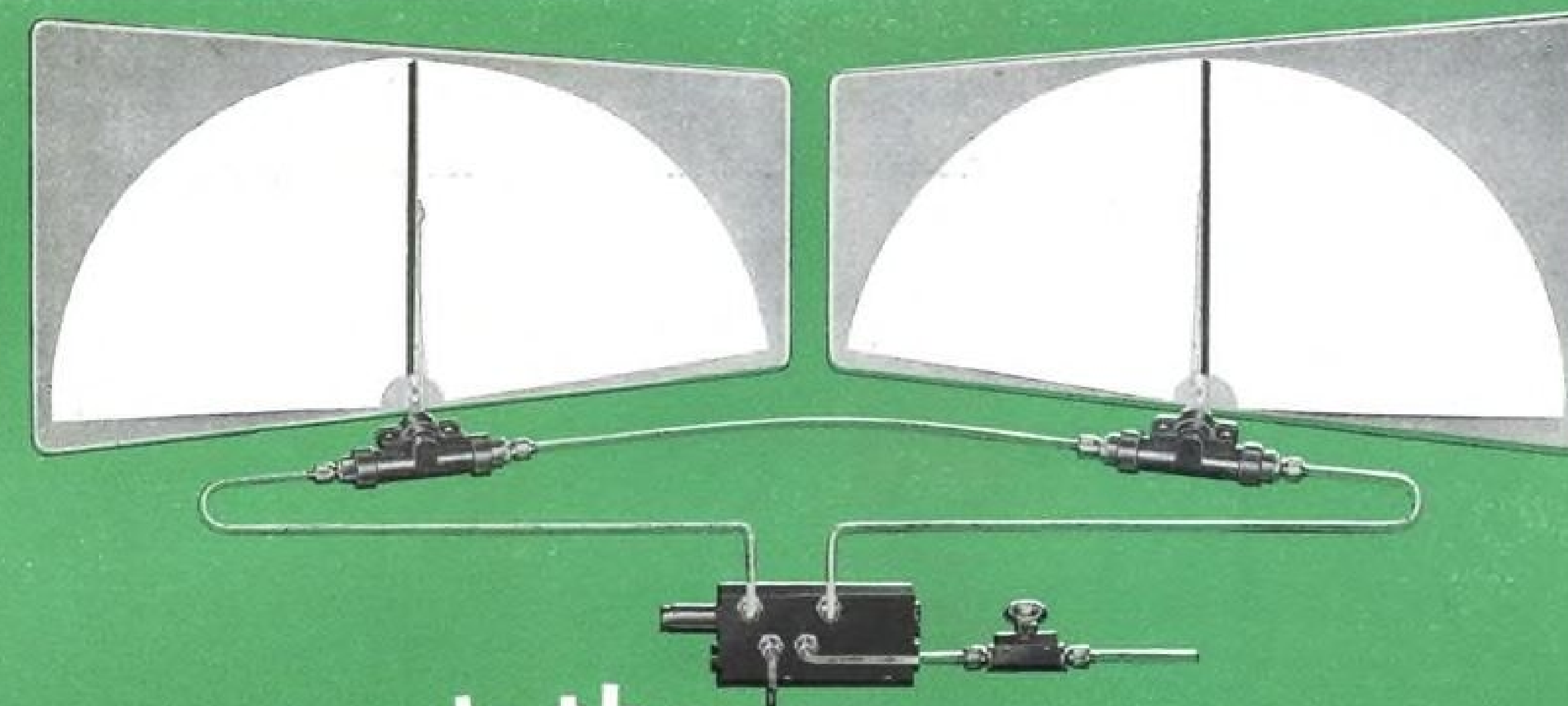
On the main rotor hub alone this means extension of the teardown time by several hundred hours.

► **Design Improvements**—Further improvements lie ahead as Bell perfects grease fittings for the swashplate control (azimuth plate) and tail rotor system. Approval of the Civil Aeronautics Administration is needed for these things before they can be adopted. When complete, the greasing routine will involve only 12 fittings—6 in the rotor head, 4 in the swashplate, and 2 in the tail rotor—a short routine for a mechanic.

Crossley also reports that Bell engineers are working hard to improve the universal (gimbal ring) of the main rotor. A new design is expected to eliminate shimming procedures now used to center the hub. This would cut out a slow and tedious job faced by helicopter mechanics.

And also on the way are improved bearings which would have indefinite life at points of heavy wear in the transmission and at thrust points for the main rotor.

Rigging of the main rotor has been



check these features...

of the *NEW Marquette* model 3V wiper



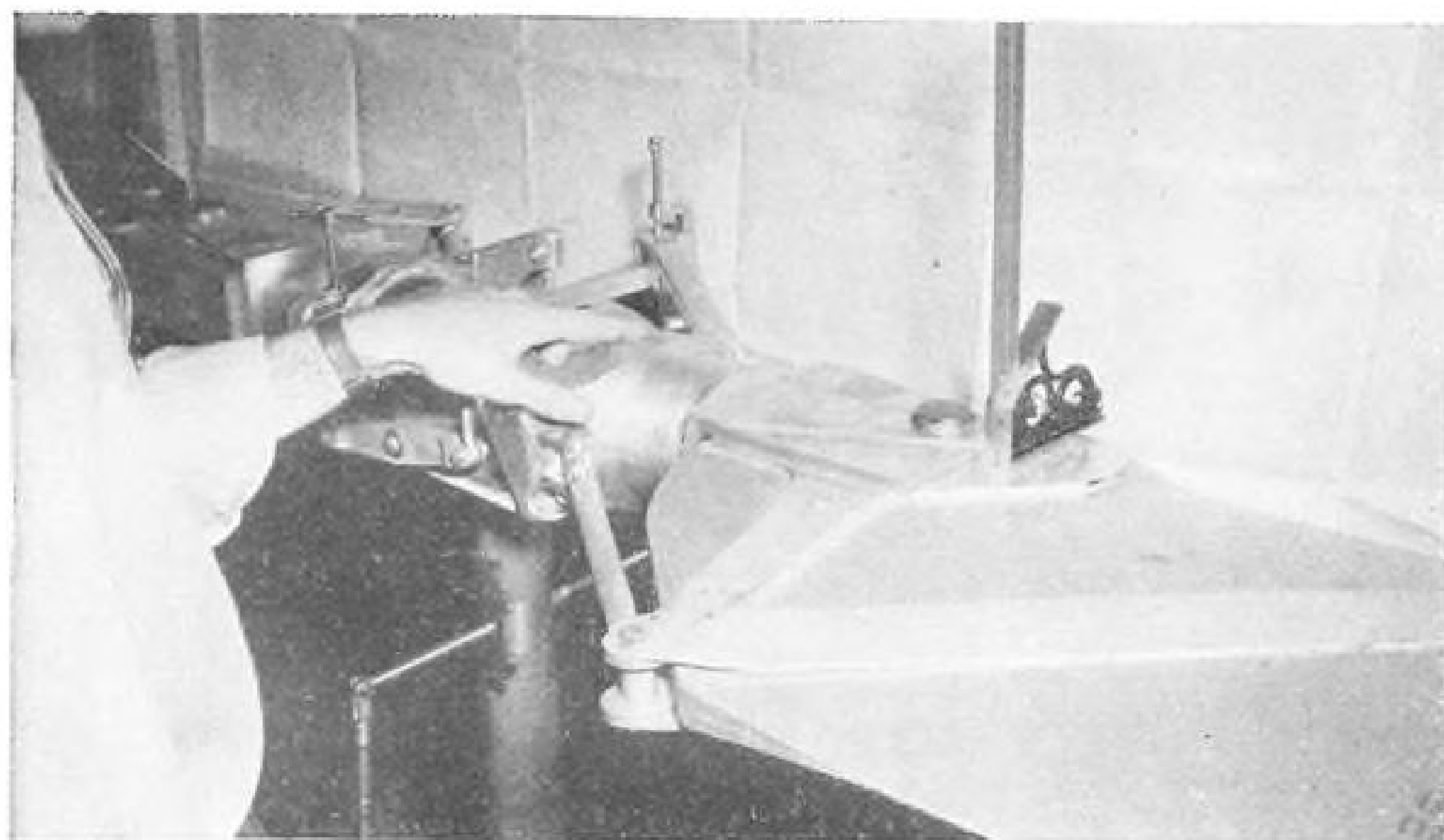
This new wiper embodies every desirable and practical feature that has been developed in our ten years of experience, covering thousands of installations on military, naval and commercial aircraft.

- ✓ Blades are synchronized at all times.
- ✓ Obstruction in path of blade will not stall it.
- ✓ Blades may wipe in same or opposed direction.
- ✓ Blades are parked and locked when wiper is not in use.
- ✓ Universal drive arm and tie rod require minimum stock of parts.
- ✓ Wiper blades are easily replaced.
- ✓ Pressure is removed from system when not in operation.
- ✓ Motor unit may be located at any position in the airplane.
- ✓ Stroke on each window can be varied.
- ✓ Hydraulic tubing eliminates linkage control and provides additional space for mounting other instruments.
- ✓ Motor unit and window units are universal, providing maximum interchangeability of parts.
- ✓ Constant torque values through entire stroke.
- ✓ Uniform stroke at all speeds.
- ✓ Simplicity of design, resulting in lower first cost and reduced maintenance expense.

The *Marquette* METAL PRODUCTS CO.
CLEVELAND 10, OHIO

SUBSIDIARY OF CURTISS-WRIGHT CORPORATION

Manufacturers of: HYDRAULIC, ELECTRIC AND AIR PRESSURE WINDSHIELD WIPERS
HYDRAULIC GOVERNORS FOR DIESEL ENGINES • ROLLER BEARING TEXTILE SPINDLES
FUEL OIL PUMPS • AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES



Closeup, showing mechanic pressing string down to scribed point on rotor, insuring exact blade alignment. Previous method was slow, with large margin for error.

made easier with a new blade that can be balanced easily without the addition of wood screws, formerly put in to even up varying weights.

Bell also is reported to be making progress on the development of metal blades. This is an improvement already announced for the new Sikorsky S-52, two-passenger model of United Aircraft's helicopter recently placed on the market.

Crossley says that in the first 700 hr. of operating a Bell machine, mostly for student instruction, which is obviously rough, no fuselage trouble was experienced. The early helicopters did have a tendency to shed their paint, but this, too, has been improved.

Here are some other observations based on the experience of NEHS and mechanic Crossley:

The original Bell starter installation was weak, but a stronger unit has been provided that is entirely satisfactory. There no longer is any need for a

battery cart to start the helicopter.

Improvements in tools include special devices to rig both rotor blades and stabilizer bar, making it now possible to do a former half-hour job in five minutes. Plug gages have been provided for setting up the tail rotor gear box and main transmission.

Many special tools still are necessary but most of them can be made in a handy shop. The Bell firm willingly gives all specifications for this. Special tools are vital because so many parts are made of aluminum, easily damaged by the wrong tools.

► **Improvements Still Needed**—Here are some things Crossley feels could be improved further and he throws them out as a challenge to helicopter designers:

The main rotor should be provided with a brake. In a brisk wind it is difficult to stop the rotor by grabbing the blades and stabilizer bars as they turn.

Windshield wipers are needed. And defrosters on the inside.

The irreversible control could be improved. It causes a "heavy stick" in flying the 'copter under some conditions, and is difficult to adjust. A slight error can cause damage bringing a \$90 cost for replacement parts.

An improved tail rotor design is needed to prevent the blades from tending to pull out where they are bolted to the hub. At present, the bolt holes tend to become elongated with the stress of flying, necessitating replacement of the blades. These blades were replaced three times in 700 hr. of operation.

Crossley feels that the Bell machine could be improved by moving the rear wheels forward. Now, when a student pilot lands with the tail a trifle low the ship pitches forward violently on contact with the ground. This puts unusual strain on the rotor head and may

break a dynamic stop cable, or both of them. They cost \$9 each to replace.

While it does not bother the seasoned pilot, the extreme sensitivity of the throttle is another drawback. It makes it hard for a student flier to adjust the rpm. of the machine, and during flight, novices have a tendency to over-rev or under-rev the engine.

On the basis of NEHS's experience it appears that maintenance on a helicopter is far more exacting than on a conventional aircraft. The many aluminum parts are partly to blame for this. Time and again the mechanic finds aluminum threaded into aluminum, a situation that calls for extreme care in assembly. A mechanic who feels rushed can easily spoil threads—a slight slip on a bolt can bring a bill for \$70 to replace damaged parts.

The mechanic also must be careful where he lays these parts when tearing down the helicopter for a check.

NEHS operates its Bell machine about 25 hr. every three days, bringing an oil change on the engine at that interval. Crossley finds that it takes a half-hour to change the oil with a poor job of cleaning the oil strainer. He is convinced that a more simple strainer could be provided.

Leon W. Plympton Jr., is the man who pays the bills for New England Helicopter Service. President of the firm and signer of checks, he finds these things true about his expense ledger:

In 900 hr. of flying Bell helicopters he has laid out about \$3,200 for maintenance and spare parts in addition to paying a full-time mechanic.

In 5 yr. he will spend about 60 percent of the initial \$25,000 cost of the machine in replacements.

A helicopter operated 800 hr. a year for 5 yr. would require \$15,000 for replacements. One-quarter of this would be spent on the engine.

Every 100 hr. a new thrust bearing costs \$21.

Every 200 hr. new mounts—which fasten the engine to the structure—cost about \$20.

A bolt, slightly off standard, costs 30¢.

Bearings for the transmission—12 pair every 100 hr.—cost \$137.50.

The question on the lips of the helicopter operator—and the challenge for the designer—is: Can these costs be cut by using more standard aircraft parts?

New Light Metals Being Produced

Two new light metals—titanium and zirconium—heretofore found only on charts of the elements are now in experimental production at government pilot plants. Both show great promise for use in aviation.

Titanium, half as heavy and twice as strong as unalloyed low-carbon steel, is less than twice the weight of aluminum, and is twice as strong per cross-section. In addition to its strength, the new metal is not affected by salt water or salt air, and is very resistant to other corrosives. Because of the resistance to salt water, the navy is now experimenting with pontoons, cables and wing coverings made of titanium.

► **Steel Competition**—Zirconium, about three times the weight of aluminum but lighter than steel, is expected to compete with stainless steel, tantalum and stellite, particularly in turbine blades. Its corrosion-resistant properties combined with high strength make it a natural for turbines. Corrosion has been one of the hardest problems to solve in the turbine field.

The two only recently have been isolated as pure metal in any quantity. U. S. Bureau of Mines now can turn out 100 pounds of titanium and 65 pounds of zirconium a day. Titanium pilot plant is located at Boulder City, Nev., the zirconium plant at Albany, Ore. The Boulder City plant will be expanded to a capacity of one ton a day, budget permitting, this year.

► **Production Costs**—Production costs for the newcomers—\$4 a pound for titanium and slightly more for zirconium—are still way beyond commercial reach but as technology and research continue the price will drop.

Bureau is doling out samples of titanium to industry, private, educational and government research institutions, and the Navy, under cooperative research agreements whereby any developments on use of the metal are exchanged. Studies of use of the metal in structures, dentures, springs, hard-surface materials, pontoons, cables, and wing coverings for airplanes are being carried on at present by the cooperating agencies.

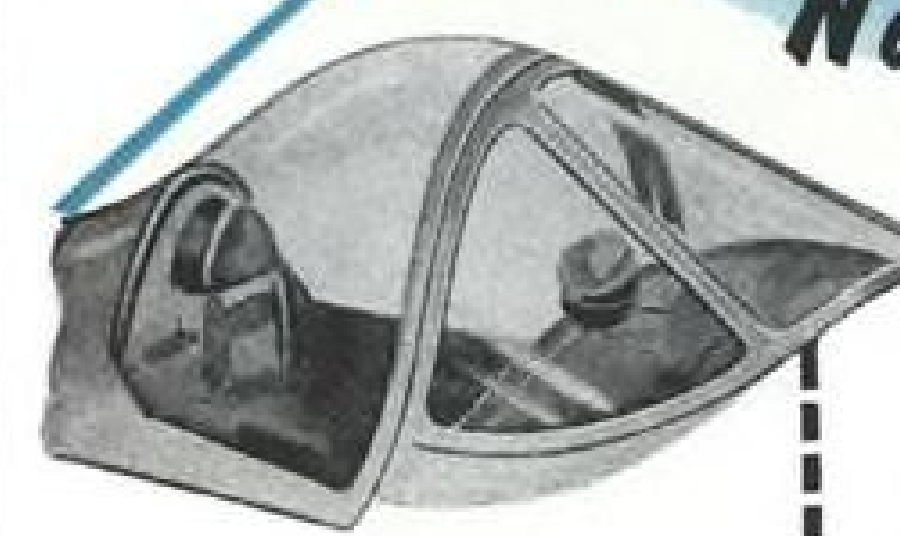
Experimentation with zirconium is about a year behind that on titanium, but metallurgists already are confident that it eventually will replace other materials in such fields as corrosion-resistant vessels, turbines, and in surgery.

Since metallurgy has developed the rule of thumb that an alloy of a metal is always better than the metal itself, such developments with these metals, still untried, should be revolutionary.

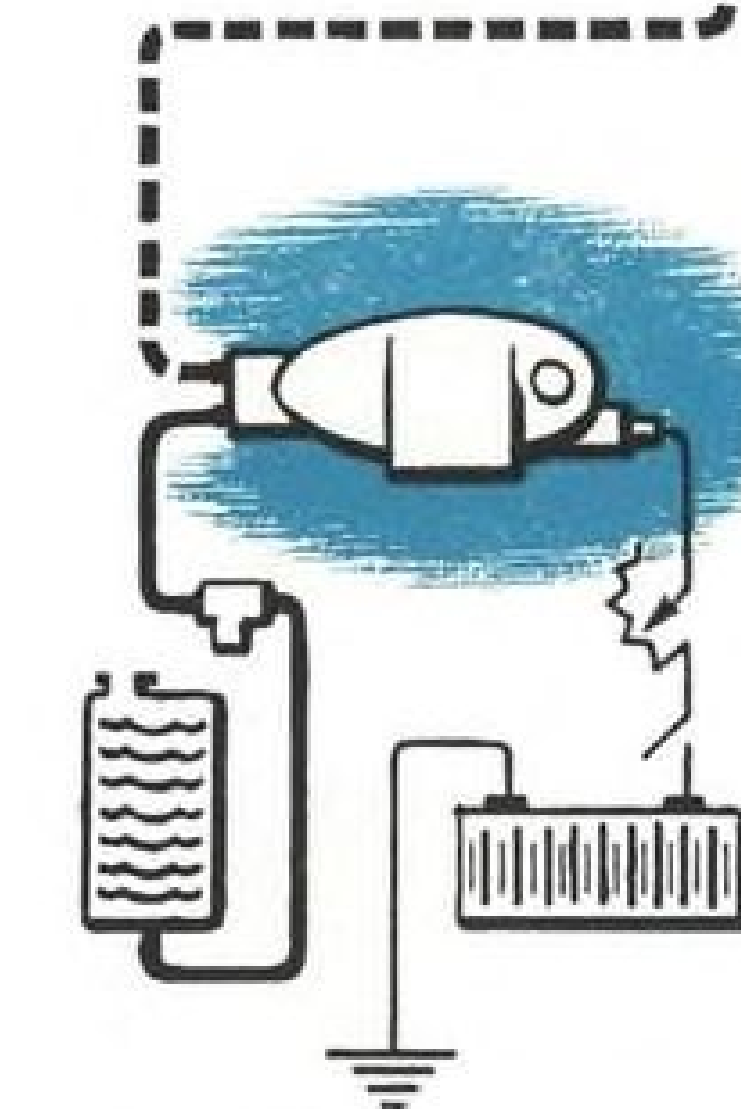
Here's how— **A PROBLEM WAS SOLVED...
A NEW DESIGN WAS BORN**



**No "VISIBILITY ZERO"
FOR THIS NITE FIGHTER**



Inky darkness...A thin film of oil on the windshield...For the lone, prowling nite fighter this combination produces "visibility zero." Nite fighter missions are hazardous enough without the increased handicap of an oil-smeared windshield. Chance Vought Aviation solved this problem on the Navy F4U-5 with the use of the ADEL Series "K" fluid metering pump. This pump applies small quantities of degreasing fluid to the windshield, in flight, to remove any oily scum.



