

AVIATION WEEK

APRIL 26, 1948

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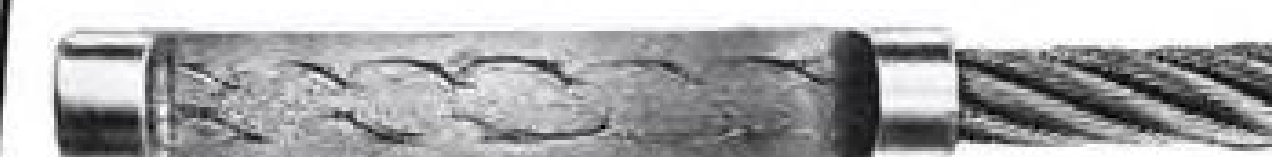


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AN 668 Standard Eye End



AN 667 Standard Fork End



AN 666 Standard Stud End



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AN 663 Ball and Double Shank



Macwhyte Sockettype Cable Terminals
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"Hi-Fatigue"
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GENERAL ELECTRIC

AVIATION WEEK

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SPECIFICATION
Ball bearing for the main rotor shaft of jet engines.

- MUST be compact and lightweight.
- MUST compensate for rapid distortions due to wide temperature variations.
- MUST maintain shaft rigidity despite powerful gyroscopic forces and heavy thrust loads.
- MUST be perfectly balanced for speeds up to 35,000 R.P.M. (ultra-precision).

SPECIALIZATION
An entirely new type of aircraft ball bearing researched, designed and engineered by the Fafnir Aircraft Division

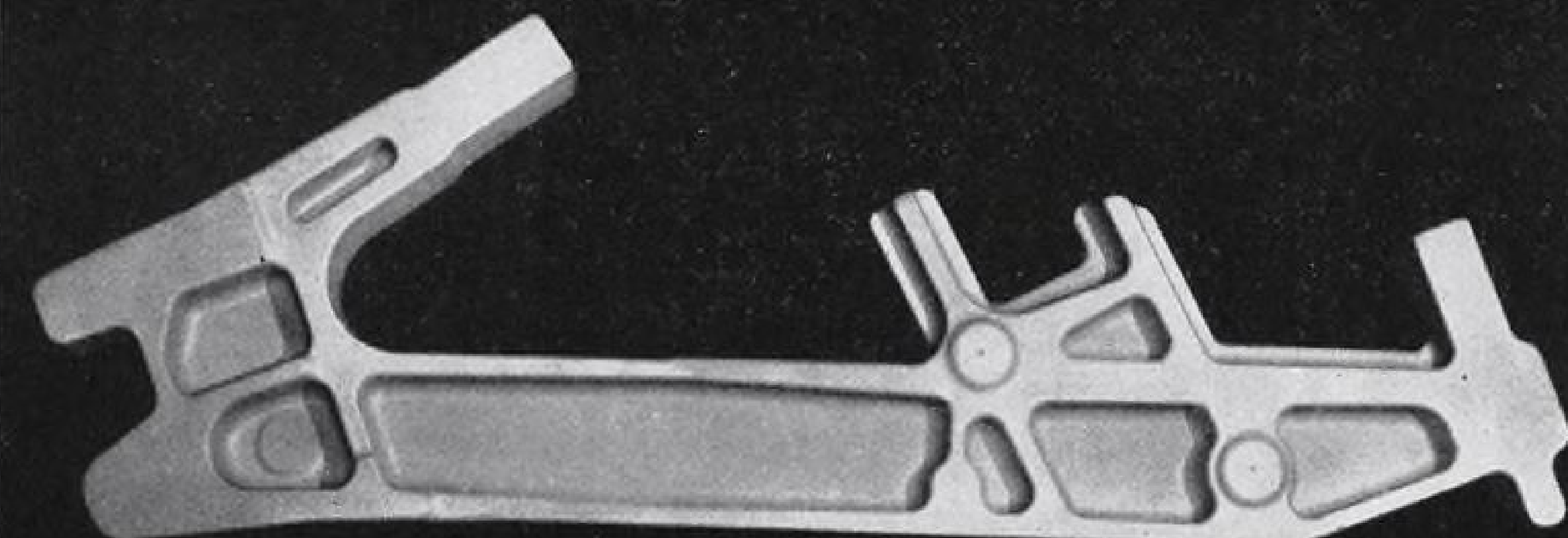
The Fafnir Duplex External Self-Aligning Super-Precision Ball Bearing

- ★ Duplex radial-thrust bearings take thrust loads from either direction.
- ★ Wide self-aligning seat handles shaft deflections with minimum bearing movement.
- ★ Duplex bearings with single self-aligning seat hold axial motion to a minimum.
- ★ High speed Super-Precision design with machined composition retainer as used in the finest, high speed machine tools.

For twenty years the Fafnir Aircraft Division has grown with the aircraft industry by working constantly with research men, designers and engineers. That's how these Fafnir specialists got the industry habit of regarding a job done as just the beginning of a job to do... using each new achievement as the take-off for another advance.

That is also why Fafnir has been responsible for the major developments in ball bearings for aircraft. And why Fafnir is the logical first choice for either aircraft ball bearings or for air-minded collaboration in solving new bearing problems. The Fafnir Bearing Company, New Britain, Conn.

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FAFNIR
Aircraft
Ball Bearing
Division



THE forging shown above, over six feet in length, is used in the fuselage structure of one of the fastest aeroplanes in the world. It is forged from 75-S aluminum alloy and is one of the largest die forgings ever attempted in this difficult material. The availability of such forgings opens new opportunities for aircraft builders to simplify and improve many structures which heretofore of necessity have been built-up assemblies—all of which will promote increased quality and performance, together with decreased costs, and thus further enhance the superiority of American aircraft design.

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NEWS SIDELIGHTS

Radar Warning Plan

Navigation Committee of the Research and Development Program, headed by American Airlines' President Ralph Damon, has submitted a report to Defense Secretary Forrestal.

Still classified, the report contains recommendations for integrating military requirements for an early warning radar network with the new electronic, all-weather civil airways program.

Integration and administration of the two programs will be a key point in the battle for the large appropriations needed from Congress. Cost of the electronic airways program has been set at over a billion dollars, while the radar network may cost even more.

Forrestal Fails to Stop Air

Defense Secretary Forrestal made a last-minute, last-ditch attempt to halt the snowballing movement in the House for a 70-Group Air Force last week by summoning Rep. Carl Vinson, its most effective sponsor, to his office for indoctrination on "balanced" service forces involving a 55-Group Air Force.

Vinson summarized for AVIATION WEEK what transpired at the session, as follows: "The Secretary expressed concern to me that a 70-Group air program would throw the country's defense out of balance. I expressed concern to the Secretary that the country's defense is now out of balance, and that a 70-Group air program would bring it into proper balance, since strategic bombing is now our first line of defense. The Navy was."

Now ranking minority member of the House Armed Services Committee, Vinson served for 15 years as chairman of the Naval Affairs Committee, was dubbed "admiral" for his enterprising sponsorship of the Navy as "the first line of defense."

Air Mail Rate Tiff

An attempt by ATA's Ramspeck to remove the "government subsidized" label from the air transport industry may backfire. Testifying before the House Interstate and Foreign Commerce Committee last week, Ramspeck reasoned that if Post Office Department expenditures for airmail service exceeds revenues, it means that the users of airmail are being subsidized and are not paying the way of the service. It did not mean that air carriers were being subsidized, he maintained.

Lend-Lease Brewing

Next steps in the Truman administration's "cold war" against Russia are scheduled to be military alliances with Western European powers followed by a new version of military Lend-Lease. Aircraft shipments, mostly World War II surplus, will be an important part of the new Lend-Lease program. Deals will be handled like those with Turkey, Greece and China, who are now getting U. S. combat planes and parts.

Members of the House Civil Service and Post Office Committee, aiming to correct the deficit operations of the airmail service by separating subsidy from service payments to carriers and by boosting the airmail rate, are now saying that "Ramspeck has put forth the soundest argument to date for an increase in the airmail rate. If airmail users are being subsidized, the cost of the service to them should be raised."

ATA, of course, has vigorously fought an increase in the airmail rate.

Air Force Blues

Credit barnacled Admiral William Leahy with major influence in scuttling the Air Force's blue uniform plans. Leahy brought strong pressure on Congressmen when the \$10,000,000 required to shift the air from khaki to uxbridge blue came up for a vote on the House floor. The admirals don't relish seeing other service men parading in blue, even though it is several shades lighter.

New Controls

Two sets of controls are being readied for Congressional approval. One set is for the future, the other to be effective at once.

"Standby" controls would be approved by Congress and shelved for a war or "real" emergency. These, in the form of a modified Second War Powers Act, are being drafted for Congressional approval by the National Security Resources Board. They would go into effect "if and when".