The pump for this operation had to be lightweight, ruggedly built, dependable and had to pump the fluid in controlled quantities. The ADEL Series "K" pump met these requirements. It weighs only 2.7 lbs. It is constructed of special alloys and highest quality materials to assure maximum resistance to corrosion and wear. Pumping unit cartridge design simplifies servicing. Extreme temperature, unusual conditions of vibration and high altitude do not effect its trouble free performance. High suction lift of the pump and low pressure drop through the ADEL filter permits considerable latitude in tank location. While the F4U-5 uses degreasing fluid, many different kinds of liquids can be pumped. The ADEL Series "K" fluid metering pump is adaptable to a variety of uses. Available in models ranging from 2.5 to 30 gph.

Write for complete information on how ADEL Series "K" pump can be adapted to meet your fluid metering problems. Address inquiries to 10727 Van Owen Street, Burbank, Calif.

ADEL PRECISION PRODUCTS CORP.
BURBANK, CALIF. ★ HUNTINGTON, W. VA.

Manufacturers of: Aircraft Hydraulic Systems • Marine & Industrial ISOdraulic Controls • Halfco Self-Aligning Bearings • Line Support Clips and Blocks • Industrial Hydraulic Equipment • Aircraft Valves • Industrial Valves

HYDRAULIC DEVELOPMENTS

Atomic Hydrogen Welding

The shells for most spherical hydraulic pressure accumulators have been made by joining two hemispheres with a ring or series of bolts at their equator. This method of fabrication, however, tended to increase the bending stresses in the shell and added to the danger of fragmentation under gunfire. In the design of pressure vessels for military air-

craft, these factors are of primary importance.

In an effort to develop an accumulator shell which would be more satisfactory from standpoints of both stress and fragmentation, the Pacific Division of Bendix Aviation Corporation eliminated the joint at the equator through permanently joining the two hemis-

pheres by means of Atomic Hydrogen Welding, which also, incidentally, has the effect of greatly reducing the weight of the accumulator.

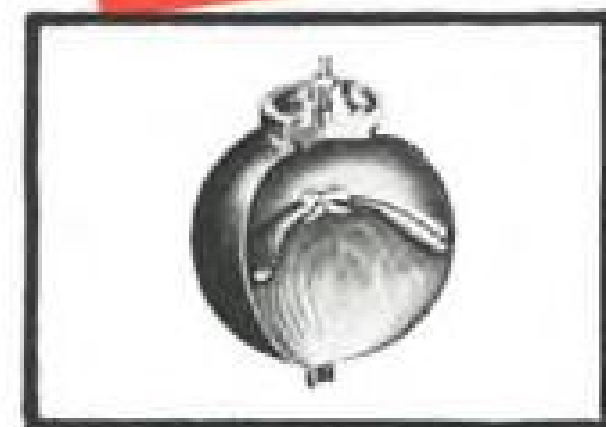
The principles of this method of welding are as follows: an arc is struck between two tungsten electrodes which are held close to the work. Gaseous hydrogen flows through the path of the arc from openings in the electrodes. The temperature of the arc breaks molecular hydrogen down into atomic form, and nascent hydrogen, escaping from the arc and approaching the relatively cool metal of the shell, recombines and releases the heat absorbed in the arc, accomplishing the weld. The temperature gradient across the weld zone is less severe than with other methods, and the hydrogen acts as a powerful reducing agent which, by excluding oxygen, helps to preserve the original properties of the metal.



Many tests were made to determine the optimum wall thickness in order to build an accumulator of maximum efficiency; i.e., an adequate margin of safety without excess weight. Hydrostatic burst tests were conducted to insure that the Bendix Accumulators would conform to Army and Navy specifications which require a minimum burst of 6000 PSI for accumulators used in 1500 PSI hydraulic systems and 12,000 PSI if used in 3000 PSI systems.

In addition to burst tests, prolonged fatigue tests were conducted. It was found virtually impossible to cause fatigue failure of Bendix shells even by cycling them from 0 to 3000 PSI without air pre-load in the bladder. Even more gruelling tests were then conducted by cycling at 0 to 5000 PSI, still without air pre-load in the bladder. The results of these fatigue tests proved conclusively that the Bendix Accumulator Shell will last indefinitely on an airplane.

Bendix-Pacific Engineers are continuously working to improve the accumulator; tests now in progress are proving the use of the accumulator at lower temperatures and with new non-inflammable hydraulic fluids.



One Piece Shell — Achieves lightest possible weight and longest fatigue life, due to inherent stress efficiency of spherical shell with no flanges.

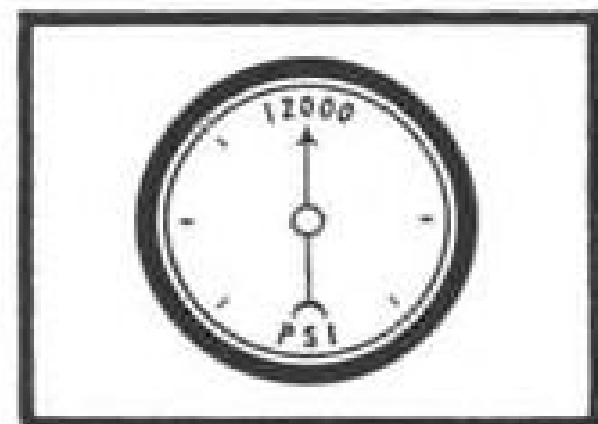


Easy Service — Inspection is accomplished by simply removing the air cap. The bladder is easily removed or replaced.

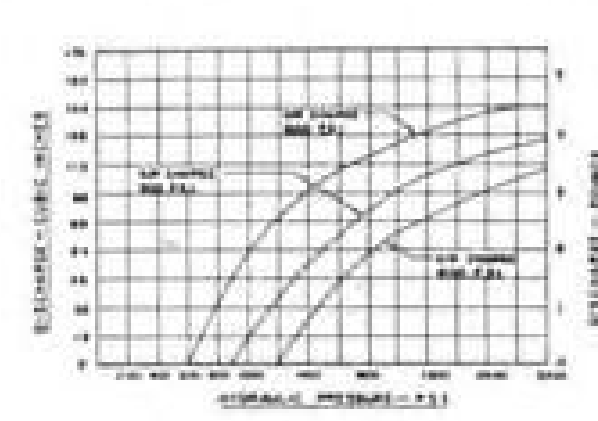


Won't Shatter — Freedom from fragmentation has been conclusively demonstrated on gunfire tests and in actual use.

THE outstanding characteristics of all Bendix-Pacific Accumulators — for both 1500 and 3000 PSI systems — have been time-tested on nearly 100,000 military and commercial aircraft under every conceivable operating condition. Let us send you the complete story on these and other Bendix-Pacific hydraulic products.



12,000 PSI Burst Strength in the 3000 PSI accumulator and 6000 PSI in the 1500 PSI unit prove that structural soundness is not sacrificed for light weight.



Better Performance — Study this typical performance chart of a 7 1/2" Bendix-Pacific Accumulator for 3000 PSI systems.



Long Life Bladder — Because of unconventional design, flexing is distributed over an extended area, avoiding local failure which shortens life.



Four Models — Bendix-Pacific Accumulators in 5" and 7 1/2" sizes are available for 1500 PSI and 3000 PSI systems.

Pacific Division
Bendix Aviation Corporation
NORTH HOLLYWOOD, CALIF.

East Coast Office: 475 Fifth Ave., New York 17

Canadian Distributors: Aviation Electric Ltd., Montreal

NEW AVIATION PRODUCTS

Small Plane Midget Autopilot

New automatic pilot, outgrowth of war-developed tank gun stabilizer and weighing but 35 lb., is announced by Westinghouse Research Laboratories,



306 Fourth Ave., Box 1017, Pittsburgh 30, Pa. Application is expected to be for light commercial and private planes as well as military aircraft, and possibly guided missiles. Designated Gyropilot, device keeps positive control of plane even throughout loops or barrel rolls. Unit's three gyros respond to changes in angular velocity in fraction of second, and since they are fixed to plane rather than maintaining set position as craft moves, they cannot tumble or lose control regardless of maneuver attempted.

Insulated Antenna Fittings

Designed to minimize precipitation static interference caused by corona discharge during bad weather are aircraft radio antenna fittings offered by Frederic Flader, Inc., North Tonawanda, N.Y. Strain insulators, tension units, and Tee splices can be quickly installed in system without tedious splicing or tapping. Streamlined laminated Fiberglas mast is available for either dead-end or lead-through applications. Dead-end mast terminates antenna wire within completely insulated self-locking connector and provides take-up element to insure tautness. Lead-through mast permits insulated antenna wire to pass through mast into aircraft without intermediate connection. Durable polyethylene and Fiberglas construction of antennas is intended to insure long trouble-free life.

AVIATION WEEK, March 15, 1948

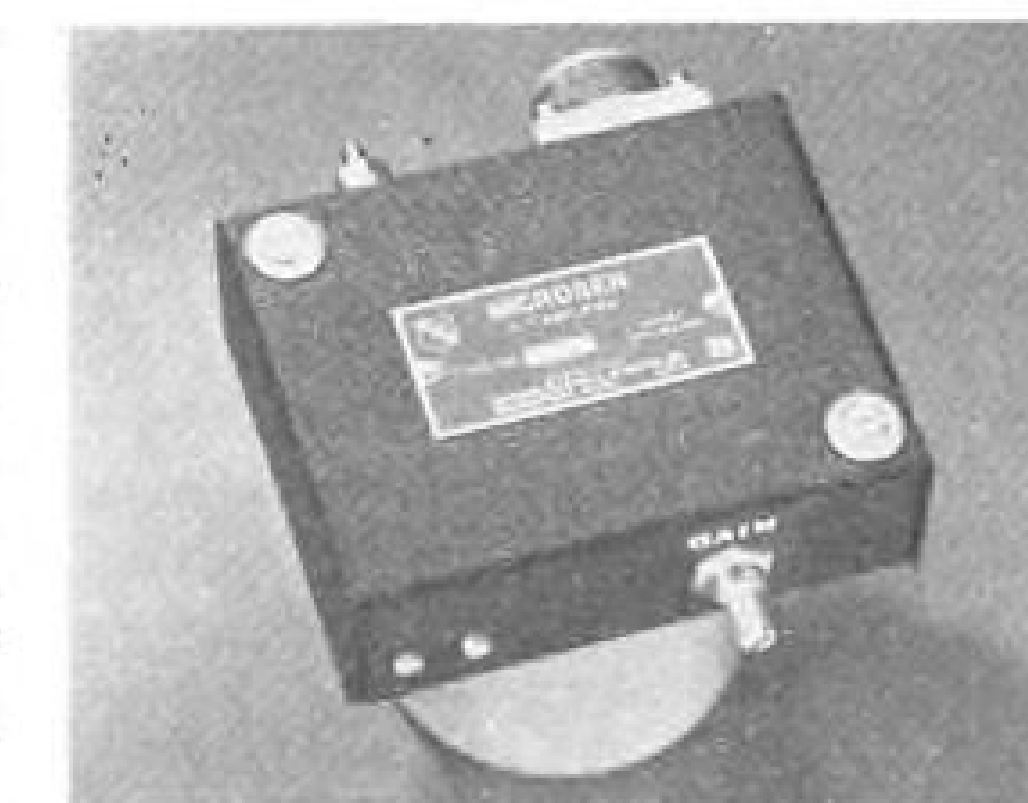
Compact Valve for Aircraft Fluids

Gate valve, suitable as shutoff in air, fuel, engine oil, and hydraulic oil systems is 1 1/4-in. motor-operated 28v. d.c. unit weighing but 2 lb. and which operates, open or closed, in 1 sec. at pressures up to 300 psi. "O" ring seals are replaceable by removing two snap rings. Electrical portion of device is supplied as self-contained package consisting of motor, limit switches, receptacle, and wiring, mounted on cover plate, and can be replaced, without disconnecting valve from bracket or attaching lines, by removing five screws. No additional adjustment is necessary after placing electrical package in position on valve. Maker is Hydro-Aire, Inc., 3000 Winona Ave., Burbank, Calif.



Telemetry Amplifier

For low level signals in telemetry, Manning, Maxwell & Moore, Inc., Bridgeport 2, Conn., announces d.c. amplifier, model No. 143AT2. Utilizing Microsen balance principle, unit has time constant of .02 sec. and is equipped with adjustable gain setting of 160 to 300. Maximum input voltage is .2v., output voltage 0 to 5v. Power required is 5w. Size is 40 cu. in.; weight 24 oz. In general, unit is designed to be used in conjunction with other electronic equipment, vibration and shock isolated in accordance with standard practices. With limited changes, device can be used to drive an indicator, for control circuits, or as high sensitivity relay.



Simplifies Engineering Drawing

Created for design engineers and draftsman, drawing aid, known as Radius Master No. 76, is intended to permit rapid, accurate execution of arcs. Made by Rapidesign, Inc., P.O. Box 592, Glendale, Calif., device eliminates trial and error method, with radius point automatically and precisely located by center hole serving particular radius. Plastic .030 template is 4 1/2 x



9 1/2 in., radii on inner contours run up to 37/32nds in 32nd increments, and sizes and radius points are printed on negative side to prevent wear. Device is stated to be precision-cut from .030 mathematical quality material.

For Instrument Labs, Towers

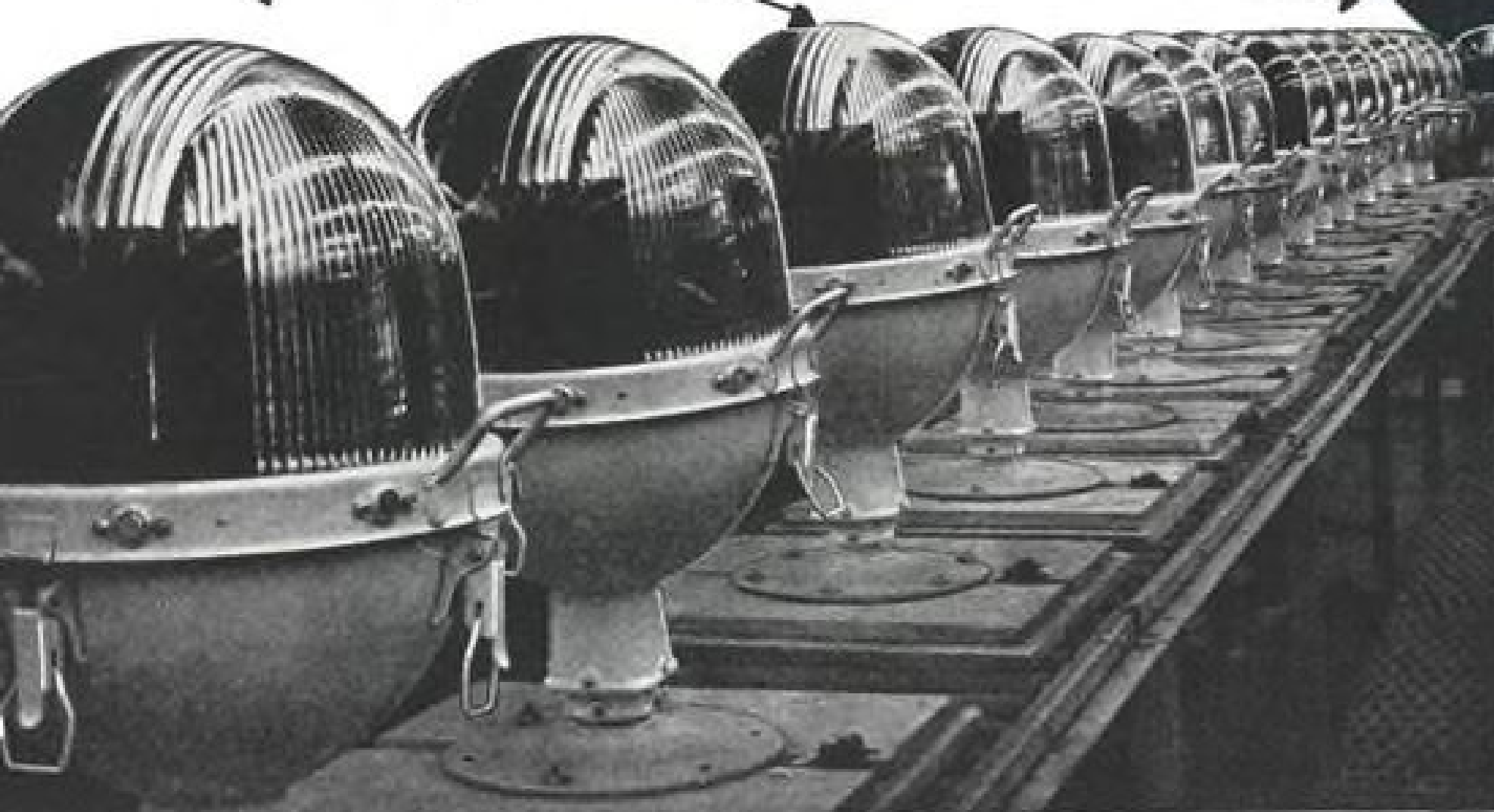
Sensitive needle valve (512 series) made by Ideal Laboratory Tool Supply Co., Cheyenne, Wyo. is offered as particularly suitable for use in aircraft instrument testing, providing extremely close control required in altimeter, airspeed, or rate-of-climb checking. Valve seat opening is 1/16 in., and 20 turns of needle are required to completely open orifice. Valve will pass approximately 1 cu. ft. of air per min. at 15 lb. differential, in wide-open position. Panel mounting flange, cast integrally with body, provides for easy mounting behind panel, with only bonnet and knob projecting through to front. Designed by same company, Model 1050 automatic indicating barometer (for control towers, weather stations, instrument repair and test shops) is intended to eliminate possibility of personnel errors and difference between readings taken by various operators. Device features large diameter column; precision bore glass tubing; barometric pressure reading set up on straight reading register, to thousandth of an inch; temperature control to close limits; control drive motor; and electronic amplifier and control housed in separate cabinet.

L-M-Bartow

high intensity approach and runway lights

Thousands in use
all over the world

Thousands
more in
production



Assembling dome
with lens retaining ring.

Part of the production
line showing
units completed,
ready for focusing.

Focusing department.
With photo-
electric tests, lights
are checked, and per-
manently adjusted.

L-M-Bartow high intensity approach and runway lighting systems have been tested and proved in actual operation for more than ten years. A high degree of recognition and acceptance has been granted by airlines, pilots, airport operators, the armed forces, and official groups.

During the war thousands of these lights were installed in tough-flying areas—Nova Scotia, Alaska and the Aleutians—and in the far-flung islands of the Pacific. Many of these fields—plus new ones—are now in regular use. And today, thousands of the new L-M-Bartow beam-

controlled units are installed, or are ordered and waiting till the airport is ready for them. These new units have up to 180,000 candlepower—better than four times the output of the L-M-Bartow units used so successfully during the war.

Get the details on these glare-free lights that do so much to improve safety and put air transportation on regular schedules. For information on this and other L-M electrical equipment for large and small airports write Line Material Company, Airport Lighting Division, East Stroudsburg, Pennsylvania.



Pilot in a fog?

bring him in ... on "contact" ...
with fully controllable beam

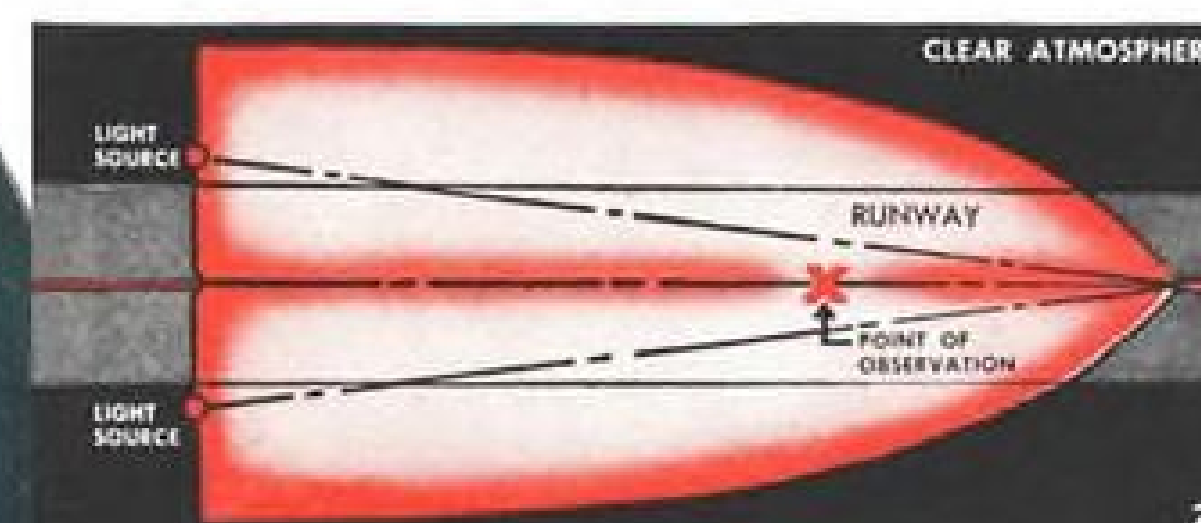
L-M-Bartow

high intensity
approach and runway
lighting system

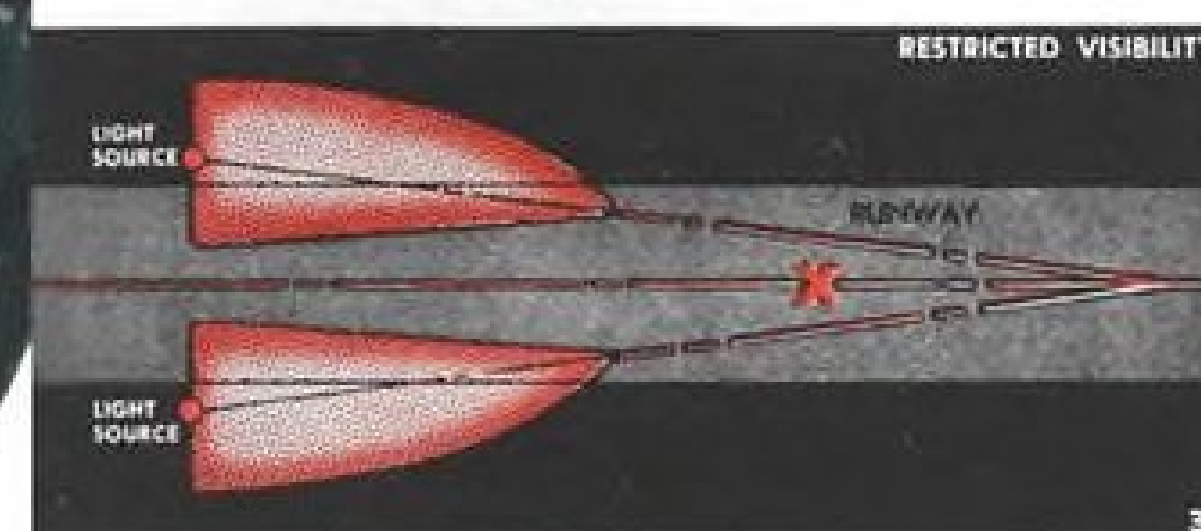


How to Control a Light Beam—and Why.

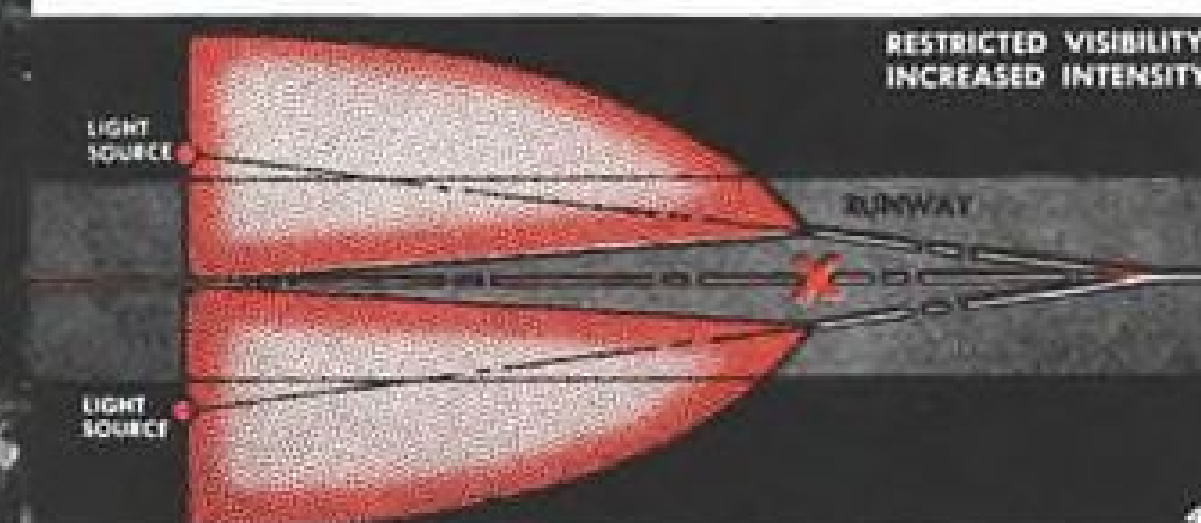
Diagrams show the effective "envelope" of a pair of lights, one on each side of the runway. This will apply to every pair of lights, which comprise the two rows the pilot sees.



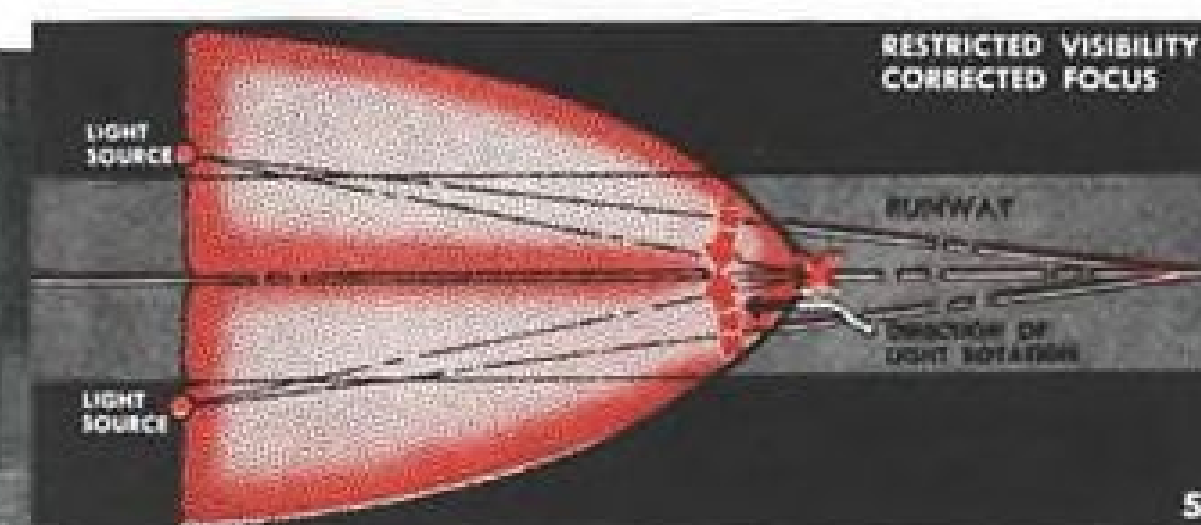
1. Clear weather. Note path of equal brightness along the landing path.



2. Reduced visibility—fog, dust, snow. The pilot can't see the lights—they don't reach him.



3. Increased brightness. But the lights still do not meet because fog, snow, etc., cut the distance light penetrates, not proportionately, but (how's your physics?) according to Allard's law.



4. So — with L-M-Bartow lights — beam direction is corrected. The towerman just sets a pointer to the day or night "visibility" the weatherman gives him. The simple synchronous motors—the one moving part in the units—automatically "cone in" the beams to the correct angle. (right)



Any high intensity lights are better than the old type—but you can eliminate glare, and get much greater effect and penetration when you control both intensity and direction of the beam.

L-M-Bartow lights do just that—with their 180,000 cp fully controlled, glare-free beam. The diagrams at the left give an idea of why and how it is done.

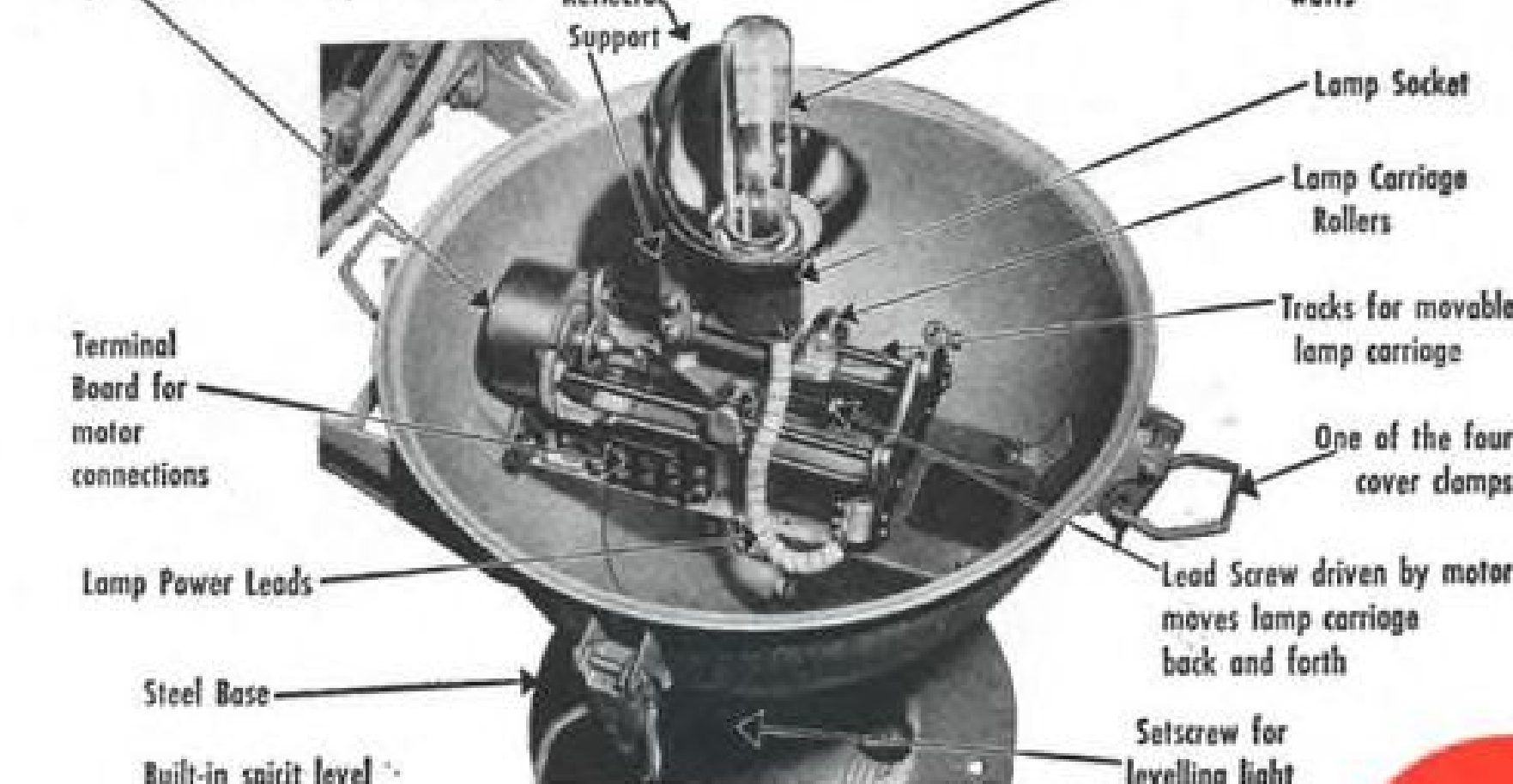
It takes experience to know these things, and a knowledge of what the pilot must see when he goes off instru-

ments and onto contact. And it takes skill and engineering ability to work out the problem.

The flyer-engineers and lighting experts of Bartow Beacons, Inc. and Line Material Company have the ability and experience. L-M-Bartow lights, developed some years ago, were proved, and improved, during and since the war. Today more than 50 installations are in operation, dozens more on order, in U. S. and foreign countries.

LAMP AND CONTROL MECHANISM

Reversible synchronous 4-watt motor for tower-control of light beam direction. (Beam is set to meet requirements of visibility conditions.)



Easy to operate—even though the explanation may sound complicated. Better get the whole story—complete with diagrams—in the brochure, "The Lights that Bring Them In." Write Line Material Company, Airport Lighting Division, East Stroudsburg, Penn.



LINE MATERIAL Airport Lighting



LINE MATERIAL Airport Lighting

FINANCIAL

Overgrown Aircraft Industry Pining for Procurement Boost

Backlog concentration and too much space underline need for "insurance premium" noted in Air Policy Board report from Capitol Hill.

One inescapable conclusion from the report of the Congressional Aviation Policy Board (AVIATION WEEK, March 1) is that only a substantial increase in aircraft procurement will cure most of the industry's ailments.

The industry, as a whole, is housed under too large a roof to sustain operations profitably at current levels of production and research. Maintenance expenditures can prove a heavy drain on working cash resources of a company whose physical facilities remain idle.

While the current aggregate backlog of the aircraft industry is estimated at approximately \$1.9 billion, there is an uneven distribution of these orders among companies.

► **Backlogs Concentrated**—The concentrated nature of aircraft backlogs is manifested by the distribution of past sales. In 1934, the industry was dominated by four companies which accounted for 83.2 percent of the total sales. These were Curtiss-Wright, United Aircraft, Douglas and Martin. In 1947, the distribution, while more widely diffused, was still relatively concentrated with the four largest units accounting for 68.5 percent of the industry's total sales. The new line-up, however, changed slightly, with Lockheed replacing Martin among the first four.

Premised on recently reported backlogs, it is probable that further changes in the billing of the first four units in the industry will take place in 1948.

Even with the implementation of Plan "A", cited by the Policy Board, total aircraft procurement requirements would be equivalent to about 111 million airframe lb. annually, well within the confines of the physical capacities of the industry.

► **Facilities Measured**—The present physical plant facilities of the industry can be measured. At peak levels during the war, "on-site" airframe production was at the rate of 9 lb. per sq. ft. per year. It is a matter of public record that the present covered floor area of the major airframe builders now serving the military measures 41,000,000 sq. ft. At 9 lb. per sq. ft. per year, this area should

be capable of supporting a peak output of 369,000,000 airframe lb. per year, under full wartime conditions.

Plants now held in reserve have a total area of 21,200,000 sq. ft. Applying the same measure, they should support an additional 101,000,000 airframe lb. per year at peak utilization. Accordingly, it appears that the potential industry peak airframe capacity under conditions such as obtained in 1944 and without allowance for the contribution of the personal plane units is approximately 560,000,000 lb. of airframe per year.

Authoritative sources indicate that plants now producing planes can be converted readily to production of guided missiles.

► **No Pleas**—The board made no pleas for marginal aircraft producers, as did the President's Air Policy Commission. Among other things, the Board noted: "Obviously, companies will go through lean periods. Occasionally, some may be forced out of business. These casualties are an unavoidable result of competition. The losses they entail are justified by over-all benefits of the system."

In an effort to utilize excess plant facilities and maintain organization personnel, a number of aircraft companies attempted ventures into non-aviation fields. Almost without exception, this diversification has been a most unsatisfactory experience entailing substantial losses. For the most part, such diversions were largely financed by carryback tax credits.

► **Inferior Position**—Aircraft builders are in an inferior position to compete with established companies in the consumer field, particularly those with entrenched outlets. It is fair to note that, if successful, these non-aviation ventures could have lessened the dependence and hence the burden on aircraft procurement.

Discussions of consolidations or mergers as a means of contracting the industry frequently appear. A few years ago a merger of Consolidated-Vultee with Lockheed was in the advanced

discussion stage only to be upset by a ruling by the Justice Department. It is not generally realized, but under the law, where a combine of such two companies would have such a concentrated position in the industry, the Attorney General had no alternative but to rule against this proposal.

Were certain mergers permitted, however, fewer but far stronger aircraft companies would evolve. The extent of the ultimate contraction of the industry desirable from the economic standpoint of both number and size of facilities is extremely difficult to ascertain. Sufficient safeguards would be necessary at all times, of course, to assure the military services of at least two competitive sources of supply for the same product.