But the restrictions that industry fears are intended to weed "non-essential production" out of the increasingly straining economy so that the "military" and "political" production efforts will have room to grow.

Last fall President Truman asked for a set of "standby" controls to stop inflation. These were simple price and limited allocation measures. They have been overshadowed by the controls now being talked. The new controls being assembled would parallel those in effect during World War II.

Priority and use controls are being mentioned for various commodities, and there is an increasing conviction among some economists that all strategic materials should be put under rigid management.

One economic camp, close to the military, is advocating a return to government buying and allocating of those strategic metals and minerals which the country must import to any extent. Included in this category are copper, lead, tin, chrome, manganese, tungsten, antimony, graphite, and nickel.

MATS Progress

Basic agreement between the Air Force and Navy governing operations of MATS, the merged air transport service, has been concluded following survey trips and study by MATS Commander Maj. Gen. Lawrence Kuter and his deputy, Rear Admiral John Whitney. The agreement has eliminated the worst snags in lower Air Force and Navy echelons and is now sliding through what should be routine approval at higher levels. It is expected to define more specifically what air transport Navy may keep and set up definite allocations of funds and equipment from both services for MATS.

Dryden's New Policy

Current west coast survey trip of the 15-man National Advisory Committee for Aeronautics and official party is mounting evidence of the committee's increasing concern for immediate practical industry design and development problems. This new policy is one of the salient features of the administration of Dr. Hugh L. Dryden. The party is touring airframe plants, university and industrial research facilities en route to Ames Aeronautical Laboratory for official NACA meeting. Purpose of the tour is NACA desire to acquaint itself with most pressing industry problems, and with current development status of a variety of projects upon which to examine its own aeronautical research program. The industry will welcome this new personal interest of NACA in its technical problems and, even more so, consequent early solution.

NEWS DIGEST

DOMESTIC

CAB Officials are investigating the crash of a Pan American Airways Constellation during an instrument approach to Shannon (Eire) Airport. Thirty of the 31 passengers aboard the plane, bound from Karachi to New York, were killed.

A \$10 million item for the new blue Air Force uniform is now before the Senate. No definite date has been set for Senate consideration of the measure.

American Federation of Labor has called on all of its affiliates to do "everything legally possible" to aid the Air Line Pilots Association in its 12-week-old strike against National Airlines.

Boeing Airplane Co.'s C-97 Strato-freighter set an unofficial record for military air transport planes when it flew 2491 miles from Hickam Field, Hawaii to Fairfield-Suisun Air Force Base, Calif., in 8 hr. 35 min.

Thomas Hoyt Jones, Secretary and director of Glenn L. Martin Co., died Apr. 14 of a heart attack at Fredericksburg, Va. He had been associated with the company since World War I as legal counsel and was a member of the Cleveland and American Bar Associations.

FINANCIAL

Fairchild Engine and Airplane Corp.'s annual meeting of stockholders scheduled for Apr. 28, 1948, will be postponed due to auditors' inability to complete company's annual report.

Beech Aircraft Corp. reported net income of \$676,480 or \$1.70 per share for six months ended Mar. 31. Sales totaled \$12,611,524 for the same period.

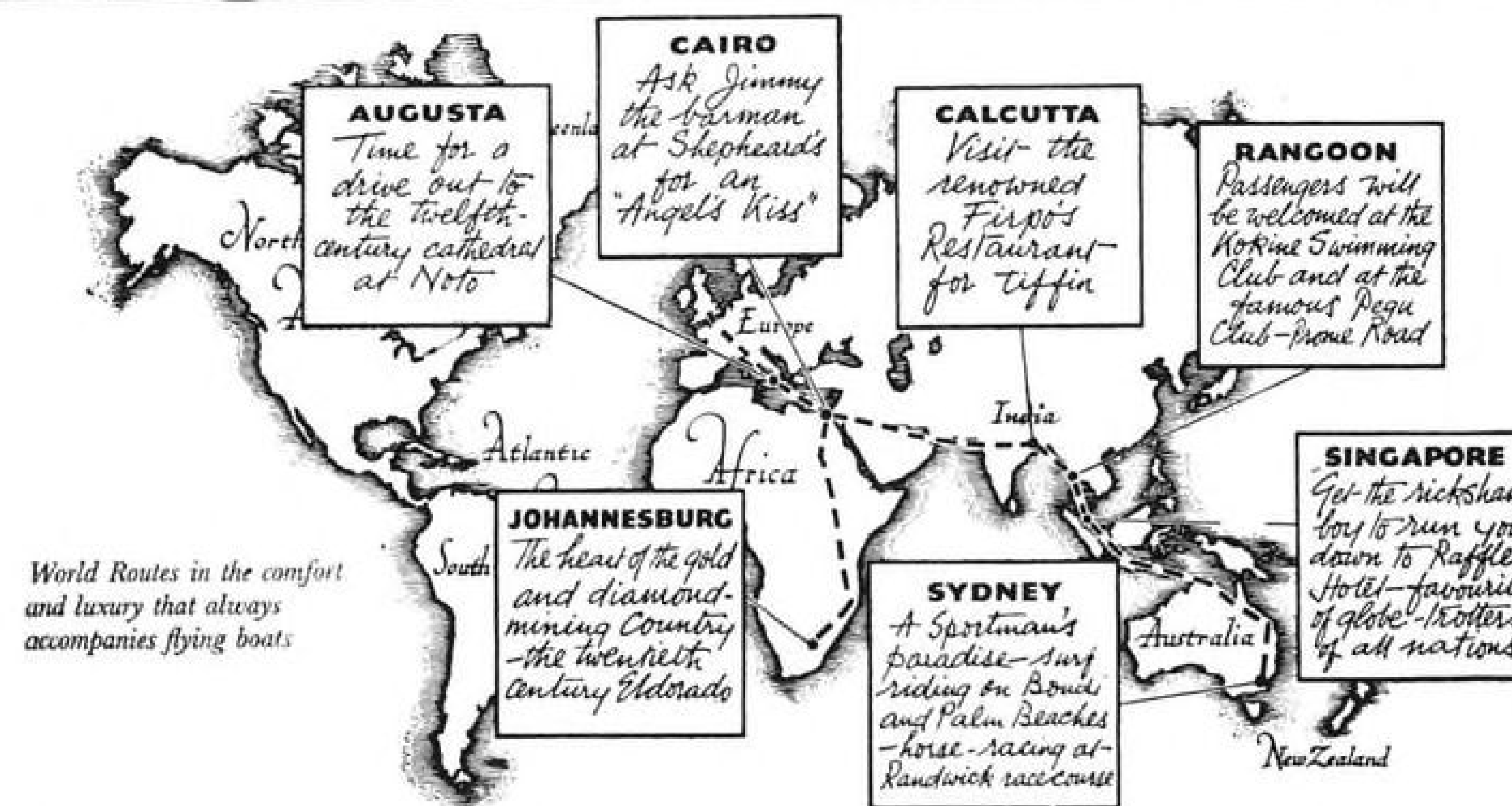
Northrop Aircraft Corp. announced net profit for six months ended Jan. 31, 1948, of \$189,454.45 or 42 cents a share. Working capital at the end of period stood at \$3,333,000, with current ratio slightly in excess of two to one.

FOREIGN

Swedish Air Lines (ABA) reports termination of the maintenance employee strike which crippled the company's European operations since last November.

DeHavilland D. H. 108 tailless research airplane established a new 100-km. closed-course record of 605.23 mph., breaking the former record held by the Supermarine Attacker by more than 40 mph. The craft, similar to the one in which Geoffrey DeHavilland lost his life, is powered by a D. H. Goblin engine and is one of two now flying.

Some Short jottings for airline operators and their crews



What does the modern business man want . . . ?

Who says he's in a hurry?

As air travel becomes more and more an everyday affair the popular press announce one startling record after another for reduced times between various terminals. In order to stress the importance of these facts, the press has had also to produce someone who really wanted to move about the world at these record speeds, and who fitted the bill better than the "modern business man"? He, with vast demands on his time in all parts of the world, would appear to be just the man who would be prepared to sacrifice any amount of comfort for speed.

Has he asked for speed?

Experienced operators of airlines, such as Imperial Airways before the war and now B.O.A.C., have dealt with every type of passenger over many years. They feel that if this type of business man exists at all he is so rare as to be almost legendary. They have other, and quite different, ideas of what the modern

business man requires on his long or short journeys, by air. He wants to waste no time; travel in comfort, and have as pleasant a break from business routine as possible.

How to get him there on time . . .

No time is wasted where schedules can be rigidly kept and this can be achieved more easily, we suggest, with a fleet of flying boats than with any other type of aircraft. Business men—and any other passengers for that matter—want to know that they will arrive at a given place at a given time and be able to work their appointments to match. If they also have time at the intermediate stops either to enjoy themselves or do other business, so much the better.