This process would be nothing more than the evolution of a healthy aggressively competitive aircraft industry capable of living as a result of its own efforts. This is a course that would follow in the readjustment processes of a normal manufacturing industry which had over-expanded.

► **The Industry's Place**—The aircraft industry, however, occupies a very special place in the American economy today. In a broad measure, the industry may be considered part of the military establishment of the United States. Of equal importance, the industry has experienced no "normal" production levels comparable with those prevailing for most standard enterprises.

While it is true that there are many uneconomic features surrounding the aircraft industry today, many of these may be considered a form of "insurance" in a period of uncertain world conditions. The present apparent excess capacities of the aircraft builders could be used as part of the broad platform for rapid expansion in time of emergency. Maximum production during the last war was not attained until 45 months after the program was started. In event of another crisis, all available production facilities again will be needed. This would mean prompt utilization of many marginal producers who would be unable to survive in the normal competitive atmosphere.

The cost of maintaining the aircraft industry in its present size beyond economic boundaries may be considered as an "insurance premium" to obviate substantial capital outlays in times of emergency.

The Board evidently sought to meet this problem by recommending that the armed services contract for the maintenance of stand-by facilities privately owned by the aircraft industry. The proper payments by procurement agencies would encourage aircraft contractors to keep excess facilities ready.

—Selig Altschul

AVIATION WEEK, March 15, 1948

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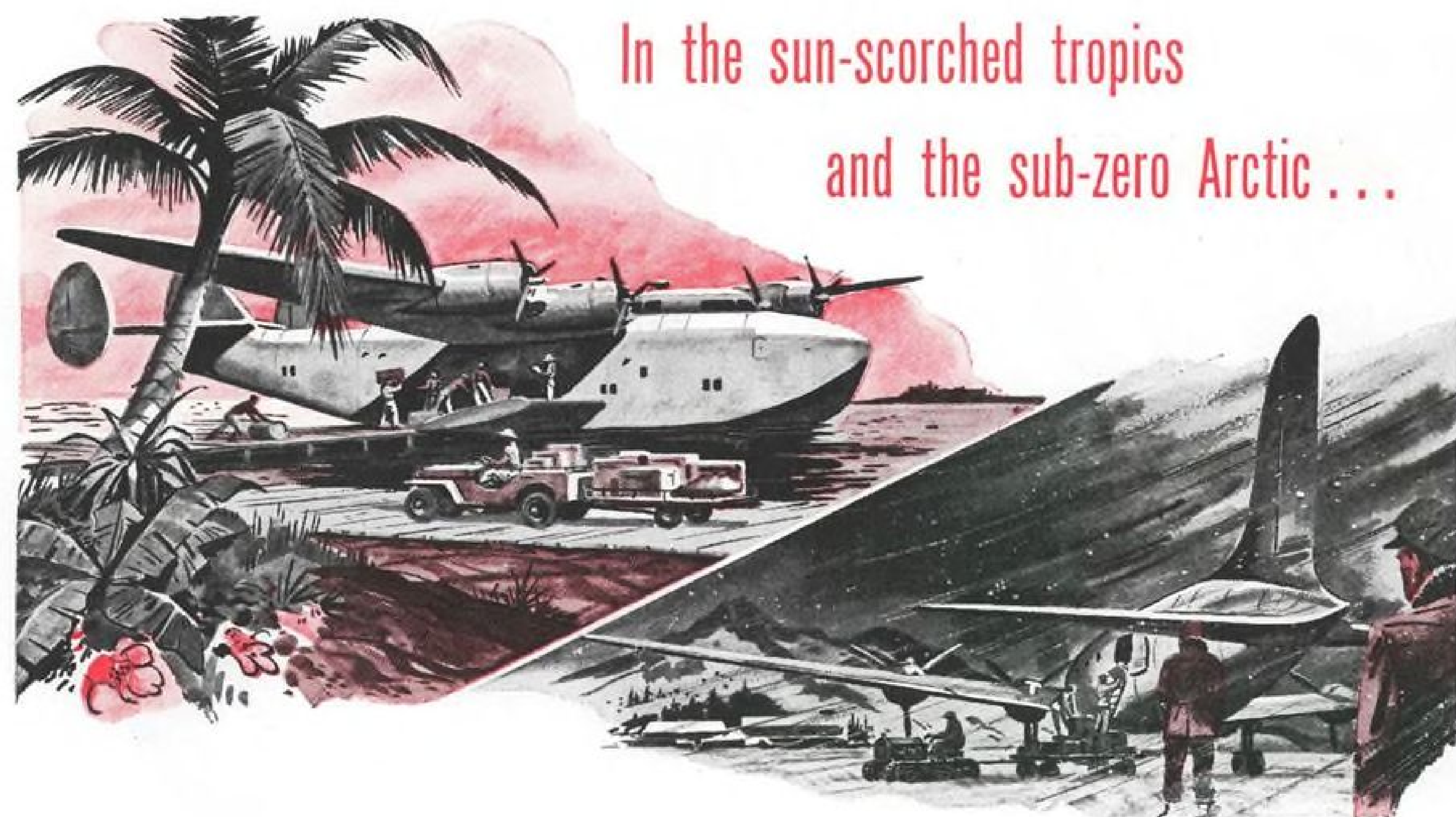
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SALES & SERVICE

Fixed Base Operators Dispute Training Claims of Budget Bureau

Balfour of Spartan cites job opportunities for pilots; Congressional sentiment growing to retain Veterans Administration flight training.

Aviation groups are beginning to make their weight felt in Congressional hearings on the continuance of flight training.

They have put forth a barrage of facts and figures aimed at refuting the Veterans Administration's claim that the bulk of flight training serves no useful purpose. As a result, some members of Congress are favoring a continuance of veterans flight training on pretty much its present basis.

Others seek to limit it to purely vocational flight training. However, no

proper definition of purely vocational training has been offered.

► **Groups Divided**—Aviation groups appear divided on whether CAA should take over GI training, or whether it should continue under VA supervision but be revised to show some grasp of aviation's special problems. National Aviation Trades Association has advocated turning the training program over to CAA. United Pilots & Mechanics Association calls this proposal unsound. It claims it would substantially increase cost of these courses to the government

by requiring additional CAA personnel.

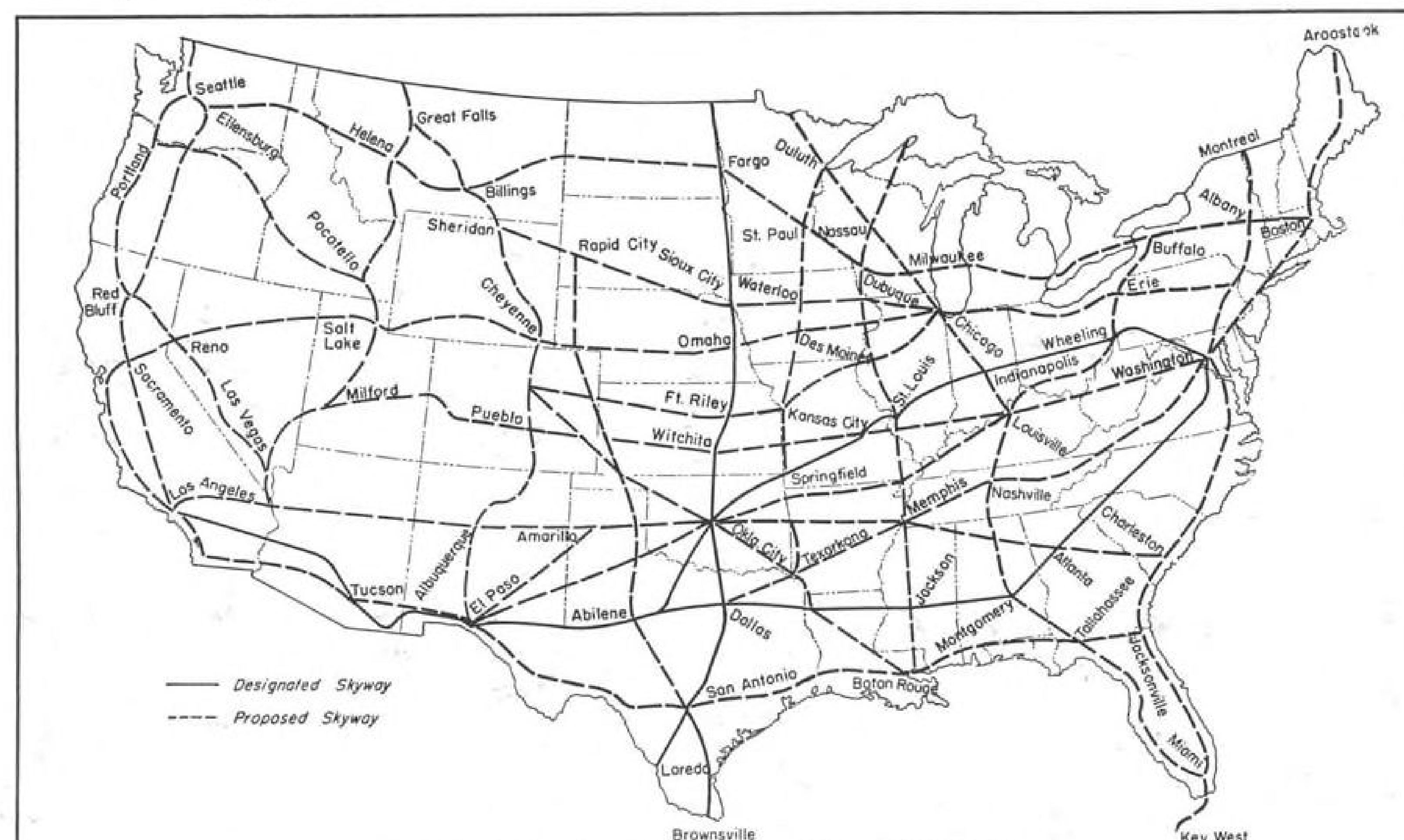
Rep. Joe L. Evins (D. Tenn.) has announced that he is preparing to offer a joint resolution stating that flight training is neither wasteful nor useless. This would contradict the Veterans Administration's stand.

► **Testimony Cited**—Two points made in testimony and briefs submitted to the house subcommittee on veterans' education, training and rehabilitation are seen as the strongest refutation offered yet to figures quoted by the Bureau of the Budget (AVIATION WEEK, Mar. 1).

The Bureau's exhibit noted enrollment in 339,500 flight courses to Nov. 1, 1947. No indication was given that a single veteran who gets an airline pilot's rating has taken four courses; a veteran with an instructor's rating has taken three; a commercial pilot has taken two, and that a pilot with instrument rating has taken two.

Elimination of duplications in enrollment cuts in half the Budget Bureau's estimate of total veteran enrollment in flight courses.

Inference is drawn from the Bureau report that the 84,900 veterans who completed private pilot courses with-



DESIGNATED AND PROPOSED SKYWAYS

Aerial highways of the air for private flyer, planned by CAA, states and communities, are expected to link the airports of U. S. communities, to make possible greater air travel by the public flyer. Map shows the east-west Skyway No. 1 with its alternates and the north-south Skyway II, already designated. Indicated are a network of other proposed Skyways, which will provide 40 mile-wide air routes for the lightplane flyers, to other principal communities. Other proposed routes indicated include three other transcontinental Skyways, and four north-south Skyways, in addition to many other shorter interconnecting routes. Map is first complete depiction of the entire network of designated and proposed skyways.

out going on to advanced courses wasted their time. It is pointed out, however, that the veteran can use his plane in business travel or for many other useful purposes. A private flying license is all he needs unless he is flying his airplane for hire.

Parallels are drawn between the private pilot's license and an ordinary driver's license (which is all most businessmen need to operate their automobiles in their business) and between the commercial pilot's license, and the commercial chauffeur's license required of taxi drivers, bus drivers, etc.

► **Balfour's Speech**—Capt. Max Balfour, head of Spartan School of Aeronautics, Tulsa, and president of Aeronautical Training Society, cited to the committee his school's records of flight course graduates. His records dispute Budget Bureau's claim that there is no aviation employment opportunity for more than 90% of veterans graduating from advanced flight courses.

Balfour reported that at the time he was speaking there were eight or ten employment requests on his desk for pilots with high ratings. For such graduates of his school "there is no employment problem," he said.

Movement to establish a national federation of associations representing private schools, and including aviation schools along with other established

technical, business and vocational schools, is expected to bring about a fairer representation of the private schools before the Veterans Administration.

► **Private School Group**—Preliminary meeting of representatives of organizations of private schools was scheduled last week in Washington. It is estimated that more than 10 percent of the total school enrollment in the U. S. is contained in such schools.

Recent hearings have disclosed that the Veterans Administrator's special advisory committee on vocational rehabilitation and training has no representation from the private schools, but is made up of representatives of public educational institutions, and VA staff representatives.

The private school operators point out that their failure to be represented in this advisory group may be one reason for the VA's critical attitude toward training in virtually all private business and vocational and aviation schools.

Aeronautical Training Society, representing most of the large aviation schools in the nation, and National Aviation Trades Association, representing a wide range of fixed base operators, many of them with flight schools, were among other groups participating in the preliminary meeting in Washington.

New Funk Customaire Will Sell for \$3495

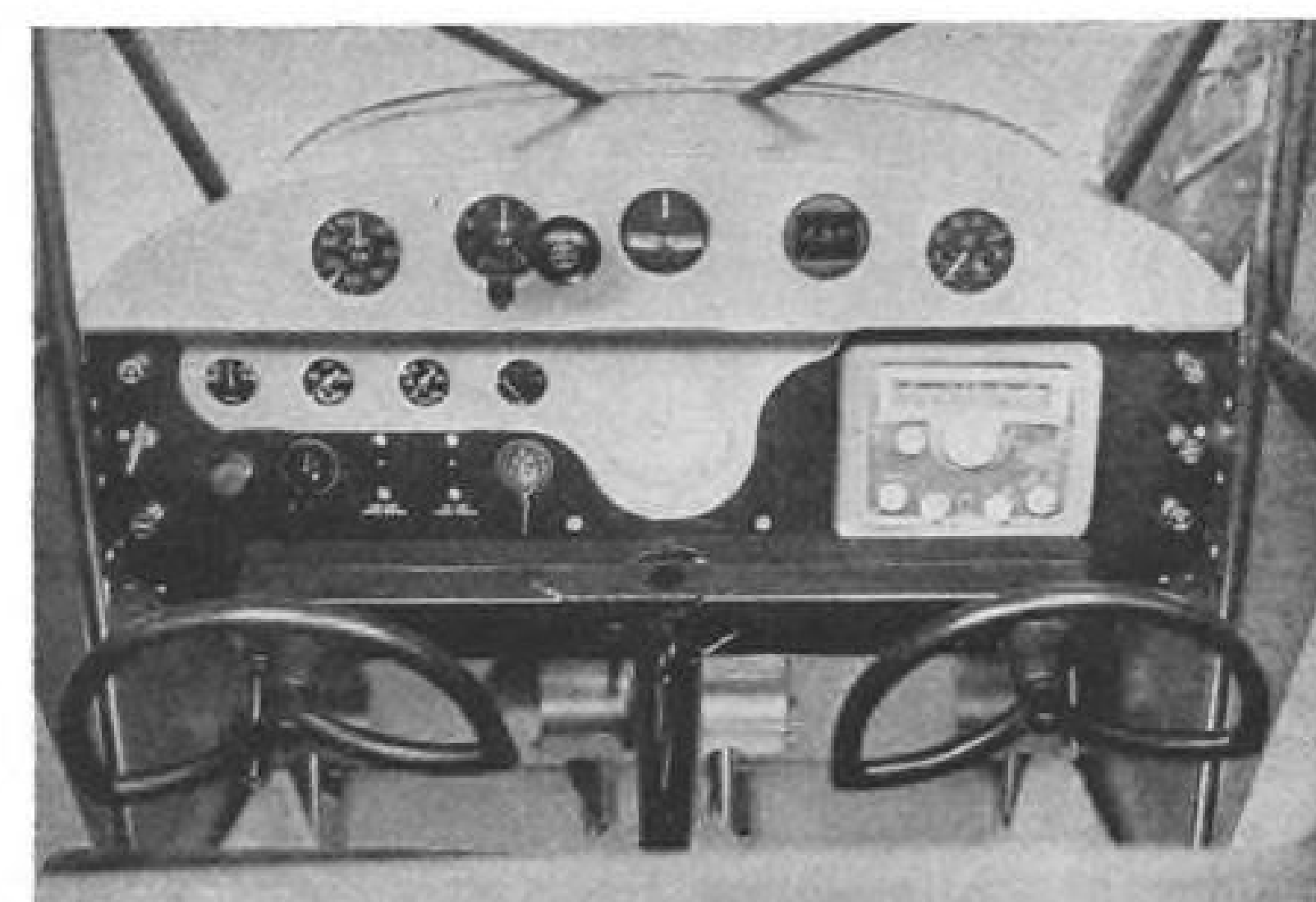
Funk Aircraft Co., of Coffeyville, Kan., will offer a new 1948 two-place model called the Customaire at a price of \$3495 flyaway factory.

The Customaire follows previous Funk construction pattern of high-wing monoplane with steel tubing and fabric fuselage and fabric covered wings.

Principal changes are in the cabin where the floor boards have been lowered to provide more leg room. Instrument panel has been redesigned to allow installation of additional flight instruments. Cabin is sound-proofed.

Customaire Specifications

Span	35 feet
Length	20 ft. 1 in.
Height	6 ft. 1 in.
Gross weight	1350 lb.
Empty weight	890 lb.
Wing loading	8 lb./sq. ft.
Fuel capacity	20 gal.
Cruising speed (75% hp.)	100 mph.+
Top speed (s. l.)	115 mph.
Useful load	460 lb.
Stalling speed	37 mph.
Range fully loaded	350 mi. with 1-hr. fuel reserve
Service ceiling	15,000 ft.
Rate of climb	800 fpm.



Funk Aircraft Co. of Coffeyville, Kan. has a new 1948 model which will sell at \$3495. Ground photo shows the new streamlined



cowling and general features of the steel tube and fabric construction. Instrument panel has been redesigned for simplicity.

Cessna Certificated

The new Cessna 170 was certificated by CAA last week, with deliveries to dealers scheduled to begin before the end of March. Price will be \$5475 flyaway factory with a production quota of 350 scheduled by July 1.

Powered by a flat six 145 hp. Continental engine, the latest Cessna four-placer is expected to be a strong contender in the stiff spring sales competition anticipated for "family" planes.

Skymotive Gets Lease On Milwaukee Airstrip

The Milwaukee Common Council has approved a 10-year lease on Maitland airstrip to Skymotive Aviation Management Corp., of Chicago, which will pay the city five percent of its gross receipts until a new, hard surface runway is completed. After that the corporation will continue to pay the percentage, or \$5000 annual rent, whichever is greater. The city also will get two cents a gallon on all gas, and five cents a gallon on all oil sold at the field.