How to make him comfortable

Give him plenty of room. Don't cramp him. Give him a cabin with not more than about five fellow passengers whose faces he can see—he doesn't want to watch the backs of their necks, or the backs of their chairs, possibly for days. Give him large windows with a wide view of passing scenery. He'll get all these and a separate promenade cabin and cocktail bar—room to move about and a changing atmosphere and view—in a Short flying boat. Soon he'll find it's fun to fly by flying boat and it's a habit that sticks.



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THAN A SHIM . . .
an effective oil seal!

LAMINUM, the "solid" shim that peels for adjustment, has long been known as more than an ordinary shim in attaining proper spacing in the assembly of moving parts. Fitted with babbit lugs, LAMINUM provides an effective seal against loss of oil and pressure.

Manufactured and stamped to your exact specifications at our factory, LAMINUM is composed of precision brass or steel laminations bonded into a "solid" shim. The babbit lugs, integral parts of the shim, flatten under take-up pressure to assure complete seal of liquid and pressure.

Write for data and application chart.

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THE SOLID SHIM THAT *peels* FOR ADJUSTMENT

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PROVED, RELIABLE PRODUCTS

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"Hallowell" Ready-Made, most serviceable Shop Equipment of Steel gives years and years of excellent service, which explains its ever-growing popularity. The line comprises: Work Benches, Tool Stands, Foreman's Desks, Chairs, Stools and Trucks—in a wide variety of styles and sizes—all built of sturdy, hard-wearing steel.

"Flexloc" Self-Locking Nuts are of the one-piece, all-metal construction, available in N.F. and N.C. thread series. The torque is unusually uniform, because it is controlled. The "Flexloc" can be used over and over again without losing much of its locking ability. Sizes from #6 to 2" in diameter. Ask for your samples and literature.

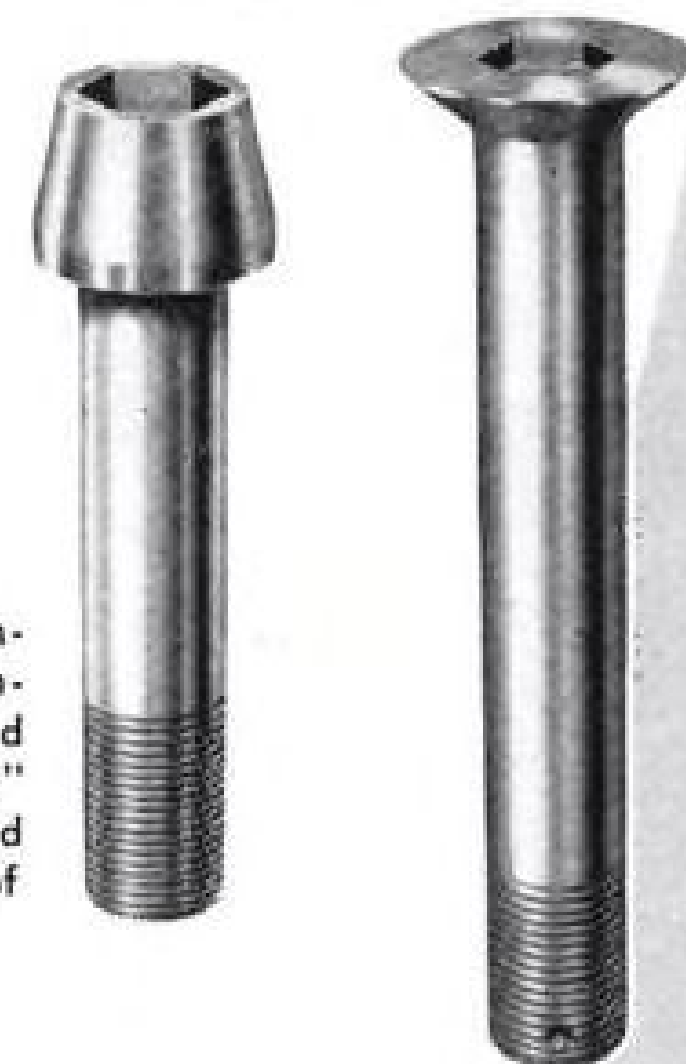
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SHOP EQUIPMENT OF STEEL



FIG. 1855 "HALLOWELL" Movable Tool Stand of Steel... heavy duty... may be had with rubber-tired casters.



FIG. 732 "HALLOWELL" Work Bench of Steel—several hundred combinations—a number of standard heights, widths and lengths.

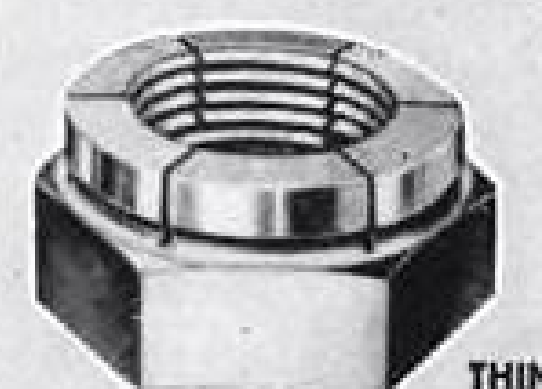
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Vol. 48, No. 16

AVIATION WEEK

Apr. 26, 1948

First Moves Made to Step Up Production

Wright, Bell, Boeing set for new business; other companies report plans.

Industry spotlight was on procurement last week as signs of new government policy began emerging from the torrid battle for air power still raging on Capitol Hill.

Among the week's industrial bright spots:

• **Wright Aeronautical Corp.** of Wood Ridge, N. J., revealed it is in quantity production on a \$17,518,135 contract for R-3350-26 W engines for installation in the Douglas AD-2 Skyraider and the Lockheed P2V-2 Neptune patrol plane.

• **Curtiss-Wright Corp.** airplane division at Columbus, Ohio, received an Air Force authorization to spend \$1,500,000 for tooling, materials and engineering necessary for quantity production of the P-87, four jet all-weather fighter now being flight tested at Muroc. C-W expects to be ready for quantity production on this plane next spring.

• **Bell Aircraft Corp.** received a \$2,000,000 Air Force order for 70 Model R-13B helicopter. Company also revealed that the XR-15, a new experimental helicopter for the Air Force is undergoing flight tests.

• **Boeing Aircraft Corp.** modification program for B-29s at its Wichita plants was gathering momentum with indications that most of the 2000 B-29s now in storage will be readied for active service. Air Force is giving top priority to this project and other companies—probably Bell and Martin both of whom made B-29s during the war—may be called into the program to add speed. Major B-29 modifications include equipping of tanker and receiver aircraft for aerial refueling, installation of fuel injection engines and winterization. Boeing B-50s will also be winterized following climatic tests now under way at Eglin Field, Fla.

Following developments on revision of government procurement policies occurred:

• **Legislation** was introduced asking for a long-range aircraft procurement policy. Sen. Owen Brewster (R. Me.) sponsored the measure on behalf of the Congressional Air Policy Board. It will require

Secretary of National Defense to submit an annual report to Congress each Jan. 15 outlining a five-year aeronautical research and procurement program for the Air Force and Naval Aviation. Another measure sponsored by the Board called for streamlining procurement procedure by establishing a temporary commission on military contract audits composed of representatives of the National Defense Establishment, the Bureau of Internal Revenue, and the Comptroller General to make a comparative study of rules and regu-

lations of the three agencies governing audit, settlement and allowances of costs and expenses on government contracts.

• **Amendments to the House \$3,198,100,000 aircraft procurement bill** making all contracts subject to the Renegotiation Act; requiring the Defense Secretary to submit quarterly reports to Congress on progress of obligating funds appropriated; and assigning Presidential responsibility for determining that all contract specifications "insure maximum utilization of improvements

Military Aircraft Available for 1949 Procurement

* Indicates already in quantity production

** Indicates contracts already indicated

Air Force

Jet Fighters

- * Lockheed P-80
- * Republic P-84
- * North American P-86
- ** Curtiss P-87

Jet Bombers

- * North American B-45
- Convair B-46
- ** Boeing B-47
- Martin B-48
- Northrop B-49

Others

- * Convair L-13
- * Boeing L-15
- * Sikorsky R-5
- * Bell R-13
- Republic F-12
- Hughes F-11

Recip. Fighters

- * North American P-82

Recip. Bombers

- * Northrop B-35
- * Convair B-36
- * Boeing B-50

Cargo

- * Boeing C-97
- * Fairchild C-119
- * Lockheed C-121 Connie
- * Northrop C-125 Pioneer
- ** Douglas DC-6
- Convair C-99

Naval Aviation

Jet Fighters

- * McDonnell FH-1
- * McDonnell F2H-1
- * Grumman F9F
- * Vought F6U
- * North American FJ
- Douglas F3D

Patrol

- * Lockheed P2V
- * Martin P4M
- Convair P5Y
- Martin P5M
- * Martin PBM-5A
- Boeing P3B

Other

- * Sikorsky HO3S
- * Bell HTL
- * Piasecki HRP

Recip. Fighters

- * Grumman F8F
- * Vought F4U-5

Attack

- * Douglas AD
- * Martin AM
- ** Grumman AF

Cargo

- Lockheed R60
- Martin Mars

in aircraft and equipment consistent with defense needs of the United States".

• **Indications that a Forrestal-ordered study** is under way to determine what economies can be effected in interservice aircraft procurement. Among projects under consideration are use of the same jet fighter types by both Air Force and Navy and common use of the same trainer types by both services. Standardized aircraft nomenclature is another point being taken into consideration.

• **An Air Force procurement program** spearheaded by Undersecretary Arthur Barrows to cut costs on future contracts. Air Secretary Symington told House Appropriations Committee Chairman John Taber (R. N. Y.) that savings of \$100,000,000 could be made on next year's procurement program if the Air Force got sufficient funds to begin greatly expanded procurement for the 70-Group program. Barrows job will be to accomplish the \$100,000,000 savings among other things.

Meanwhile the industry was standing by, waiting for the procurement bill to become law and the flow of contracts to begin. Defense Secretary Forrestal emphasized that one of the principal purposes in pumping funds into the aircraft industry immediately was to spotlight production bottlenecks that might hamper later emergency expansion. An AVIATION WEEK survey of key aircraft manufacturers on anticipated bottlenecks produced the following comments:

► **Robert E. Gross**, president, Lockheed Aircraft Corp.: "Our tight spots will be landing gear assemblies, specialized forgings, and specialized sections of aluminum extrusions requiring new dies. I anticipate no shortage of key or top personnel. Our administrative and executive teams at top levels have been preserved. We may have some difficulty in obtaining competent engineering aid. Engineering staffs have been curtailed sharply since the war. I anticipate a shortage of engineers qualified in original design projection. Aircraft structures have become so complicated that we can no longer depend upon a single good aerodynamicist, but must have many able engineers, each skilled in a design specialty."

► **J. H. Kindelberger**, president, North American Aviation, Inc.: "I feel that our most serious problem will be in obtaining engines and vital accessories at a rate to keep pace with airframe assembly. Both items are confronted with new technology in their development to meet present and future requirements. There are very few World War II items that can be used successfully in planes which will be built in the near future. Our World War II management and executive teams virtu-

ally are intact, and I foresee no problems on this point."

► **T. Claude Ryan**, president, Ryan Aeronautical Co.: "Aluminum and steel supplies probably will be critical, and result in shortages of all aircraft hardware—plumbing and fittings. It is difficult to predict a 'most critical bottleneck' without possession of precise contracts which will define our industrial requirements. Ryan will have no shortage of top personnel."

► **Donald Douglas**, president, Douglas Aircraft Co.: "At this time I can't answer a question of 'bottlenecks' because we have had no specifications for expansion. Under an industry expansion program our company at the outset would be hampered seriously by our lack of military orders during the past two years. To the best of our ability we have attempted to retain key administrative and executive personnel. I do not feel that there will be any shortage of such people."

► **John K. Northrop**, president, Northrop Aircraft, Inc.: "The most serious bottlenecks to rapid expansion exist outside of the airframe industry—in the production of engines, propellers, armament, radar and radio equipment, and similar items. Many are extremely complicated and require longer development and production times than can be set for airframe development and assembly. To the best of our knowledge there is no shortage of executive personnel in the airframe industry."

No aircraft president interviewed by AVIATION WEEK anticipated a major crisis in employment of non-executive personnel. No in-plant bottlenecks are predicted.

The critical problem of obtaining accessory components on schedule is supported by a leading West Coast



XP-87 TEST FLIGHT CREW

Robert Park, left, flight test engineer, B. Lee Miller, center, test pilot, and Fred A. Maxam, engineer in charge of Muroc tests, smile happily from spacious side-by-side cockpit of Curtiss XP-87 preparatory to first test of giant fighter. XP-87 has four Westinghouse 24C jet engines and is equipped for all-weather operations.

accessory manufacturer, J. C. Garrett, president of AirResearch Manufacturing Company. Garrett warned that close attention should be paid to improving the position of companies such as his own, declaring that "forty percent of the total airplane cost is represented by accessories." Unmentioned by the airframe leaders was a bottleneck of procurement scheduling presented to the California Air Policy Conference by H. E. Ryker, vice president of Lockheed Aircraft Corp. Ryker urged long range military procurement as contrasted by a succession of short range orders for specific or allied models of aircraft.

He pointed out that time from order to delivery of fabrication materials and components is such that a re-order approaching the completion of a specific contract will introduce long and costly gaps in production. He said that procurement costs could be cut 29 percent by long range orders. He cited the order for 170 new fighters at termination of an original contract which boosted the per unit cost to ten times that of the original order.

East Coast manufacturers saw no manpower problem. More than 600 people a week have been applying for jobs at Grumman Aircraft's Bethpage, L. I. plant. Most of them are former Grumman employees. Republic feels its labor supply will be adequate and has been subcontracting extensively on its P-84 production program to keep its supplies available. Subcontracting may be a problem elsewhere. Many companies without post-war production orders have severed connections with their wartime subcontractors. Many subcontractors are now converted to other fields or out of business.

► **Labor Problem**—Revisions of previous draft legislation to protect the aircraft industry against rapid personnel turnover will probably be sought. California Air Policy Conference was told by Richard W. Millar, Northrop general manager, that:

"What is needed is a new draft law which is probably too logical to win adoption. The law should be worded to permit high priority manufacturers to certify the number and classifications of employees needed for execution of a given contract. Approval of that certification by the Secretary of Defense would automatically prevent drafting of required employees. It would remove from our shoulders a horrible burden of uncertainty."

Flying Boats Sold

British Overseas Airways Corp. has sold to General Phoenix Corp., New York, the three Boeing-314 flying boats which were withdrawn from Baltimore-Bermuda service in January and replaced by Constellations.



NACA SCIENTISTS RECEIVE AWARDS

For outstanding service in scientific research during the war, the group above received the Medal for Merit from General Spaatz. Shown above (l. to r.): Dr. Jerome C. Hunsaker, NACA Chairman; Dr. Lyman J. Briggs, NACA wartime member; Dr. George W. Lewis, wartime NACA Director of Aeronautical Research; John F. Victory, NACA Executive Secretary; General Spaatz; Dr. Henry J. E. Reed, director Langley Memorial Aeronautical Laboratory; Smith J. DeFrance, director Aeronautical Laboratory and Edward R. Sharp, director Flight Propulsion Research Laboratory. (Press Assn. photo)

New Air Force Test: The Senate

70-Group program whipped through House as Vinson, former Navy backer, swings to the side of air power.

The Air Force was acclaimed the country's new "first line of defense" when the House last week voted \$3,198,100,000 for aircraft procurement by an overwhelming 343 to 3.

The vote was a stirring endorsement of the 70-Group Air Force.

It was Georgia's Democratic Rep. Carl Vinson, a long-standing leader in national defense affairs, who gave the Air Force its new designation. Only a few years ago, in 1943, Vinson had acclaimed the aircraft carrier the "spearhead" of "the Navy, the country's first line of defense."

Over-riding Defense Secretary James Forrestal and the Joint Chiefs of Staff, the House added \$822,000,000 to the \$2,376,100,000 requested by the president for Naval Aviation and a 55-Group Air Force program. (AVIATION WEEK April 1).

► **Senate Fight Looms**—Meanwhile, on the Senate side of the Capitol, as leaders awaited a revised defense plan from the Joint Chiefs of Staff, supplanting the discarded Key West plan calling for the 55-Group program, the movement for the 70-Group air program—led by Sen. Henry Cabot Lodge (R., Mass.), Sen. Burnet Maybank (D., S. C.), Sen. William Knowland (R., Calif.)—gained strength. Key Sen. Chan Gurney (R., S. Dak.), chairman of the Armed Services Committee and chairman of the War Department-Air Force appropriations subcommittee, stood pat behind Forrestal and the Joint Chiefs of Staff,

however, announcing final action would await the revised national defense plan.

Appropriations committee chairman, Sen. Styles Bridges (R., N. H.), called for speedy action on 70-Group Air Force funds, and GOP policy leader, Sen. Robert Taft (R., Ohio) supported "the general principle of a 70-Group Air Force."