Soaring Contest at Elmira

The 15th National Soaring Contest, first since the end of the war, will take place June 30-July 11 at Elmira, N. Y.

Paul Schweizer, vice president and general manager of Schweizer Aircraft Co., has been appointed contest director, and Bob Taylor, former head of the Army's glider pilot school, manager of operations.

Sponsors ask that inquiries be directed to Contest Headquarters, 15th National Soaring Contest, Federation Building, Elmira, N. Y.

Minnesota Conference

A statewide aviation and airport management conference, sponsored jointly by the University of Minnesota, the League of Minnesota Municipalities and the State Department of Aeronautics, is scheduled Apr. 20-21 in Minneapolis.

Chairman of this third annual conference is Walter Wieland, head of the Brainard-Crow Wing Country Airport Commission.

NFS Student Rally

National Flight Service plans a mass flight of its students to a centrally located vacation spot over the week-end of July 4, according to NFS President Dick Powell. He estimates 3500 light-planes will participate in the rally. Location of the rally point has not yet been determined.

BRIEFING FOR DEALERS & DISTRIBUTORS

NASTY OLD FLORIDA WEATHER—Even in sunny Florida the fixed base operators have their weather troubles. A personal visit around to three of the principal private flyer bases in the Miami area last week found only hangar flying on the day of our call. It was all because of a breeze which had reached a velocity of 45 mph. the day before and was still whipping across the fields in a way which discouraged anything less than professional pilots or twin-engine aircraft from taking the air.

ILL WIND—However, the wind made it possible to do some talking to the operators, which probably would not have fitted into a busy day schedule. Dick Flynn provided a \$2 tour of the Miami Aviation Center and then motored over to give us a look at the big Opa Locka Airport recently taken over by the city of Miami from the Navy, and the sunny south airstrip.

TRANSIENTS VS. HOMETOWNERS—Transient aircraft business is fine during the big winter season, Flynn reports, with about 25 to 50 steady customers who come south in the planes and stable them at the Miami Aviation Center. But he is getting discouraged about selling them airplanes. He builds them up on the Beech Bonanza, and about the time the deal is closed, they remember the airport operator back home, and decide to buy from him. A large percentage of sales is made to the hometown folk of the Dade County area. Flynn recently made a tally of light airplanes in the county by calling the other airports and discovered that there are 20 Ercoupes, far more than any other two-place make of plane, and six Bonanzas, more than any other four-placer. Since the Miami Aviation Center was until recently Ercoupe distributor and is still an Ercoupe dealer and since it is the Beechcraft distributor, these figures make that airport look pretty good from a sales standpoint comparatively speaking.

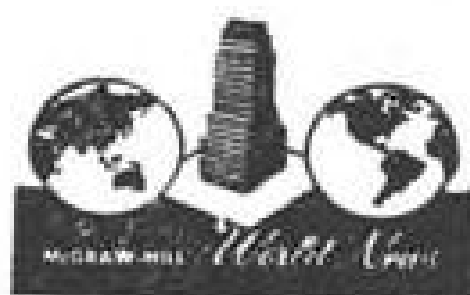
CUSTOMER SERVICE—A registration form for transient aircraft used at Miami Aviation Center consists of an envelope about 5 by 8 in. which contains a carbon and a card. On one side of the envelope and on one side of the card is a form for registration data on plane and owner, including plane type and number, owner's permanent and Miami addresses, services required and special instructions. On the other side is a form for billing for the services. The attendant fills out the registration side, reaches inside the envelope, turns the carbon and the card over, and is ready to do the billing. When the bill is completed the customer gets the card and the airport keeps the envelope in the customer file. A yellow "follow-me" jeep which meets newcomer planes on arrival, clean restrooms, a barbecue restaurant and tourist cabins on the airport are other services available to the visitor.

RESIDENCE HANGAR—On the airport also is the first of what is hoped will be a series of residences with individual hangars built on them. One corner of the hangar forms a patio for the house and the other corner forms a utility room. The house itself is modernistic with screening and windows so arranged that virtually the whole side of the house can be opened to breezes from Biscayne Bay.

OPA LOCKA FIELD—It is practically impossible to run out of runway at Opa Locka, the big double field now municipally owned. Embry-Riddle has moved its school operation there from Chapman Field, which city officials turned out of existence, possibly to encourage the move to Opa Locka. If Embry-Riddle isn't paying too much for the lease, it looks like a good switch. The flight school did 2000 hr. of flying in February, which is quite a bit of school flying. The arrangement also includes a big barracks type building which provides housing for the students.

SWIVEL-GEAR CESSNA—Jack Case, Cessna dealer who operates at Opa Locka, told us he was planning to order the new Goodyear crosswind landing gear wheels for his four-place Cessna 170. Questioned further, he added that he didn't have the model 170 yet, but that he was due to get his first demonstrator in April. "I think maybe those crosswind wheels will work up some extra interest around here." So he and Flynn began to discuss a demonstration which might be arranged out at the Miami Aviation Center. Crosswind wheels wouldn't be needed at Opa Locka but there are conditions when they would be an advantage at the Miami Aviation Center.

—ALEXANDER McSURELY



AVIATION WORLD NEWS



CROSSROADS OF THE NORTH ATLANTIC

Emblems of half a dozen trans-Atlantic airlines adorn the front of the traffic counter in the passenger lounge at Keflavik airport, Iceland. The field was visited by 928 overseas aircraft during the last nine months of 1947 after the Army turned it over to civilian operation. Visible are the counters of American Overseas Airlines, Air France, BOAC, KLM Royal Dutch Airlines, Scandinavian Airways System (SAS), and Trans-Canada Air Lines. The room, recently built on the front of the old terminal, also houses customs and immigration facilities. The set-up is temporary. A new permanent terminal and hotel are to be ready sometime in July.

Shifts Due in French Air Policy

Chalandon report hints at shake-up; commission set up to study.

PARIS—French aviation is headed shortly for the biggest shaking-up since the government took control of the major plants in 1936, if the conservative ministers who now dominate the government have their way.

Key to likely changes is in the so-called Chalandon report, which raised cries of protest from aircraft workers and the Communist press. The French cabinet set up a commission to check over its findings and make recommendations.

Author is Alban Chalandon, one of the bright young administrative specialists grouped around Finance Minister Meyer. The full 70-page report has not been made public, but M. Chalandon gave Aviation Week a summary in an interview.

► **Private Industry**—The report recommends turning construction of all tourist planes back to private industry. It proposes sale of half of the present 30 airframe plants in the nationalized industry to other industries—taking them wholly out of the aviation business. Of the remaining plants only eight or ten large ones would continue making airframes, and some of these would be turned over to private companies. The rest of the plants (six) would turn out "reconversion" products such as refrigerators and tractors, rather than planes.

The report further calls for concentration of studies and output on a small number of planes.

The drastic slashing of the industry's capacity is necessary, M. Chalandon feels, because of France's limited financial resources. Production of military and naval craft, plus civilian transports, is forecast as follows for the next four years: 1948—800; 1949—480; 1950—230; 1951—440.

► **Bulk for Air Forces**—The great bulk of these craft will be for the air forces, as follows:

Type	Quantity	Description
SO-6000	56	Two-place jet trainer (465 mph.)
SO-6020	355	Jet interceptor-fighter (605 mph.)
NC-211	105	Large freight-carrier
MD-315	170	Overseas liaison plane
N-2500 or BR-890	250	Medium freight-carriers
SE-2400	300	Jet fighter-diver-bomber
SO-4000 or NC-270	60	Jet medium bomber
SO-8000	70	Carrier fighter
BR-761	15	Heavy freight-carrier
SO-30R	20	Medium transport
N-30-Grumman	40	Transport amphibian
N-1400	26	Exploration hydroplane
Total	1467	

Practically all of the military program is in the prototype-building stage. Result is that the French air forces the next couple of years will be almost completely starved of planes unless they

are able to buy some of them from Britain or America.

► **Two Factors Blamed**—M. Chalandon puts the blame for this situation on two factors. First, the Communists who controlled the industry and the Air Ministry from the Liberation until late 1946 had a policy of studying scores of new prototypes, and were very slow in realizing any of them. Second, air defense strategy is still not wholly fixed. The question of close integration with the British strategy is only now being taken up.

Mismanagement is also blamed for pushing quantity output with too little regard for quality, for the unsatisfactoriness of French transport engines (at least until recently), for maintaining low job-rate norms in the plants, and for over-staffing.

Financial results mean nothing, says M. Chalandon, because the Air Ministry is the sole buyer and sets prices at a level designed to meet costs. For these reasons, more private competition is needed, as well as private directors on the boards of the nationalized sector.

► **Competitors**—Nevertheless, he concludes that a number of the new French planes can compete favorably price-wise, especially since the devaluation, with similar U.S. craft. He cites especially the N-1000 (3-place), Courlis (4-place), Languedoc (comparable to the DC-4), So-30R medium transport, and SE-2010 (prototype in construction, comparable to Stratocruiser).

The present French aviation industry has 19,400,000 sq. ft. of floor space, 28,000 machine tools, many of them acquired in the last three years, and 72,000 workers. It produced 1445 planes in 1947 and 1959 in 1946.

First of Five AMAG Fields Is Completed at Kozani

ATHENS—Construction has been finished on the all-weather airport at Kozani, first of five airport projects of the American Mission for Aid to Greece. AMAG Reconstruction Division officials say, however, that a new contract may be let for such improvements as widening of runways.

At Larissa and Sedes (Salonica), airport projects are about half finished. At Kavalla and Hassani, work is about 25 percent complete. American engineers are making a survey at Ioannina with a view to including construction of an all-weather airport there in the reconstruction program.

Work at Kozani Airport cost \$230,180 of AMAG construction funds, nearly all of which went for purchase of pierced steel planking for runways, and \$250,000 in drachmae from the AMAG consumer goods fund, principally for labor.

Irish Line May Sell Connies to BOAC

Aerlinte Eireann service postponed by government in retrenchment move.

Aerlinte Eireann, still suffering from the new Irish government's postponement of the trans-Atlantic service it proposed to start Mar. 17, may feel still another blow.

Unconfirmed reports from Dublin indicate the airline will sell three of its five Constellations to British Overseas Airways Corp. for sterling, retaining two of the ships for Aer Lingus' London-Dublin service.

A severe retrenchment policy on the part of the newly-elected Costello government is interpreted as the main factor in both these moves. The government's economy drive to reduce taxation includes elimination of all services not paying their own way, including air transportation.

► **May Cut Ocean Operation**—A possibility is the eventual cancellation of all trans-Atlantic operations by Irish flag-carriers, although this would be a direct reversal of the policy of Sean Lemass, former Minister for Industry and Commerce, who had hoped to make Eire the hub of an air network.

Still another economy move will place extensive Constellation maintenance facilities at Dublin Airport. The Irish intend to do all their own work except engine overhaul. BOAC will continue to do this for them at Treforest, Wales.

Since no official decision has come from the Irish government to cancel trans-Atlantic operations, the Irish have not yet put the Constellations on the block as surplus. BOAC has made no official offer to buy, but it is understood they would welcome the opportunity to acquire the aircraft for sterling. Britain's own problems have made its Treasury wary of dollar purchases for aircraft, even though the British regard the Constellation as the only economical aircraft they are now operating.

► **Bombshell to Management**—The Costello government announcement of the postponement of the Shannon-Boston-New York service came as a bombshell to top management of Aerlinte Eireann, who had formulated elaborate St. Patrick's Day reception plans, including a speech by President Truman and welcoming festivities with Mayors O'Dwyer of New York and Curley of Boston participating.

Advance bookings from Americans on the new Irish service were reported to amount to nearly half a million dollars.

Jerusalem Letter:

TWA in No Man's Land

JERUSALEM—Trans-World Airlines' reservation office in Jerusalem is on Princess Mary Avenue. This used to be a wonderful location. It was especially fine during the campaign of Jewish terrorists against the British, because the district escaped the curfews imposed on Jewish business sections.

Since the UNO voted to partition the Holy Land, however, the half-Jewish, half-Arab character of the neighborhood has made the office more satisfactory as a watchtower for foolhardy press and newsreel representatives—who sometimes look down on the rioting from its roof—than as a gathering place for passengers, who have an understandable allergy to bullets.

Approximately half of TWA's staff in the Holy City is Jewish and the other half Arab. Some of the Jewish and Arab employees are the best of friends in the daytime, but at night they are often on guard duty on the roofs of their respective quarters, ready to blaze away in each other's direction if the sniping swings that way.

The accounting staff, which is Arab, finally had to be moved out of the Princess Mary office because members of the Haganah, the Jewish defense force, became pretty thick in the district. One of the Arabs, whose father was a government employee killed in the bombing of the King David Hotel last year, was stopped by the Haganah and released only after proving he worked for TWA. He and the other Arab employees were moved to rooms in the German colony, in a so-called security zone.

Sometimes the Jewish reservations staff, the secretaries and freight people can't get to the Princess Mary office because there is trouble in the neighborhood and the police won't let them through the road blocks from Zion Square. At such times Jack Keegan, the American in charge, is a fairly busy young man trying to answer three phones at once and talking to the stray passenger who somehow has ambled through it all.

The airline has two messenger boys in Jerusalem, one Arab and one Jewish, but the Arab won't go to Princess Mary and the Jew won't visit the German colony, where considerable shooting of Jews and British has occurred. Liaison between the two offices is maintained normally by an American tolerated by both Arabs and Jews. When he isn't around, Keegan drives between the two offices himself, a procedure friends consider unhealthy.

Bookings in Jerusalem have dropped greatly since the UNO vote for partition because most people are afraid of the 40-mile road trip to the airport

at Lydda. Jewish passengers refuse to travel with the principal Jerusalem car contractor because, although the contractor is recognized as a thoroughly honest man, he's an Arab and his cars take the regular Jerusalem-Lydda road through Arab territory. It was on this road that a BOAC bus was stopped and three Jews aboard it shot and burned.

Jewish passengers from Jerusalem travel in an armed convoy, including several armored buses guarded by Haganah men, which goes by a number of small winding roads through Jewish settlements and orange groves to Tel Aviv. This route, sometimes following a single lane not much more than a donkey track, by-passes the Arab villages of Lydda, Ramleh, Salameh and Yazur. From Tel Aviv the Jewish passengers re-convoy to Lydda airfield. The situation along this stretch is not exactly safe for them but it is better than between Lydda and Jerusalem.

Most of TWA's Palestine business comes from Tel Aviv, an all-Jewish city. Excepting Ed Rankin, the American in charge of this office, its staff is all-Jewish. Since the partition decision there has been almost continuous sniping and bombing along the border between Tel Aviv and the neighboring Arab town of Jaffa. At some points the border—which is guarded by Haganah—is less than two kilometers from Allenby road, Tel Aviv's main drag. The noise of firing reaches Allenby road frequently and the atmosphere is pretty tense. The city seems relatively secure, however, and has a semblance of normality.

The principal drawback to traveling by air from Tel Aviv is the fact that consulates are in Jerusalem. To obtain visas from most countries passengers have to appear personally at the consulates. Going to Jerusalem and moving around there is dangerous. The French consulate has opened a sub-office in Tel Aviv with authority to grant visas, and all air carriers, steamship lines and other business interests in Tel Aviv have petitioned the consulates of other countries—including the United States but not the Arab states—to follow suit.

For Tel Aviv passengers who do not want to risk the 5-kilometer road trip to Lydda airport, a company named Avieron flies de Havilland two-seater planes to Lydda from Reading air strip on the northern edge of the city. These planes are so small they can't carry baggage. The trip takes only seven minutes but it is comparatively safe and many passengers are glad to pay two and one-half Palestinian pounds (about \$10) for the ride.

AIR TRANSPORT

Freight Rates Moving Upward As Rising Costs Hit Cargo Lines

Slick planning to adjust tariffs; other independents may follow suit, but certificated carriers show no inclination to act pending results of CAB investigation.

By CHARLES ADAMS

Airfreight rates, which have bucked the postwar inflation spiral for more than two years, are pointing upward.

Rising costs of gasoline, oil, wages and parts, which forced the certificated carriers to institute two ten percent passenger fare increases last year, have hit the independent cargo lines hard since fall. One carrier estimates its costs have skyrocketed 24 percent in the last 90 days.

► **New Slick Tariff**—Slick Airways, largest U.S. cargo carrier during the past two years, plans to boost its charges between two and three cents a ton mile, making its average revenue about 15 cents a ton mile. Since late fall, Slick's gasoline costs alone have risen sufficiently to add about one-half cent a ton mile to operating expenses.

Other uncertificated cargo lines—most of them far less able to stand deficit operations than Slick—are expected to institute higher rates. But the certificated carriers have shown no inclination to raise charges despite admission by some airline executives that cargo tariffs are now too low.

► **UAL Move**—Significantly, United Air Lines early this month filed a tariff supplement with CAB which would reduce its freight rates about 35 percent on certain commodities from four California cities to three Eastern points. Items on which the reduction would apply include agricultural products, aircraft parts, wearing apparel, automobile parts, drugs, electrical appliances, films and radio parts.

Last September and October, Slick and other uncertificated cargo carriers moved into the black after unbroken deficits dating back to the time their operations began. Slick's costs in October were 12.11 cents a ton mile, and revenues were 13.67 cents a ton mile.

► **Load Factor High**—Since its load factor in October was 89 percent, Slick had little chance of increasing revenue per ton mile by boosting loads. Higher rates have become the only answer to soaring costs.

Slick has high hopes of cutting ton mile costs in the future with the help of new and larger equipment on its transcontinental hauls. Should CAB issue an exemption to the freight forwarders or Railway Express Agency authorizing them to do business with uncertificated cargo lines on a common carrier basis, Slick would consider it a green light for its expansion plans.

► **New Planes Eyed**—The carrier has been making detailed studies of the Boeing Stratofreighter and cargo versions of the DC-6 and Constellation. If the freight forwarder or REA exemption is issued, Slick may buy three Stratocruisers or three Constellations.