► **Vinson Speech**—In acclaiming the Air Force the country's new "first line of defense", Vinson named Russia as our potential opponent and listed the following reasons why the United States must rely on the air:

(1) We cannot hope to rival, in number, Russia's Army. Counting support of satellite countries, it now totals 175 divisions. At the peak of World War II, U. S. divisions totalled 89. "We must accept serious numerical inferiority to Russia in ground forces, at least at the start of any conflict."

(2) The U. S. Navy today is greater than the combined naval forces of the rest of the world. "We must maintain this force in a position of clear superiority . . . but, we must recognize that Russia has not traditionally been a naval power and, largely due to its economic self-sufficiency does not need naval force for the protection of any life lines of supply. In surface naval forces, Russia is not at present a threat. In sub-surface forces, there are indications of considerable expansion which call for appropriate counter-measures on the part of this country."

(3) "It is in the air that we are capable of competing with Russians and they are capable of competing with us. Preponderance of air power is in the balance. It is in the air that the decisive struggle is likely to take place. The lesson of World War II, re-emphasized by everything that has taken place since, is: you cannot lose a war with air supremacy and you cannot win a war without it."

(4) "In the event of a war, it is the Air Force which will be first into action, performing three missions, some in cooperation with the other two services. These are: 'defend the U. S. against attack by weapons of mass destruction and against air-borne invasion by ground forces; protect our overseas bases, and, so far as able, protect those countries into which we are now pouring billions of dollars to help them resist . . . and deal blows against enemy concentrations of force, military bases, industrial resources for the immediate purpose of forestalling the launching of attacks against us and for the ultimate purpose of reducing the enemy's will and capacity to fight.'

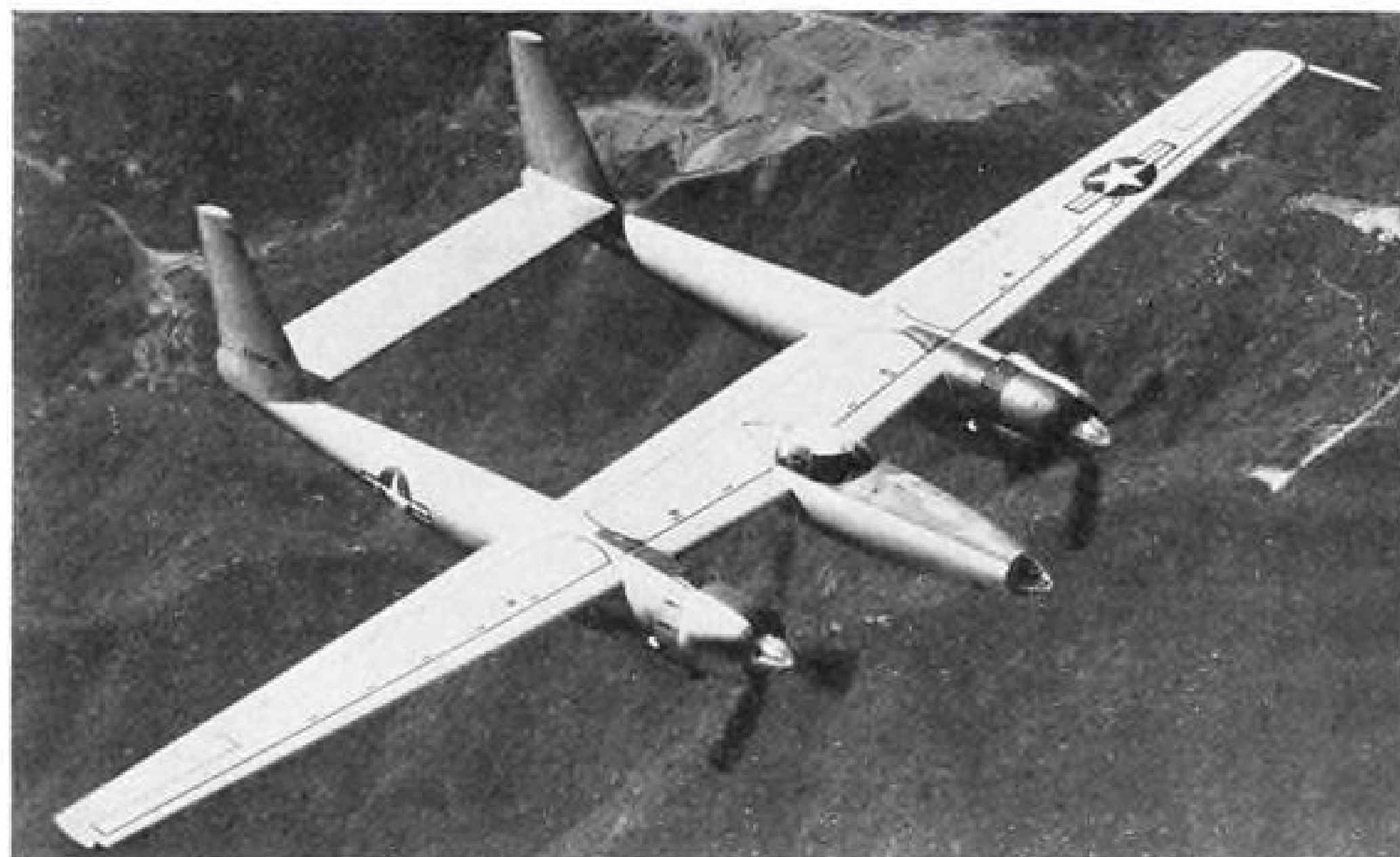
"These three tasks cannot be performed," Vinson concluded, "unless America has an adequate Air Force in being ready for instant use. . . . We have an impressive array of evidence before us . . . that a 70-Group Air Force is the minimum requirement . . . for national safety."

► **Strong Support**—Vinson's speech, buttressed by statements of Rep. Lyndon Johnson (D., Tex.), Rep. George Mahon (D., Tex.), Rep. Leroy Johnson (R., Calif.), Rep. Chester Merrow (R., N. H.), and other air-minded members mobilized such overwhelming support for the 70-Group program that the House Appropriations Committee which had approved funds to implement only the 55-Group program reversed itself and sponsored the amendment adding \$822,000,000 for Air Force procurement.

Enthusiasm of members for the 70-Group program welled to such proportions that Majority leader, Rep. Charles Halleck (R., Ind.) finally proposed that delay would be detrimental and obtained concurrence in a limitation of speech-making time to 30 minutes. The only controversy occurred over the advisability of clipping \$100,000,000 from the \$922,000,000 additional the Air Force originally estimated it would require. Air Force Secretary Symington had subsequently indicated to Vinson and others that \$822,000,000 would be sufficient.

State Department Approves

State Department has approved the sale of 15 North American P-51 Mustang fighters to France for \$157,467. The planes originally cost \$787,335.



\$22,000,000 for the XF-11 (above), \$19,000,000 for a flying boat brought . . .



. . . accusations from Hughes, denials from Brewster, a blistering Senate committee report.



Hughes vs. Brewster: Last Chapter

Senate committee report criticizes aircraft builder and recommends four changes in procurement methods.

The long-awaited report criticizing the \$19,000,000 Kaiser-Hughes flying boat and \$22,000,000 Hughes Aircraft reconnaissance plane contracts and the Air Force, was released last week by the Senate War Investigating Committee. Omitted was any mention of the Hughes-Brewster feud over alleged Pan American Airways influence in the investigation.

Last summer, at hearings on his two wartime projects, Hughes hurled charges that Sen. Owen Brewster (R., Me.), chairman of the committee, had used the threat of investigation to club him into merging TWA and Pan American and supporting the PAA-backed chosen instrument proposition. Hearings, Hughes said, were retribution.

► **"Skulduggery" Says Hughes**—In Los Angeles, Hughes labelled the report "skulduggery" and claimed that the Republican majority of the committee had intentionally released it while the Democratic members were absent from the city. Sen. Carl Hatch (D., N. Mex.), ranking Democratic member of the War Investigating group, told AVIATION WEEK that he is drafting minority views on the Hughes contracts and that after conferring with committee members Sen. J. Howard McGrath (D., R. I.) and Sen. Claude Pepper (D., Fla.) on their return to Washington will decide whether to issue a minority report.

In its conclusions on both the flying boat and reconnaissance plane con-

tracts, the committee verdict was that they were complete failures "as war projects" since no craft to participate in the war was delivered under either contract.

► **Meyers Case**—The Bennett Meyers case was lightly treated in the report, since it is being tried in the Federal courts. On the basis of evidence developed at hearings on the activities of the former Wright Field general officer in aviation stock speculating and as promoter of Aviation Electric Corp., a USAF subcontractor, a thorough re-vamping the USAF investigative machinery was called for.

Because of the conflicting testimony the committee found itself unable to evaluate the role of Meyers and Hughes. Meyers maintained that offers of a job and loan were made to him by Hughes and that he righteously turned them down. Hughes countered that Meyers, in effect, had attempted "shake-downs". The committee censured both.

► **Procurement Charges**—The four major changes in USAF investigative procedure demanded: (1) That the investigation set-up be removed from the chain of command; (2) that procurement officers and members of their immediate family be required periodically to file sworn statements of their net worth, showing in detail their stock holdings and all other financial interests; (3) that government representatives and government contractors be required by law to report promptly all attempts at bribery, extortion, or other corrupt acts; (4) that all members of the military establishment consider it a "solemn duty to maintain a strict policy to investigate fully all complaints concerning military personnel."

Instead of referring reports of alleged stockholdings by Meyers for investigation, it was pointed out, the USAF public relations division, under the direction of Col. William P. Nuckols, performed "an attempted whitewash". The committee also critically observed that had an investigation been made "when the Air Force was put on notice in 1940 when General (Oliver P. Echols first heard about the Aviation Electric Corp., the subsequent conduct of General Meyers elicited in the testimony before the committee could have been prevented.

Following are the committee's main conclusions on the Kaiser-Hughes flying boat and the Hughes reconnaissance plane contracts:

• **HK-1 flying boat project**, "which produced no planes during the war, was an unwise and unjustifiable expense as a wartime project. The manpower, facilities, and public funds devoted to it during the war were wasted at a time when military planes were urgently needed. . . . The conclusion is inescapable that the decision of the War

Production Board (to move ahead with the project over opposition of the armed services, Joint Chiefs of Staff and aeronautical experts) was influenced because of the wide and favorable public acceptance of the proposal of Henry J. Kaiser for the mass production of huge cargo planes which Kaiser claimed would overcome the existing submarine menace to ocean transportation." But, the committee observed, "the technical side of the war cannot be waged from day to day in a manner to accord with public opinion."

The failure to follow normal procurement channels was "a costly mistake. The Defense Plant Corporation did not have personnel qualified to supervise an aircraft construction program. Because of this inadequacy in personnel, the Civil Aeronautics Administration and the National Advisory Committee for Aeronautics, each were given some supervisory authority. . . . This divided authority . . . together with the inefficient management of the Hughes organization resulted in allowing Hughes Aircraft Co. to carry on the project in an inefficient and wasteful manner."

XF-11 photo-reconnaissance plane project, initiated by the Air Force in September, 1943, "for the purpose of producing quickly high-speed, long-range high-altitude craft for combat use, may have some value as a postwar experimental plane, (but) it was a failure as a war project."

The committee criticized both Hughes Aircraft and the Air Force for the failure of the XF-11 project, listing as the main reasons: Vacillation and indecision within the USAF as to the desirability of procuring the plane; lackadaisical action of USAF procurement personnel in expediting and monitoring the project; failure of USAF to correct the deficiencies in the project which they knew existed; the low priorities for manpower and material assigned the project; the inadequacy of the organization and facilities of Hughes aircraft for mass production; failure of the Hughes organization to utilize accepted aircraft production techniques; the constant changing of the F-11 design by Hughes; the persistence of the Hughes organization in refusing to sign the contract until the government met unreasonable demands.

If USAF "had handled this project with the same determination and vigor it applied to other combat-aircraft procurement projects, and had the Hughes Aircraft Co. been operated in accordance with standard business and production practices," and, "at least some F-11 planes could have been completed in time to be used in combat."

Hughes Aircraft was "severely censured" for spending "substantial sums on government procurement officers with whom they were doing business."



14th Fighter Group's Thunderjets: 40,000 feet . . . 1000 miles . . . 590 mph.

Thunderjets Take Over Active Duty

14th Fighter Wing puts P-84B through grueling winter shakedown. Jet fighter now in quantity production.

By ROBERT McLARREN

BANGOR, ME.—Republic's P-84B Thunderjet fighter is now completely operational and has been declared ready for combat with the 14th Fighter Wing at this northeast bastion of the Air Defense Command. With a top speed of 590 mph., a service ceiling of 40,000 ft. and a range of 1000 mi., the Thunderjet is now in quantity production at the Farmingdale, L. I., N. Y., plant of Republic Aviation Corp.

The full complement of 78 Thunderjet interceptors now is in service with the 14th Fighter Wing. In addition, the 20th Fighter Wing, Tactical Air Command, Shaw Field, S. C., and the 33rd Fighter Wing, Strategic Air Command, Roswell AF Base, N. M., are slated to receive fighter-bomber versions of the Thunderjet as they leave the assembly line. Three other fighter wings, not yet selected, will complete acceptance of the 600 Thunderjets currently under procurement.

► **New Armament**—The P-84B is armed with six 50-cal. M3 aircraft machine guns with a rate-of-fire of 12-1300 rounds per minute, a 50 percent increase in fire rate over wartime 50-cal. guns. Four of the Thunderjet guns are mounted in the nose and one is located in each wing root. The jet fighter has been certified operational with both aircraft rockets and a 2000 lb. bomb load. It features a pressurized, temperature-controlled cabin, retractable fuselage air brake and jettisonable wing-tip fuel tanks.

The pencil-slim fighter cruises at

500 mph. and lands at about 150 mph. Takeoff run to clear a 50 ft. obstacle varies from 3800 ft. at an airplane weight of 13,000 lb. to 7000 ft. at a weight of 15,000 lb. The GE-Allison J-35-A-15 turbojet engine is rated at 4000 lb. static thrust at an engine speed of 7600 rpm. Limit maneuvering load factor for P-84 pilots is 6G and maximum permissible dive speed is Mach number 0.8 or about 610 mph. at sea level under standard atmospheric conditions.

► **Weather Tests**—The 14th Fighter Group, commanded by Col. Loring F. Stetson, Jr., received its first Thunderjet fighter last November, just in time to experience some of the worst weather ever recorded in Maine. Temperatures as low as -30 degrees F. were common at Dow Field last winter. Under the most adverse operational conditions, the group trained most of its own pilots at Dow, many of whom had not previously flown jet aircraft.

CAP Progress

Legislation authorizing the Civil Air Patrol as a permanent civilian arm of the Air Force was approved last week by the House Armed Services Committee. CAP is now functioning under the Air Force by virtue of special war powers legislation, which will probably be revoked in the near future.

The Air Force would be permitted to turn over its surplus obsolete planes to CAP, and to permit CAP to utilize its equipment, with or without charge.



Beechcraft and DC-3 with castoring gear: it brings transports to close-in airports.

Castering Gear for Transports

Successful demonstration at Washington National Airport may make possible the use of one-runway airstrips.

By ALEXANDER MCSURELY

When a Piper Cub landed crosswind a year ago with the aid of a castoring gear, it was regarded as a fine thing for private flying. But when a big twin-engine Douglas DC-3 and a smaller twin-engine Beechcraft Model 18 do it just as neatly, the whole castoring gear idea begins to add up to commercial air transport significance.

At Washington National Airport, Goodyear Aircraft Corp. and All-American Aviation, Inc., have demonstrated two types of castoring gear on a DC-3 and a Twin Beech, respectively. The exhibition left little doubt as to the practicality of the gear for large transport-type planes.

► **CAA Pleased**—CAA officials who are feeling pleased about the results of a relatively modest \$150,000 expenditure for crosswind gear development contracts point out that the crosswind gear now has been used successfully on eight other planes: Piper J-3 Cub trainer, Bellanca Crusair Sr. (also shown for the first time last week), Ercoupe, tri-cycle-gear experimental Aeronca Chum, Goodyear GA-2 amphibian, Fairchild PT-19 trainer, Stinson Voyager, and Cessna 140. Northrop Aviation Co. also has developed a crosswind gear for its trimotor Pioneer transport. The Goodyear castoring wheel is also to be adapted to several other two- and four-placers.

► **All-American Gear**—The All-American castoring device demonstrated on the Beechcraft is contained entirely within the standard air-oil shock strut. The mechanism uses a cam, hydraulically loaded, and a vane-type shimmy dampener, contained within and using the strut for a source of fluid and pressure. Robert M. Love, All American president, has personally acted as test pilot for the device, and piloted it at the CAA demonstration.

It was designed, built and installed

on the airplane under supervision of Donald B. Doolittle, engineer, and Edmund T. Connolly, aircraft shop superintendent. Externally, except when the wheels caster, there is no indication of the device. The wheels will swing as far as 30 degrees on either side of center.

► **Goodyear Gear**—Goodyear's DC-3 installation, except for size, is virtually identical with the castoring wheel installation first tested on a Piper Cub trainer over a year ago. However, Art Chapman, Goodyear test pilot, and O. W. Loudenslager, engineer in charge of the development, report that only 15 degrees of caster is needed on either side, instead of the 25 degrees used on the Cub wheel. This is because of the DC-3's faster landing speed and additional weight. DC-3 grosses about 29,000 lb., and the Cub trainer about 1200 lb. Part of Chapman's demonstration at Washington was made with 14 persons aboard. Additional tests will be run, up to full gross load.