Biggest question mark to Slick and other all-cargo carriers is the fate of their certificate applications in CAB's pending airfreight route case. Hearings

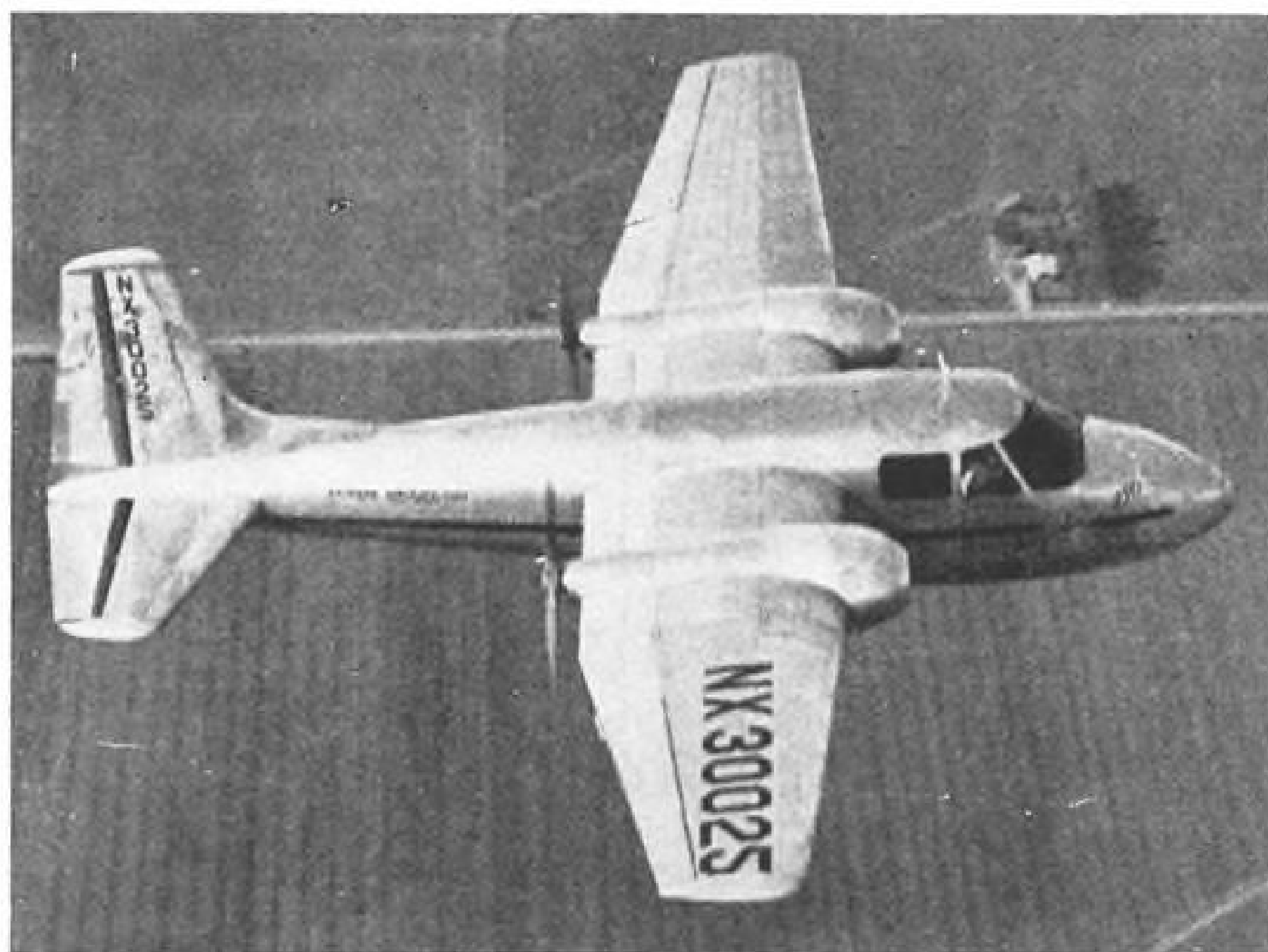
in the proceeding were concluded more than a year ago, but an examiner's report has not been issued. It is expected shortly.

► **Lines Bankrupt**—Several of the applicants in the airfreight route case have gone bankrupt since the hearings, and others are now practically inoperative—conserving their capital pending the CAB decision. U.S. Airlines, St. Petersburg, Fla., one of the nation's best-known cargo lines, suspended flights late last fall and has sold a large part of its fleet of C-47s.

As a result of testimony in the rate investigation hearings last month, it is expected that CAB will place some kind of floor under freight rates. The floor would lift the minimums of last fall, which ranged down to 10 cents a ton mile.

► **Cost Allocation**—During hearings on the rate investigation, the Air Freight Association contended that it costs the certificated lines between 25 and 40 cents a ton mile to carry freight on an allocated cost basis. In contrast, average freight revenues reported by the three largest certificated carriers last October were: American 22.83 cents a ton mile; United 19.60 cents a ton mile; and TWA 21.32 cents a ton mile.

Braniff Airways conceded that its freight operations have cost between 35 and 38 cents a ton mile on an allocated cost basis. Result was a substantial loss. But on an "added cost" or "out-of-pocket" basis, Braniff said its freight expenses were only about 5 cents a ton mile, so that freight from this standpoint yielded a profit.



BRIGADIER IN FLIGHT

One of the first flight photos of the Baumann Brigadier, twin pusher executive plane now undergoing CAA tests. Powered by two Continental 125 hp. engines, its cruising speed is said to be 150 mph. Pusher propeller installations seemingly afford excellent visibility from the cockpit. (British Combine photo)

Domestic Carriers Reinstate DC-6s

Resumption of domestic service with modified DC-6s is slated to begin this week on American Airlines' transcontinental links (AVIATION WEEK, Feb. 16).

United Air Lines is scheduled to reinstitute DC-6 flights on its San Francisco-Honolulu route Mar. 21 and on its domestic system on Apr. 1. National plans resumption of DC-6 operations between New York and Miami on Mar. 20, and Braniff's target date will be announced early in April.

► **PAA Delivery**—Full restoration of domestic DC-6 service is expected by mid-Spring. Pan American Airways is slated to take delivery on at least two modified

DC-6s (for use by Panagra) next month.

Ninety-seven DC-6s were grounded by the airlines last November following fires in flight that caused a fatal accident at Bryce Canyon, Utah, and an emergency landing at Gallup, N. M. Cost of the grounding to the airlines has been estimated at more than \$10,000,000. Douglas will bear modification expenses aggregating between \$3 million and \$6 million.

► **Cause of Mishaps**—CAB investigations of the two mishaps disclosed that gasoline which overflowed while being transferred in flight between alternate tanks had entered a cabin heater air intake scoop under the fuselage. All DC-6s resuming service have had their air intake scoops relocated in the leading edge of the wing, while the overflow vents have been conducted to the wing's trailing edge.



RADAR EYE

Allison radar installation in plastic nose of C-47 shows clearly the revolving antennas. This type set is installed in DC-3s owned by Southwest Airways. Unit gives pilot view of obstacles as far as 150 miles ahead of plane regardless of weather conditions. Manufacturer of 70-lb. device is Aviation Maintenance Corp. (Wide World photo)

Coast-to-Coast Flights for \$99

Nonscheduled carriers again active with cut-rate passenger services in DC-3s.

Edward Ware Tabor, one of the best known nonscheduled passenger-carrying operators, believes his current transcontinental service is approaching the goal envisioned by three-cents-a-mile airline aspirants. But his competitors think he's going to wind up broke.

Operator of coast-to-coast and New York-Miami-San Juan passenger flights since early in 1946, Tabor has recently offered a Los Angeles-New York fare of \$99 plus tax. Tickets via American, United and TWA cost \$143.15 plus tax.

► **Profit Made**—Founder of Tabor Luxury Airlines and Trans-Luxury Airlines, Tabor states he's making money with his coast-to-coast operations by Trans Atlantic Airways. The TAA president asserts that after he has filled 12 seats on one of his company's DC-3s the rest of the customers represent net profit.

Executives of certificated airlines, who talk in terms of 70-85 percent break-even load factors for their DC-3s, look askance at Tabor's cut-rate operation. But the scheduled carriers' two 10 percent fare increases in 1947 contributed much to the revival of nonscheduled passenger services on the transcontinental run.

► **CAB Crackdown**—Several bad accidents in the summer and fall of 1946 and a subsequent crackdown by CAB on a number of lines charged with violating the nonscheduled exemption severely restricted passenger-carrying irregular operators during most of 1947. Possibility of another crackdown by CAB is ever-present now that flights

have been resumed on a sizable scale.

Just how he can make money on a \$99 coast-to-coast fare, Tabor was not ready to say when interviewed by AVIATION WEEK. He states that his operating and overhead cost figures will not be ready for another six months. At that time, Tabor may present the data to CAB in support of an application for scheduled service.

► **Good Pay**—"We're able to make money at the low rates because we all work hard and aren't too much concerned about putting in overtime," the TAA president declared. "In general, our people are paid better than in some other transport operations—\$50 a week for ticket clerks, \$600 a month for pilots and \$350 a month for co-pilots."

"Also, we hold overhead down by cutting out all the frills of air transportation on the ground as well as in the air. We use the 'skycoach' system of operating. Coffee is served aboard the plane, but no meals. We try to land for refueling at airports where passengers will have access to a restaurant. We make more frequent stops for fuel than scheduled carriers, and thus gain in payload allowance. We don't try to set speed records, but our time between Los Angeles and New York probably averages around 16 hours."

► **Past Record**—"We now employ 15 pilots and operate three DC-3s, one C-46 and one DC-4. Last year we flew 30 million passenger miles."

Not at all optimistic over Tabor's chances of survival are competing nonscheduled carriers which fly from Los Angeles to New York for \$118.30. Principal West Coast carriers in this group are Viking Air Transport Co., with nine DC-3s; Standard Airlines,

with six DC-3s; and Airline Transport Carriers, with four DC-3s.

► **Business Policy**—Viking, headed by R. R. Hart, figures it has to fill 14 seats to break even. Despite the attraction of fares approximately 20 percent lower than those of certificated lines, Viking says it is trying to avoid off-the-street passenger business.

Company officials state they are trying to build up long-range contracts with construction firms and other companies for transporting employees and cargo.

Big Expansion Possible In Plane Utilization

Daily plane utilization by the airlines can be stepped up 50 percent in wartime, when public convenience of departures and arrivals must be disregarded, according to American Airlines Board Chairman C. R. Smith.

A major general in the Army Air Transport Command during World War II, Smith said that in peacetime utilization of eight hours a day is usual, while in wartime this can be increased to 12 hours daily without great difficulty. Speaking at the National War College, Smith declared that plans for air transportation during wartime must include assurance that one-third of the personnel and one-third of the planes used by the airlines will be immediately available for military service.

Branch Proposes Probe of Feeders

Disturbed by continued urgent requests from feederlines for higher mail payments despite increases granted during the past year, CAB Member Harlee Branch has called for an immediate investigation to determine whether two of the operations should be suspended.

Branch in recent area route cases opposed certification of additional local carriers. He dissented from the action of the Board's two-man majority in adjusting the temporary mail rates of Trans-Texas Airways and Monarch Air Lines. He urged an investigation "in view of constantly mounting government subsidy and the very small amount of traffic being carried."

► **Low Load Factors**—One of the first feeders to be certificated, Monarch started operations in November, 1946. Trans-Texas began service Oct. 11. Highest passenger load factor achieved by either carrier was Monarch's 28 percent last August.

Feeder mail pay has increased steadily from the original 25 cents a plane mile rate set for Pioneer Air Lines (then Essair) in February, 1946. By October, 1947, the level for seven feeders was raised to 60 cents a plane mile for their first six months of operation, with the rate declining 5 cents a mile each succeeding three-month period until a 35 cents a plane mile floor is reached.

► **New Proposal**—Trans-Texas recently asked for at least 70 cents a plane mile mail rate at a 10 percent load factor, with the rate graduated downward one-half cent a plane mile for each one percent increase in load factor. CAB has now proposed lifting TTA's rate to a maximum of 90 cents a plane mile for the period prior to July 1, 1948, if the carrier operates less than the basic two round-trips daily over its system. After July 1, 1948, the reductions of 5 cents a plane mile in mail pay would come at longer intervals than the three months originally set.

The CAB majority found that Monarch's mail compensation should be revised to reflect the abnormal ratio of the carrier's course mileage to its airport-to-airport mileage. This "circuitry" mileage is substantial because of the mountainous territory MAL serves. As in the Trans-Texas case, the Board lengthened the intervals between the 5-cents-a-mile downward adjustments.

Icelandic Airlines Bid

Icelandic Airlines (Loftleidir H. F.), Reykjavik, has asked CAB for a foreign air carrier permit for service from Iceland to New York and Chicago via Newfoundland and Canada.

CAB SCHEDULE

Mar. 15. Hearing on additional service in Hawaiian Islands. (Docket 2390 et al.)

Apr. 5. Hearing on Aerovias Nacionales de Colombia's Bogota-Barranquilla to New York route case. (Docket 3249.)

June 14. Hearing on Capital Airlines (PCA) mail rate case. (Docket 484.)

Nonsked Resumes Service After 33-Day Suspension

Air cargo and passenger service between Portland, Ore., and Alaska points has been resumed by General Air Cargo, Inc., after a 33-day suspension ordered by CAB for alleged violations of Federal regulations.

A temporary suspension order issued against the company Jan. 28 at Anchorage, Alaska, was affirmed at a later hearing begun at Anchorage and concluded in Portland. The original suspension order applied to all service operated by the company, but on Feb. 9 it was modified to apply only to the Alaskan service. The entire order expired Feb. 29 and service was resumed Mar. 1.

► **Charges**—In the complaint filed be-

fore CAB, the company was charged with: operating planes in weather conditions deemed below safety requirements; carrying more passengers and more cargo than declared in manifests; failing to maintain radio or visual contact with the Anchorage airport traffic control tower; carrying cargo improperly secured; failing to carry flight records showing names and addresses of passengers; and scheduling pilots to fly in excess of eight hours during a 24-hr. period.

In spite of these allegations, testimony at the Portland hearing revealed that the airline had operated 170 flights between Portland and Alaska without loss or injury to passengers or cargo.

In addition to the Portland-Alaska service, General Air Cargo operates planes between Portland and Utah and California points.

Higher Mail Payments Offered Colonial Airlines

Colonial Airlines faces a brighter financial future after a net loss of \$957,711 and an operating loss of \$778,915 on domestic service in 1947. CAB has moved to increase mail payments 75 percent retroactive to Jan. 1.

A Board show cause order would boost Colonial's temporary mail rate on its U. S. and Canadian links from the 20 cents a plane mile received last year to 35 cents a plane mile. The carrier received \$576,998 in mail pay in 1947, and the new rate would yield around \$1,000,000 in 1948. Colonial asked for mail payment of 50 cents a plane mile.

The increased temporary rate was set to provide Colonial with immediate financial assistance and to prevent dissipation of its working capital. Later, CAB will fix a permanent rate, retroactive to Apr. 15, 1946, which is expected to cut deficits experienced since that date.

Services Consolidated

Challenger Airlines and Monarch Air Lines have arranged to combine their traffic and sales divisions under the direction of Gerald S. Kitchen, general traffic and sales manager of MAL. Officials of the feeders said the move would result in greater economies, more efficiency and better service.

Parcel Post Extended

International air parcel post service has been extended to Portugal and the Azores in addition to the 21 countries announced last week (AVIATION WEEK, Mar. 8).

Industry Endorses Congressional Study

Airline top executives urge prompt implementation of latest air policy report.

The air transport industry has received the Congressional Aviation Policy Board's report (AVIATION WEEK, Mar. 1) with the same enthusiasm that marked airline endorsement of the study made by the President's Air Policy Commission early in January.

Prompt adoption of the recommendations to ease difficulties now faced by U. S. domestic and international air carriers is being urged by top industry executives. The Congressional group already is considering possible legislation, and will invite comments from CAB, CAA and other interested government agencies.

► **Land Comments**—Air Transport Association President Emory S. Land said that while one may not agree with every finding of the Congressional Board, the report as a whole is an admirable guide to U. S. policy. "If the principles embodied in the report are followed, and the recommendations implemented as soon as practicable, America will be supreme in the air in peacetime as well as in wartime," Land declared. Similar praise for the Board's work came from Warren Lee Pierson, TWA board chairman.

Using different language, but with equal forcefulness, the Congressional group echoed the Presidential Air Policy Commission's call for a strong domestic and international commercial air transport service which will be immediately available in the event of national emergency.

The Congressional report said that "U. S. air commerce should be fostered and promoted by whatever means appears most practical until it reaches such stature in passenger and cargo capacity as to constitute during crises an adequate logistical air arm of the national defense establishment." It added that civil and military aviation are indivisible in assessing total American air strength.

► **Development Funds**—A recommendation by the President's Commission that the government should finance development of commercial planes which could be used by the armed services in wartime was warmly endorsed by the Congressional group. Funds would be allocated to the Air Force and earmarked for this specific purpose.

"Transport aircraft of materially better operating and utilization characteristics than any now being built are needed to provide the low operating cost and high performance that will make possible commercial employment

of large numbers of aircraft. As the government is vitally concerned in the existence of a large fleet of modern airline planes, it is in the interest of economy that the government finance the design and building of such prototypes, whereupon the carriers may buy the production aircraft and pay for them by revenues derived from commercial utilization."

► **Planning Board**—The Congressional report urged that a Civil Air Transport Evaluation and Development Board (similar to the setup proposed by the President's Commission) should be established. It would consist of representatives of the Air Force, the Navy,

other government agencies concerned with aeronautics, the aircraft manufacturing industry and the airlines. This board would be charged with drawing up specifications and developing prototypes of the new transports.

It was suggested that form contracts be prepared now for wartime utilization by the armed services of all U. S. commercial planes flying internationally, except for those specifically exempted by the Department of National Defense. Form contracts would also be prepared for wartime utilization of a percentage of domestic airline aircraft. The Congressional group saw an obligation by the airlines to provide such



CARGO COMPUTER

Melvin Brockman, United Air Lines cargo specialist, has invented a "cube stick" to measure airfreight packages. It enables cargo handlers to determine quickly the cubic dimensions of shipments by reference to a logarithmic scale reproduction on the stick. A cargo attendant takes down the data as it is read off the cube stick. United and other carriers moving large quantities of freight have lost revenue in the past through difficulties in determining cube dimensions of shipments where, due to bulk, charges are assessed on a basis of one pound for each 300 cu. in. of space used. Frequently the size of the package is out of proportion to its actual weight. For expediency's sake, freight handlers in the past have erred on the side of the shipper in estimating charges.