Crosswind at the time of the demonstrations was around 20 mph., almost 90 degrees across the EW runway. Chapman reports that with the DC-3 swivel gear he has made landings and takeoffs with winds as high as 40-45 mph.

► **Castering Mechanism**—The Goodyear castoring mechanism is contained within the wheel. The wheel pivots on a kingpin, surrounded by a stationary compensating cam in the horizontal plane. A cam follower riding in the compensating cam at the base of the kingpin gives static stability. The mechanism can be tucked away inside the wheel because of the design of the single disc brake used by Goodyear. This leaves room inside the hub for the kingpin and cam arrangement. Vibration dampening is accomplished by a coil spring at the top of the kingpin.

While the castoring wheel on the Goodyear DC-3 is a prototype, the company is already in limited production on the smaller size wheel for light planes. A third, intermediate size, castoring wheel is being planned. Loudenslager says the same packaged crosswind wheel and brake unit in the 17.00-16 wheel used for the DC-3 can be made available on other planes where castoring clearance is available.

Goodyear is prepared to engineer similar castoring wheels for airplanes of any size. Tail wheel locking device has been eliminated on the Goodyear DC-3, and instead a special spring loaded shimmy damping brake is used on the tail wheel.

Main advantage of castoring gear seen is that it may enable transports to use one-runway airstrips close to metropolitan areas, regardless of wind direction. Los Angeles has been discussing a single runway to span the Los Angeles river bed. Cleveland, Chicago, Milwaukee and Detroit already have in use, under construction or under consideration, lakefront airstrips convenient to downtown areas.

CAA has indicated that the success of the castoring gear may make possible large savings in airport land and in runway building. It now is approving one-runway airstrips, and has indicated that the 1949 airport program may be revised to eliminate secondary runways.

NATA Western Drive

A five-states drive to gain new chapters and members was completed last week by Harry Meixell, executive director of National Aviation Trades Association. The NATA official launched a whirlwind air tour organizing campaign after appearing at the California air policy conference to keynote NATA's opposition to any congressional legislation which would curtail the right of a veteran to select, for instruction, the school of his choice.

In his drive to increase NATA's present 3200 members in 40 state chapters Meixell spoke before airport and school operators at Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; Reno, Nev.; and Phoenix, Ariz.

News From Moscow

AVIATION WEEK coverage from Moscow will remain unbroken despite the recent ousting of Robert Magidoff, McGraw-Hill World News correspondent, on trumped-up espionage charges.

Magidoff cabled from Berlin last week that on the day before his departure the Russian press department had accredited Andrew Steiger as McGraw-Hill correspondent in the Soviet capital.

Steiger, an American citizen, had been Magidoff's assistant. A story on Soviet civil aviation growth appeared under his name in AVIATION WEEK Sept. 8.

Espionage charges against Magidoff, also an American citizen, were based on a routine news assignment on which he sent no story because of censorship. Russian orders that he leave Moscow followed publication in Izvestia of an accusing letter from his secretary, a Russian citizen.

He cabled that "no foreigner in Moscow, including diplomats who have immunity and correspondents who have no immunity, is safe from possible charges. Charges may range from speculation and dealings in black market rubles to wrecking and espionage. It's anybody's guess who will be next (Americans are most vulnerable) or what the charge will be."

The Moscow office is one of nine McGraw-Hill foreign news bureaus. In addition, there are World News correspondents in 53 other foreign cities.

INDUSTRY OBSERVER

► Joint Air Force-Navy-NACA supersonic flight test program now under way at Muroc Dry Lake, Calif., has recently recorded new top speeds with rocket-propelled research planes.

► Lockheed is reported to be building a super-plush Constellation for Air Secretary Stuart Symington. Company is mum on details. Presumably plane will be one of ten recently contracted by Air Force, and remaining nine will be air freighters.

► Jack Northrop says the annoyance level of sound produced by his YB-47 jet flying wing is considerably lower than the noise from the propeller driven version, the XB-35. Northrop said the propeller driven bomber's noise was of longer duration and spread over a wider area than sound from the highly directional jet exhausts.

► Boeing's XB-47, sweptwing Stratojet bomber, has completed phase 1 flight tests at Moses Lake, Wash., and will be turned over to Air Materiel Command for further tests.

► North American XP-86 is now being fitted with a General Electric TG-190 turbojet engine delivering 6000 lb. static thrust. This increased power is expected to carry the craft into the near vicinity of sonic speed.

► Preparations for the first test flight of the Douglas XF3D-1 were completed a month ago. The twin-jet two-man fighter features a belly "pod" location of the Westinghouse 24C axial-flow turbojet engines. Craft is designed for long-range search and air security missions with the fleet. Its size will present carrier operation problems which may not be solved until the new 80,000-ton carrier is available.

► Air Force engineers are disappointed that the nose intake duct arrangement of the Republic P-84 Thunderjet fighter renders conversion of the craft into a photoplane impractical. While the installation of camera equipment in the Lockheed P-80 proved a simple design problem, due to its wing air intakes, preliminary design studies on a photo-P-84 have proved the idea impractical.

► Air Force has completed preliminary contract negotiations with Grumman Aircraft Engineering Corp. for procurement of a USAF version of the XJR2F-1 amphibian. Air Force plans air-sea rescue duties for the new craft.

► Final lease arrangements have been signed for the occupancy of plant B of the wartime North American Dallas, Tex., facility by Chance Vought Aircraft Division, United Aircraft Corp., for production of the Vought F6U-1 Pirate jet fighter. Formal occupancy is slated to begin May 1 with production tooling completed by early fall. Deliveries on Navy contract for 30 fighters are scheduled to begin early next year. Production of the Vought F4U-5 Corsair will continue at Stratford, Conn., until completion of the existing contract late this year.

► Second Grumman XF9F-2 Panther fighter has been completed and both prototype airplanes are being used to check Navy pilots, who will fly performance and stability tests at Naval Aircraft Test Center, Patuxent, Md., this summer. No. 2 Panther is also fitted with an imported Rolls-Royce Nene turbojet engine. No. 3 will fly with an Allison J-33 turbojet engine.

► Early test flights with single rotation propellers on the Northrop XB-35 at Muroc Air Force Base have permitted the airplane to develop its full performance for the first time. The new 15-ft. Hamilton Standard four-blade square tipped blades avoid the trouble-plagued gearboxes of the counter-revolving dual propeller arrangement on the prototype.

► DeHavilland Aircraft will continue its high-altitude test flights of the ghost-powered Vampire fighter, which holds the new world's altitude record of 59,492 ft. The special altitude craft has increased wing span and area.

► Doris Duke recently took delivery on a special de-luxe version of a North American B-25 light bomber. Her pilot is veteran A. B. Fitzgerald, former American Airlines captain and now chief of the Duke "aviation department".

► C. F. Kettering's special Oldsmobile sedan powered by the new Kettering high compression engine has been refuelling at airports on its cross-country test run due to its design for operation on 100-octane gasoline.

► Look for a flurry of experiments in converting war surplus superchargers to midjet turbos, as done by West Engineering Co. (Aviation Week, Apr. 12). Grand Central Airport Co.'s subsidiary Cal Aero Technical Institute, Glendale, Calif., has a similar turbo on test stand and engineering plans for a radical separation of compressor and turbine rotors in a future model. Hawkins and Associates, also of Los Angeles, with plans for a large turbojet, are using a supercharger converted to turbojet to test, at low cost, engineering principles to be applied in the larger engine.

AVIATION CALENDAR

- Apr. 24-25—Third annual Southeastern Air Show, Jacksonville, Fla.
- Apr. 27—ICAO facilitation division, Europe.
- Apr. 27-May 26—American University's Second Annual Foreign Transportation Institute, Washington, D. C.
- Apr. 28-30—American Institute of Electrical Engineers, northeastern district meeting, New Haven, Conn.
- May 4—ICAO North-Atlantic regional meeting, Paris.
- May 4—ICAO European-Mediterranean Regional Meeting, Paris.
- May 5-6—Air Transportation Education Conference, Purdue University, Lafayette, Ind.
- May 12-15—Aviation Writers Association, 19th Annual Convention, New York City.
- May 16—Annual Cotton Carnival Air Show, Memphis, Tenn.
- May 17—ICAO facilitation division, Geneva.
- May 17—ICAO North Atlantic Regional Meeting, Paris.
- May 18-20—AIA board of governors meeting, Williamsburgh, Va.
- May 19—Air Commerce Day at Miami, part of World Trade Week observance.

ENGINEERING & PRODUCTION

C-W Proxy Fight

Committee of stockholders, wanting cash distribution, wars on management.