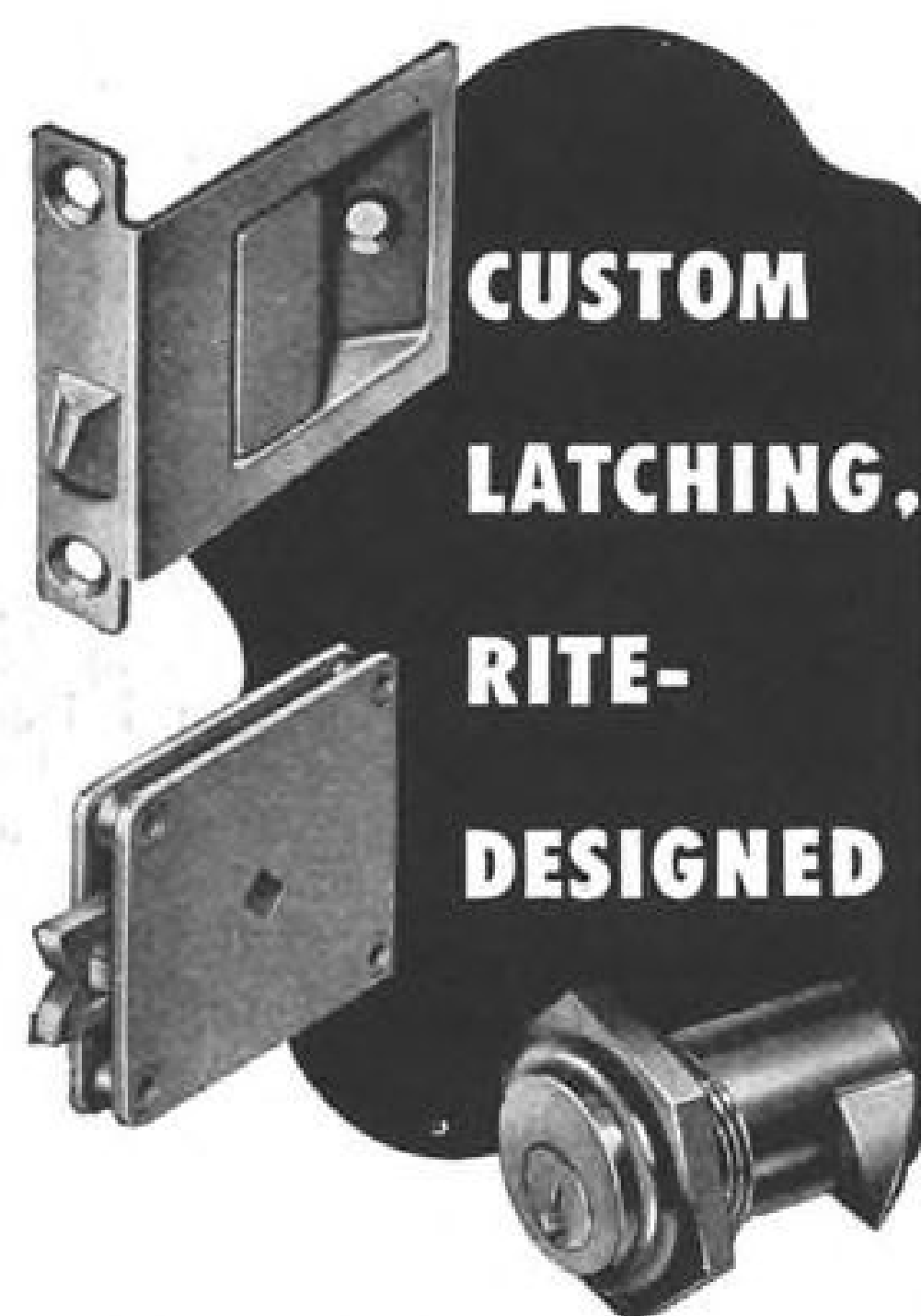
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assistance at reasonable cost in return for Federal expenditures in the form of mail pay, aircraft development and airways facilities.

► **Cargo Planes**—Need for establishing special airworthiness standards for cargo aircraft was expressed. The report said liberalization of cargo plane requirements should be the goal for a joint committee representing manufacturers, airlines and CAB.

Both policy groups agreed that CAB should be given power to regulate contract and charter operators, that establishment of domestic air parcel post is desirable and that Congress should give consideration to carrying all first-class mail by air which can be expedited by such handling. The Congressional study said CAB should encourage the airlines to achieve economies by joint operation of ground facilities.

► **Feeder Certificates**—The two reports declared that feederlines should be certificated for five instead of three years. Repeal of the tax on transportation, which cost airline passengers \$44,500,000 in 1947, was recommended.

The proposal that CAB should take over CAA's duties of administering the Civil Air Regulations was surprising in view of findings that CAB has been unable to organize its work in a business-like manner. Whereas the President's Commission had urged that CAB be increased to seven members to handle its present work load (minus safety investigation), the Congressional group said a five-man board should be continued despite the increased duties recommended. The Congressional report suggested that CAB appoint an executive director to administer the Civil Air Regulations.

Western Pushes Retrenchment

President Drinkwater describes organizational readjustments to control employment and reduce purchases.

By SCHOLER BANGS

Western Air Lines' drive for economy and financial stability is pegged to a broad program of internal retrenchment as well as to consolidation of ground services with other carriers wherever possible.

While it is still too early to place an economic evaluation on the joint ground service agreements negotiated by WAL in 14 cities during the past six months (AVIATION WEEK, Mar. 8), results of the budget trimming are already apparent.

► **Buying Freeze**—At the start of 1947, President T. C. Drinkwater placed in effect a freeze order against new purchases and new employment. Orders were issued for departmental staff reductions and consolidations. Western's publicity staff, at one time approaching a "little empire" status, was reduced to two men and a secretary. The department's photo laboratory was closed entirely.

The company's shrinking advertising department was consolidated with the publicity department. Its functions—aided by a staff worker transferred from the sales department—were taken over by Kenneth E. Allen, publicity director, who is now director of advertising and publicity. Two company mail rooms were consolidated. With the trend established, staff cuts and consolidations progressed and continue.

► **Costs Cut**—Operating costs, which had reached a high of 44.7 cents per available ton mile flown during 1946, dropped to 31 cents by last August despite rising supply prices and pay raises.

Average pay per employe increased from \$222 a month in 1946 to \$281 a month in 1947.

Immediate necessity as well as foresight must be credited with having inspired the 1947 belt-tightening program. At the close of 1946 Western showed a net loss of nearly \$1,000,000. Outstanding debts included bank loans of close to \$3,000,000; bills of nearly \$2,000,000 to Austin Co. for the carrier's new hangar and general offices at Los Angeles airport; \$600,000 to Federal Engineering Corp. (Standard Oil Co. of California); nearly \$225,000 to Pacific Airmotive Corp.; approximately \$400,000 to War Assets Administration, and about \$1,000,000 to Douglas Aircraft Co. for DC-4 conversions.

► **Plane Deal**—Unable to follow through on an order for 10 DC-6s, Western avoided cancellation penalties to Douglas by canceling five planes and working out a deal under which United Air Lines assumed the order for the remaining five.

While knitting its organization into a more compact unit, Western also has achieved financial consolidation. After showing a large book profit on the sale of Route 68, Western was granted a \$4,500,000 loan by the Reconstruction Finance Corp. With this money, it has paid off all its outstanding debts, retains \$700,000 toward its purchase of 10 Convair-Liners.

► **Net Profit**—Results of the economy program became evident in the second and third quarters of last year. A seasonal slump brought a fourth-quarter

operational loss of \$564,000—well below the \$832,000 operational deficit experienced in the same 1946 period.

With the help of profits from the sale of the Denver-Los Angeles route, Western during 1947 showed net earnings of \$613,000. Operating loss was \$565,655 last year—less than half the 1946 operating loss of \$1,221,000.

Costly as was the construction of Western's new office-hangar building, it has proved useful in cutting expenses incurred in maintaining previously-separated business and operating facilities in Burbank, Los Angeles, Hollywood and Beverly Hills.

► **Overall Problem**—To Drinkwater, domestic air transport's obvious over-expansion was not, basically, an individual airline problem. It was a problem of the industry as a whole, resulting from the postwar boom in air travel and route extensions. He points out that many carriers just now are beginning to reduce their expanded staffs in keeping with their income.

Western has learned its lesson, Drinkwater states, and during his tenure will not become a victim of the urge to expand again at the clink of a dollar. He insists that the company's economy program will not end until operational costs have been brought to the lowest possible point.

(This is the second of two articles on Western Air Lines' economy drive.)

Alaska Airlines Expands Nonscheduled Activity

Alaska Airlines, which has been active in nonscheduled operations between Alaska and the Pacific Northwest, has started irregular freight and passenger service between Anchorage, Fairbanks, Great Falls, Mont., and Chicago.

It plans to make about seven flights monthly with DC-4s. Passenger and cargo rates reportedly will be about one-third less than those charged by Northwest Airlines on its Chicago-Alaska link.

One Alaska Airlines spokesman said his company has instituted flights to the Midwest because meats, milk, butter, eggs and other products can be purchased cheaper there than in the Pacific Northwest. Much of the carrier's cargo to Alaska consists of foodstuffs.

The company's nonscheduled flights to the Seattle area have been under fire from Pan American Airways and CAB. The Board early this year ordered Alaska Airlines to cease and desist from carrying passengers on a common carrier basis between Alaska and continental U. S. Recent charter activity has found the company's planes flying as far as Johannesburg, South Africa,

carrying emigrants from England.

Early this month, the carrier was to open offices and a maintenance base at Great Falls, Mont. Meanwhile, President James A. Wooten announced the appointment of Edward S. Hudson as vice president and Robert L. Stewart as director of engineering and maintenance. For the present they will be based at Paine Field, Everett, Wash., where Alaska Airlines is opening a major overhaul and maintenance base.

Final Traffic Totals For 1947 Issued

U. S. domestic air travel in 1947 showed its smallest rate of gain in more than 15 years, except for the war year 1942 when the government took over many commercial planes.

Final figures of Air Transport Association disclose that domestic revenue passenger miles flown last year by certificated carriers, including feeders, totaled 6,101,258,000, a gain of 2.59 percent over 1946. Revenue passengers carried increased 5.64 percent to 12,898,401.

► **Downward Revision**—These statistics represent a downward revision of ATA's December estimate. At that time (AVIATION WEEK, Dec. 29), domestic revenue passenger miles for 1947 were expected to total 6,284,759,000 and revenue passengers 13,189,366.

Despite the small gains, the 1947 figures are encouraging when contrasted with passenger travel by bus and train. During the first nine months of 1947, Pullman, railroad day coach and bus passenger miles were down 42, 31 and 5 percent, respectively, compared with the same 1946 period.

► **Other Totals**—Domestic airmail volume last year showed a slight increase instead of the decrease originally anticipated. Mail ton miles in 1947 totaled 33,037,019, up 0.24 percent. This compares with a drop of nearly 50 percent in airmail volume between the war year of 1945 and 1946.

Domestic airfreight in 1947 was up 83.61 percent to a total of 35,644,016 ton miles; express up 19.24 percent to 28,703,534 ton miles; and revenue passenger load factor down to 65.12 percent from 78.74 percent in 1946.

Internationally, U. S. carriers in 1947 increased their revenue passenger mileage 64.51 percent to 1,810,512,000; revenue passengers carried gained 30.53 percent to 1,359,201; overseas airmail was up 89.70 percent to 15,482,935 ton miles; freight and express jumped 118.11 percent to 32,918,185 ton miles; and the revenue passenger load factor was down to 61.83 percent from 70.94 percent in 1946.

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SHORTLINES

- All American—Hopes to begin service to resort points on Maryland's Eastern Shore on May 15. Route was authorized in CAB's recent middle Atlantic area decision.
- BOAC—On Mar. 19 expects to inaugurate the first commercial air service between the United Kingdom and Japan. Plymouth flying boats carrying 22 passengers will make one round-trip weekly... Company's Atlantic division carried 22,549 passengers and 1,135,472 lb. of cargo between Apr. 1 and Dec. 31, 1947.
- Capital (PCA)—Carried 3,175,000 lb. of cargo in January compared with 1,758,830 lb. in same month last year.
- Continental—Has been authorized by CAB to include Lawton-Fort Sill, Okla., as an AM 29 intermediate point between Wichita Falls, Tex., and Oklahoma City for a three-year period.
- Mid-Continent—Reports a net loss of \$42,068 in January against a deficit of \$28,282 in same 1947 month. Operating revenues were up 25 percent but the passenger load factor dropped from 63.91 percent in January, 1947, to 56.35 percent in January, 1948.
- Northwest—Will operate three round-

trips daily when it starts service Mar. 15 between Detroit and Washington via Cleveland and Pittsburgh. One trip will be with Martin 2-0-2 equipment and the others with DC-4s.

► Pan American—Has been authorized to serve Delhi, India, as an intermediate point between Karachi and Calcutta.

► Peruvian International—Has increased New York-Lima service from three to four round-trips weekly.

► TACA—Recently placed in operation its \$1,000,000 repair and maintenance base at Moisant International Airport, New Orleans. Movement of all operations except the president's office from Mobile to New Orleans has been completed... Carrier's service between New Orleans and Central America has been increased to three flights weekly.

► Trans-Air Hawaii—The Honolulu-based all-cargo carrier flew 1,591,314 ton miles in 1947.

► TWA—Basra, Iraq, has become a regular weekly stop on the Bombay run.

► United—Installation of radar altimeters on UAL's fleet of 109 planes has been completed... Airfreight in January reached 1,117,591 ton miles against 491,383 in January, 1947. Express increased from 449,242 to 601,752 ton miles.

► West Coast—Will offer 15 percent reductions on a book of six tickets and a 20 percent reduction on books of 12 tickets for its "commuter" runs out of Portland and Seattle.

Dwerlkotte Leaves Western Airlines

Leo H. Dwerlkotte, executive vice president and director of Western Air Lines, has resigned.

Dwerlkotte will serve as consultant to the company on pending mail rate applications and other financial matters. He has not announced any other plans.

Other personnel developments:

• American—Victor Vernon, associated with AA for nearly 18 years and assistant to President Ralph S. Damon since April, 1945, has retired to become an aviation consultant.

• Flying Tiger Line—Leonard Kimball, formerly director of public relations with TWA, has joined the sales staff.

• Northwest—K. D. McKenzie, director of sales, has been named to the newly-created position of European director with headquarters in London.

• Pioneer—Robert J. Smith, PAL president, has been promoted to Brigadier General in the Air Force Reserve.

• Slick—Joseph F. Grant has been appointed secretary.

• TWA—J. H. Waterman has been named system safety manager and John L. Burlington assistant manager of passenger sales.

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EDITORIAL

THE NEW YORK TIMES, SATURDAY, MARCH 6, 1948.

The Problem of Secrecy

FBI and Services Used to Investigate Publication of 'Confidential' Information

By HANSON W. BALDWIN

Agents of the Federal Bureau of Investigation and the inspector generals of the Army and Navy have been utilized recently to investigate the publication in newspapers and magazines of so-called confidential or secret information.

The use of these agencies to question newspaper men represents only part of the process which some public information media fear is tending more and more to restrict the flow of information to which the public is entitled.

A United Press correspondent, Robert Miller, who visited Arabia briefly, knew the same

Case of the XS-1

But the case of the XS-1 is perhaps the most famous of the recent incidents which have caused considerable perturbation among some information media. The Bell XS-1 is a small experimental aircraft, the first of a series of "flying laboratories" designed to investigate the mysteries of high-speed flight. The plane was modeled after a German design, at least one of which fell into the hands of the Russians.

Even before the XS-1 had completed its preliminary tests, detailed descriptions of it, with photographs, were released by the Air Force and claims were made that it would penetrate the sonic barrier to reach a speed of 1,500 miles or more an hour. These claims, however, were privately discounted by the experts; the XS-1 has a conventional wing design, and it was then believed that "swept-back" wings would be essential to any plane that hoped to penetrate the sonic barrier.

This assumption, however, proved to be false. Last year the XS-1 exceeded the speed of sound in a number of flights. Rumors of these record-breaking flights were widely circulated. The story came into the possession of Aviation Week, a McGraw-Hill publication, edited by Robert H. Wood. After some delay Mr. Wood published it.

Editor Is Questioned

Secretary of the Air Force W. Stuart Symington and some other leaders reacted violently. They asked the Department of Justice for an investigation and FBI agents repeatedly have questioned Mr. Wood and other members of

the McGraw-Hill staff. Mr. Symington asserts that Mr. Wood broke a confidence. McGraw-Hill declines to enter into a controversy with Mr. Symington while the Department of Justice inquiry is proceeding.

This correspondent's investigation has shown conclusively that the case is not simple. The clear facts are that the Air Force handled the whole matter very badly. There was no clear-cut understanding about withholding the story; indeed, there is evidence that an Air Force release dealing with the breaking of the sonic barrier (though not mentioning the XS-1) was being prepared. McGraw-Hill knew this release was being prepared; not until they knew it was the story published.

Background of the decision was important. Mr. Wood and other newspaper men had been asked in the past to withhold publication of exclusive stories on the basis that the information was confidential, only to find the same information released generally by the Air Force or other services later on.

Secretary Symington says publication of the story was of great aid to Russia and to any potential enemy, in that it informed their researchers that planes of conventional wing design could penetrate the sonic barrier, and thus saved Russia months of time. In view of the Russian possession of an XS-1 type aircraft, captured from the Germans, and of German research data, this seems far-fetched; it does not credit the Russians with the same brain power we possess.

In any case, the breaking of the sonic barrier by the XS-1 was pretty widely rumored even before Aviation Week published its story; an adept agent could have known it. The whole episode sums up, in this correspondent's view, to a tempest in a teapot and to a good example of how public relations should not be conducted.

Dangerous Implications

But it has dangerous implications. For inter-service friction and personal ambitions, playing at least a behind-the-scenes part, were added to a determined military attempt to restrict informa-

tion. The Department of Justice and the FBI were used, at Air Force request, in what amounts in effect to a punitive and threatening measure against a magazine in order to ascertain the source of the magazine's information, and, presumably, to impress and overawe it.

Although the investigation has not been ended formally, it is already clear that neither Mr. Wood nor Aviation Week has transgressed any law, nor have they, in this correspondent's opinion, hurt the country or aided "the enemy."

But the case has more serious implications. For the XS-1 story apparently is to be utilized by the Justice Department and the Air Force as an argument before Congress for additional legislation which would give Government the legal club needed to restrict the flow of news to what it considered desirable.

There have been periodic attempts to obtain new laws which would "protect" government information, or strengthen old ones. Revision of the Espionage Act has been requested frequently, and at the last session of Congress a bill which would make it a criminal offense to publish any information contained in coded messages was introduced. Much of the proposed legislation is seemingly innocent, but some of it is dangerous: the coded messages bill, for instance, ostensibly legislation to protect our codes, could be utilized to muzzle the press, since virtually no Government information of any importance, entering or leaving the country, is uncoded.

New Bill Called Broad

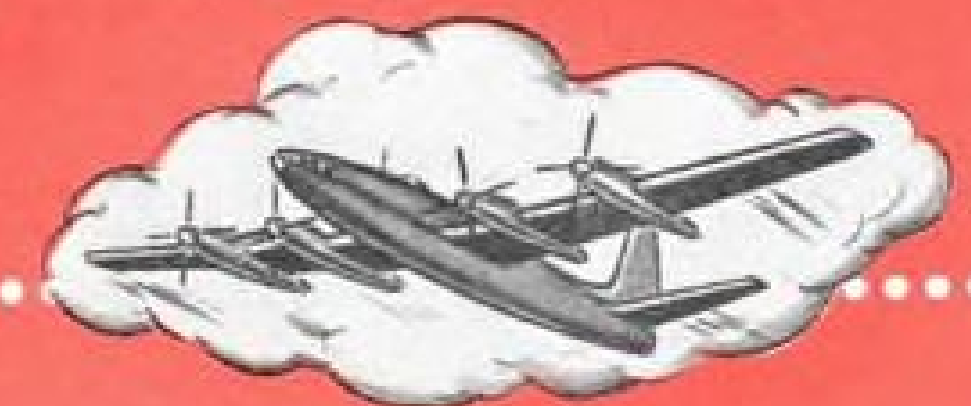
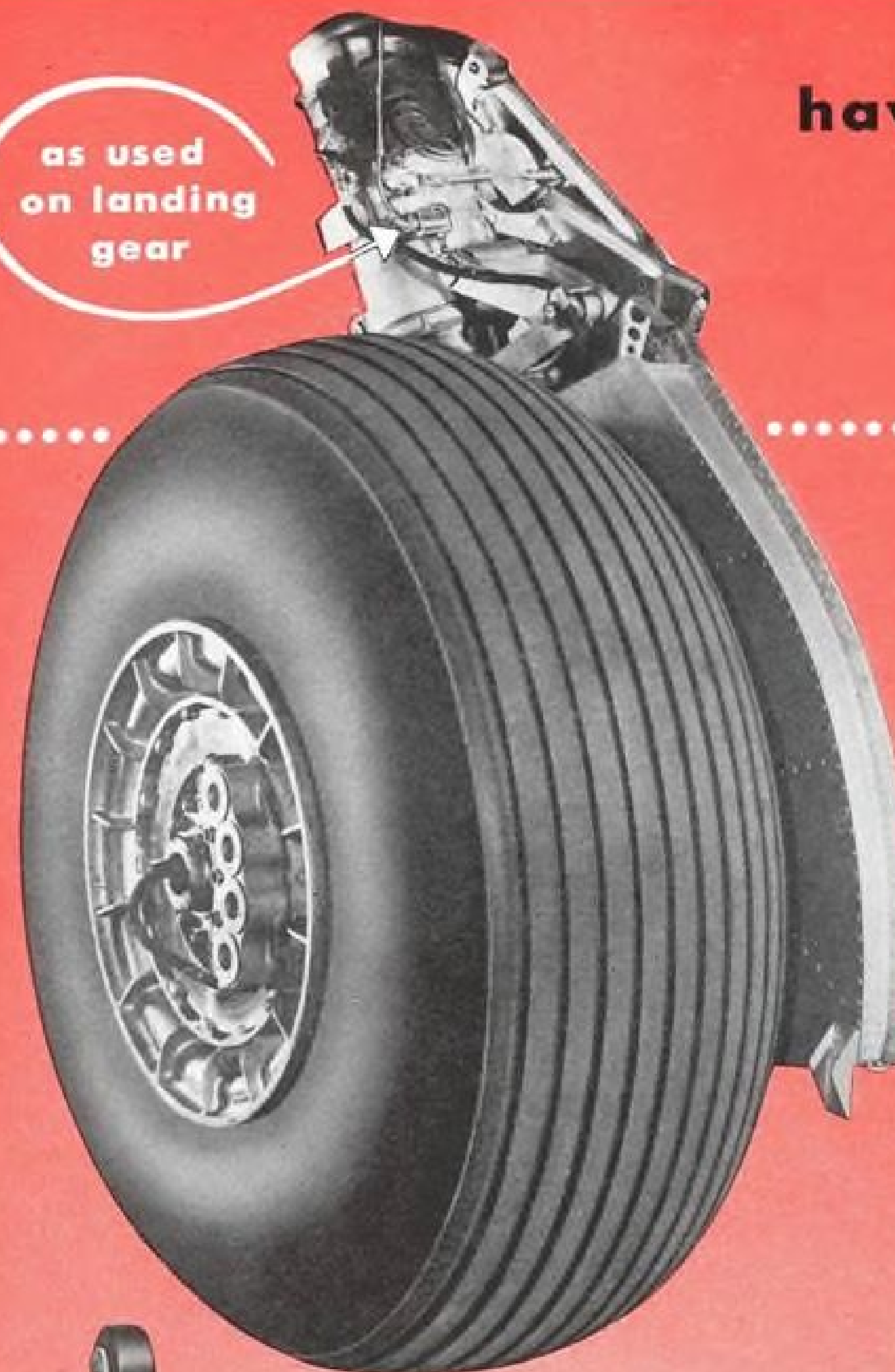
A new bill, which the military services and the Justice Department are expected to sponsor, would greatly broaden the prior provisions of the Espionage Act. Undoubtedly the new bill, if approved, would make easier the conviction of actual spies, but its terms are so broad—it defines as a criminal offense, for instance, the transmission of any "information" concerning the national defense "to any person not entitled to receive it"—that it could be used, and undoubtedly would be used, in the light of past experience, to restrict and limit the legitimate information media of the country.

All such projected legislation ought to be examined with the utmost care; there should be no hysterical pressure on Congress to pass it. For it is obviously far less dangerous to our way of life to allow one or two spies to escape through the loopholes of legislation than to restrict, hamper and confine the press—the freedom of which in scrutinizing government, analyzing government and criticizing government, is the very pillar of democracy.

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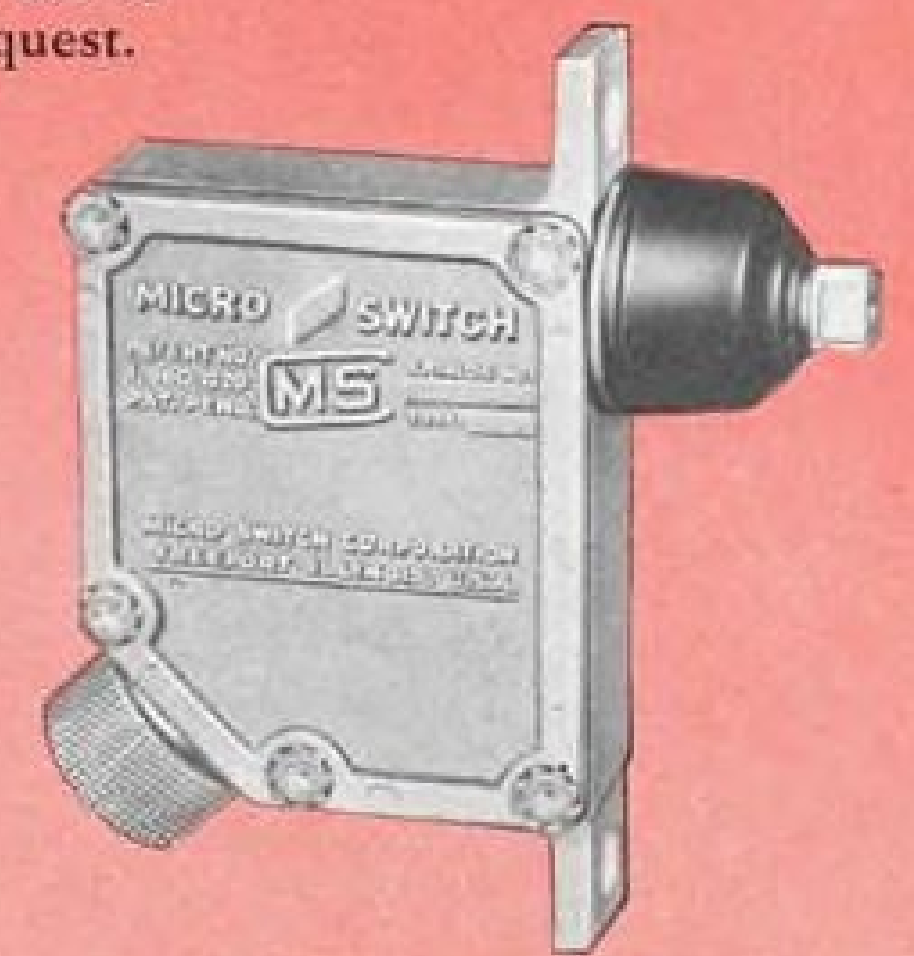
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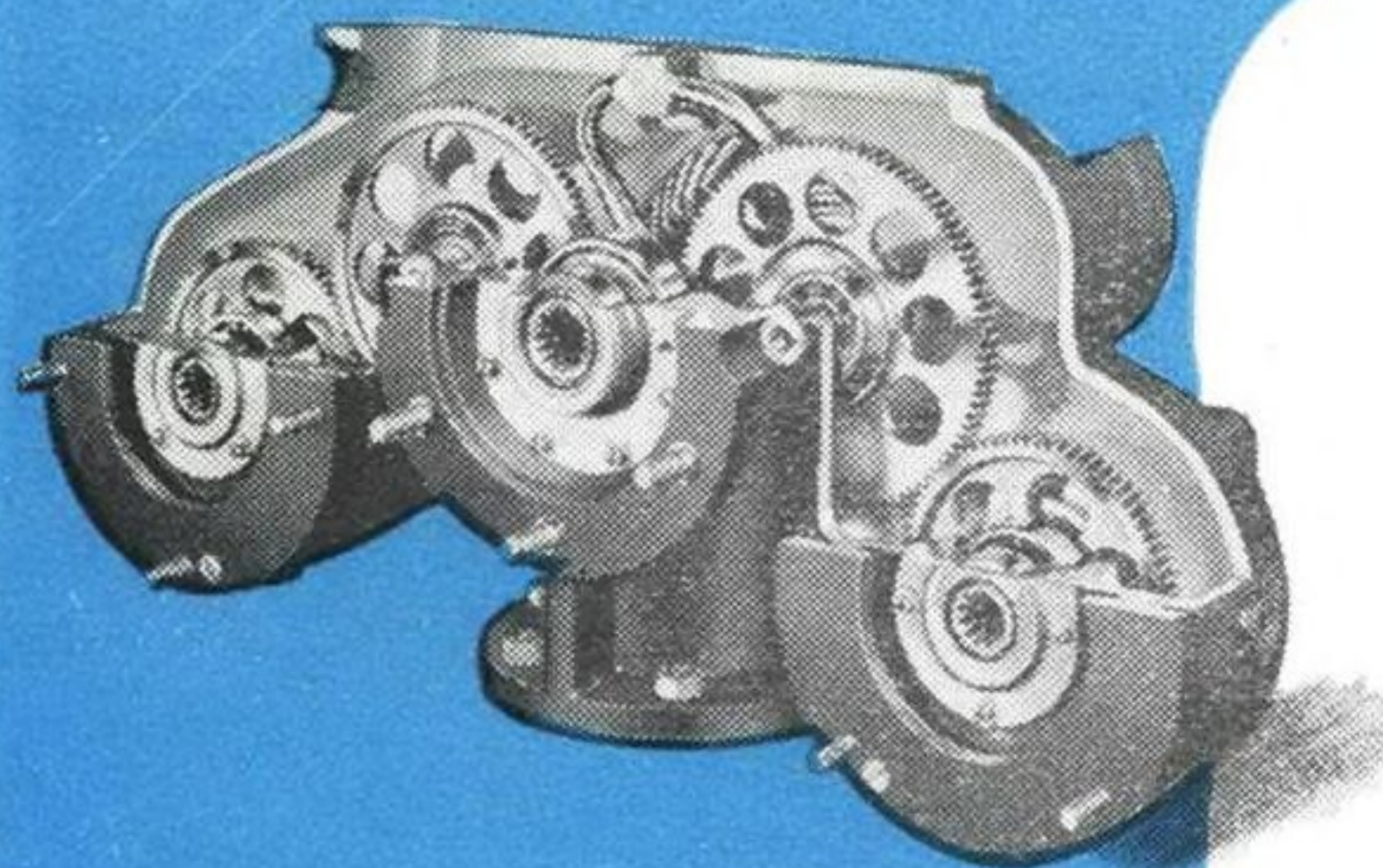
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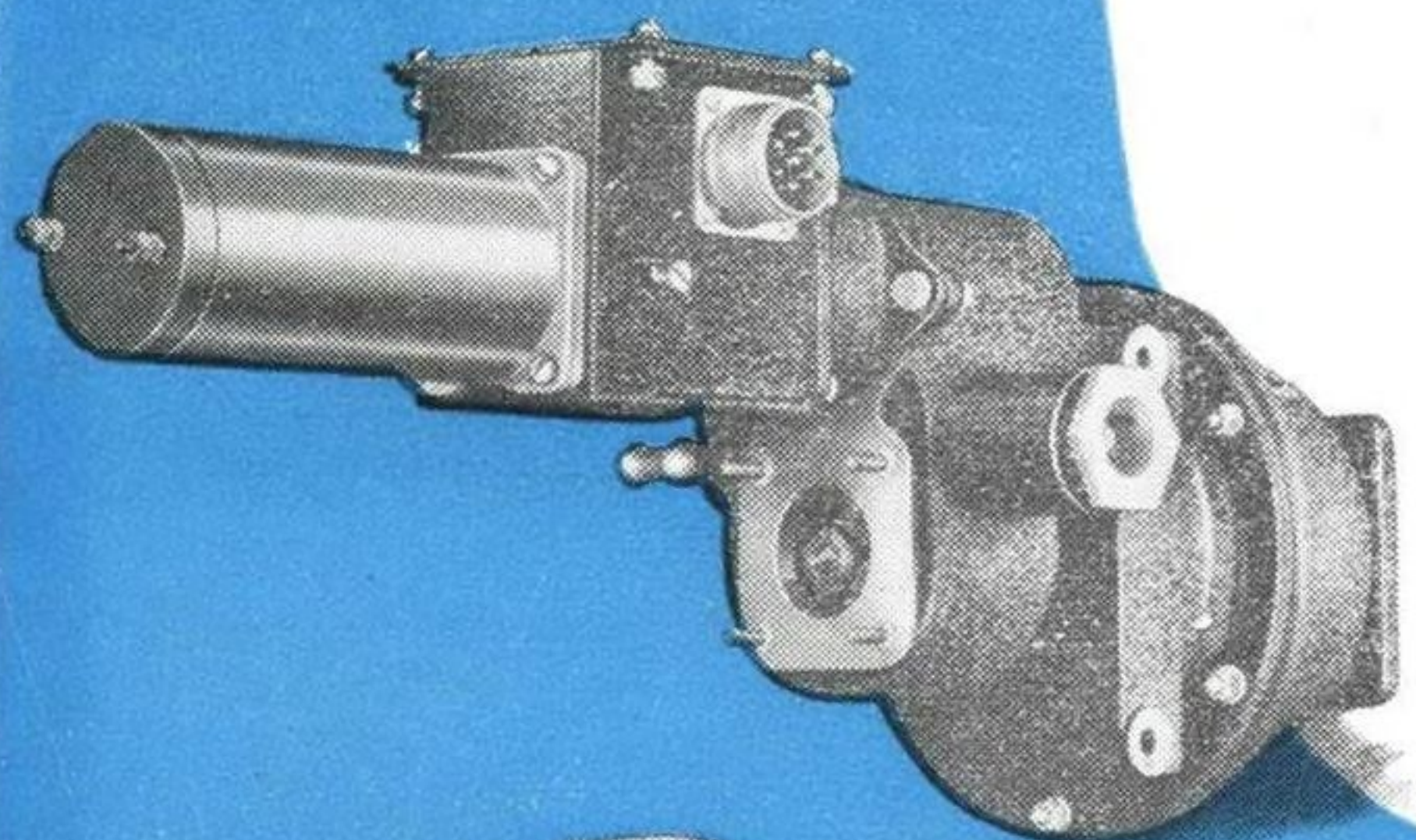
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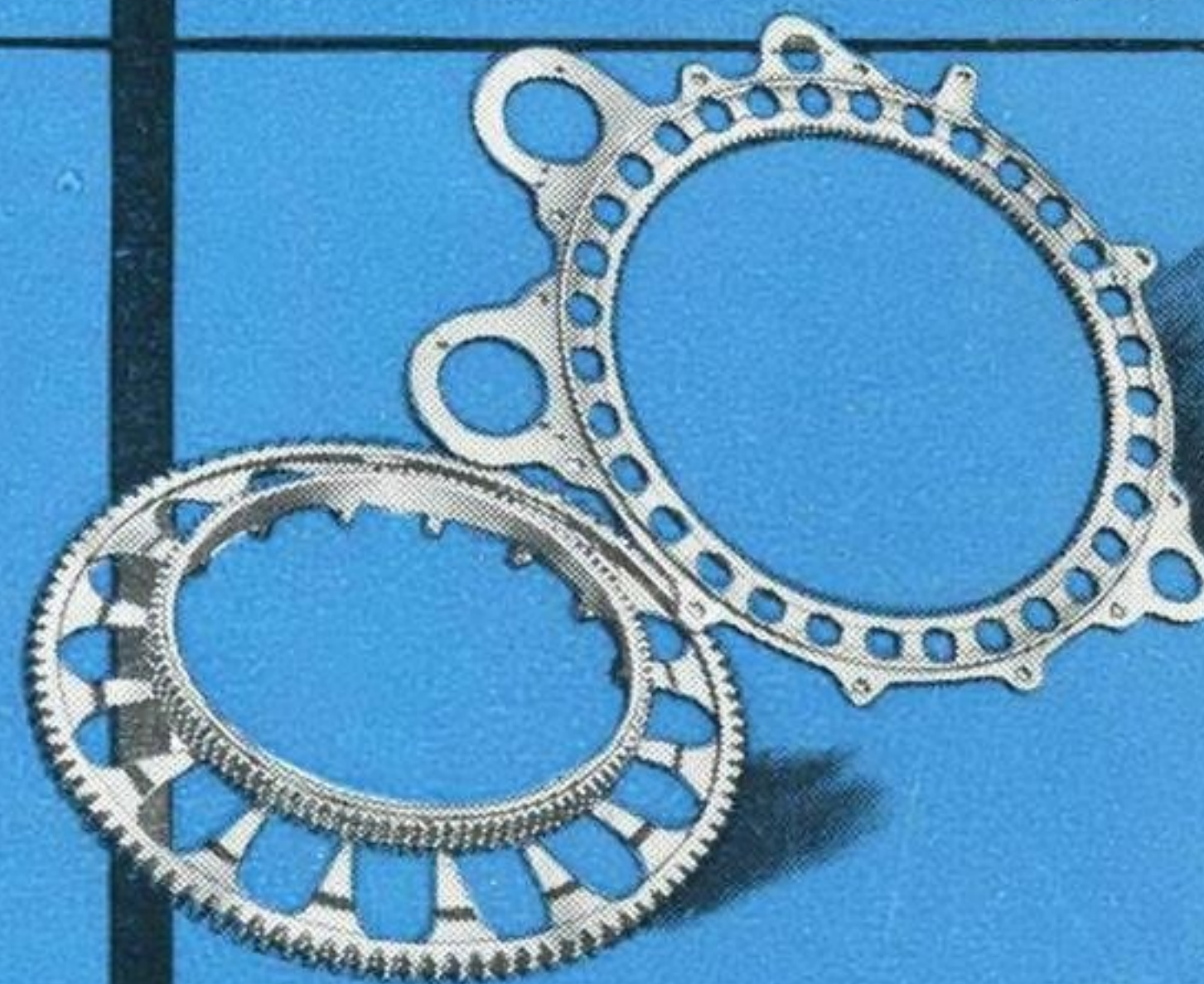


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