A fight for control of Curtiss-Wright Corp. was staged last week as a group of stockholders went into the annual meeting determined to oust the present management.

A common stockholders committee, under the chairmanship of T. R. Berner, New York attorney, sought control in order to make a \$7 per share cash distribution on the common stock. An alternative measure would call for the retirement of one-half of the outstanding common stock at \$14 per share.

C-W management opposed this, insisting it would necessitate "partial liquidation" of the company that was the number one World War II producer and now bulks large in any stepped-up procurement program.

► **\$52 Million Divvy**—The stockholders committee program would result in cash distribution of more than \$52 million. The committee claimed that the common stock has received less favorable treatment than the Class "A" stock. The contention was made that the "A" shares are entitled to a non-cumulative annual dividend of \$2 per share.

Further, that while the call price of this stock is \$40 per share, it has no preference on liquidation but is entitled to exactly the same distribution on liquidation as the common stock. It also was asserted that for the seven year period ending Dec. 31, 1947, a total of about \$12 per share was earned on the common stock, of which only \$4.50 was paid in dividends. During the same pe-

riod, a total of \$14 per share was paid in dividends on the "A" shares. The committee proposes to even accounts by paying a special \$7 per share dividend to the common stock or by retiring half of these shares at \$14 per share.

► **Cash Position**—The committee found support for its recommended program in the statement of President Vaughan that the company has an excess of \$60 million in working capital. The committee also alleged that the company has been losing its competitive position in the industry and further does not need as much cash to conduct its present scale of operations.

The management pointed to its 14-year record: A net worth of \$26 million boosted to more than \$122 million. Going over a period of 14 years, instead of seven as the opposition did, the Vaughan forces declared that \$62 million in dividends were paid, of which \$39 million were made to common shareholders and \$23 million to the "A" stockholders.

► **Growing Backlog**—To refute arguments as to loss of position in the industry, President Guy W. Vaughan declared that the company deliberately refrained from seeking unprofitable business. As an indication of its returning stature, the president disclosed that backlog of orders increased to \$140,500,000 over the \$118,500,000 shown at the 1947 year-end. Moreover, an additional \$80 million in orders are said to be in the final process of negotiation.

The Berner group called attention to what it termed profitable inside trading by an officer of the company in the "A" stock prior to the surprise omission and subsequent declaration of the dividend on this stock during 1946—when, it

Sorry, They're Gone

Extra copies of AVIATION WEEK's 1948 Yearbook, with complete industry statistics and analyses, no longer are available.

Announcement Mar. 29 that copies still could be purchased brought a demand that far exceeded AVIATION WEEK's limited supply. It is regretted that further orders cannot be accepted.

said, such advance information was unknown to the public. The opposition further alleged that the Vaughan group owned more than five times as much Class "A" stock as common, in market value, hence the interests of the two classes of stock were not being fairly represented.

The opposition objected to the call and retirement by tenders of 204,983 shares of "A" stock at \$20.75 per share last year. It presumably would put an end to any further retirement of this class of stock.

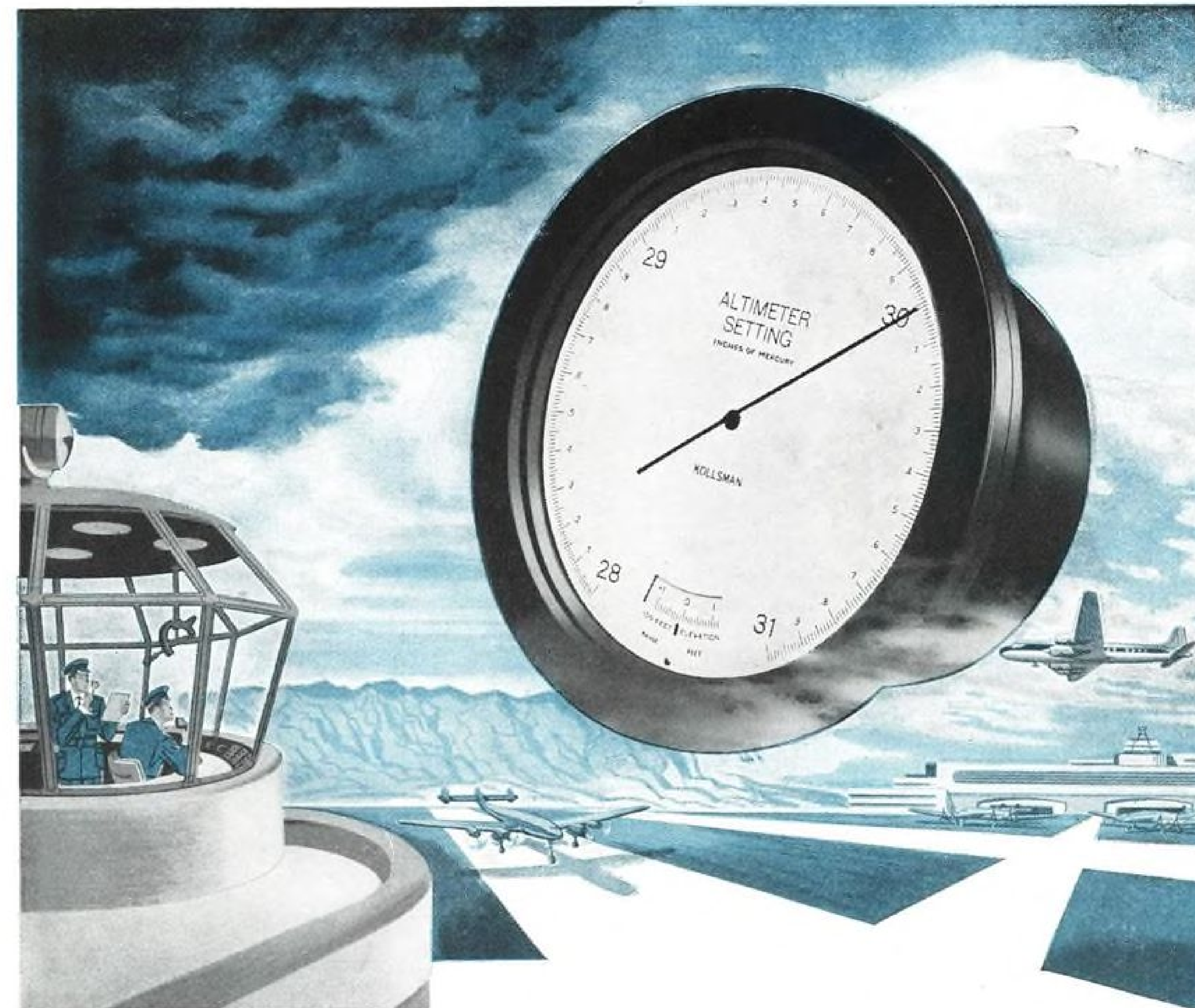
There are outstanding 7,430,332 shares of common stock and 953,668 shares of "A" in the hands of the public. Both classes of stock have equal voting rights. The stockholders committee represents 16,500 shares of common.

New Flader Jet

Flader XT-33-1 turboprop gas turbine engine has completed preliminary development tests at the North Tonawanda, N. Y. plant of Frederic Flader, Inc. Designed to develop 7500 hp., the huge engine utilizes a multi-stage axial-flow compressor, multi-stage turbine and an adjustable nozzle to accommodate changes in thrust. The powerful engine has been under development for three years under Air Force contract and is the most powerful aircraft engine successfully tested. Flader is a former Curtiss-Wright chief engineer and employs 175 in research and development on gas turbines, both aircraft and industrial. His firm is a contractor to the NEPA project.

Bell Wage Increase

A threatened strike at Bell Aircraft Corp., Buffalo, was averted by union acceptance of a 10 cents an hour wage increase. Lawrence D. Bell, president of the company, previously had announced that the plant would be shut down if a strike was called. Bell recognition of a union shop came as a result of a 971 to 100 vote of production and maintenance workers accepting local 501, United Auto Workers (CIO) as bargaining agents.

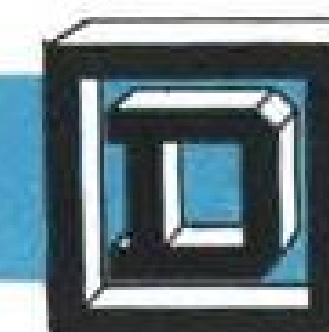


Another step towards greater airline safety

the new Kollsman Altimeter Setting Indicator for airway control stations provides a direct, continuous, accurate indication of the altimeter setting for broadcast to the aircraft. By eliminating potential sources of error and delay present in existing methods, the Altimeter Setting Indicator offers another step towards greater airline safety. By its greater accuracy it also makes possible more accurate indication by the altimeters in the aircraft — an important consideration in steps towards all-weather flight.

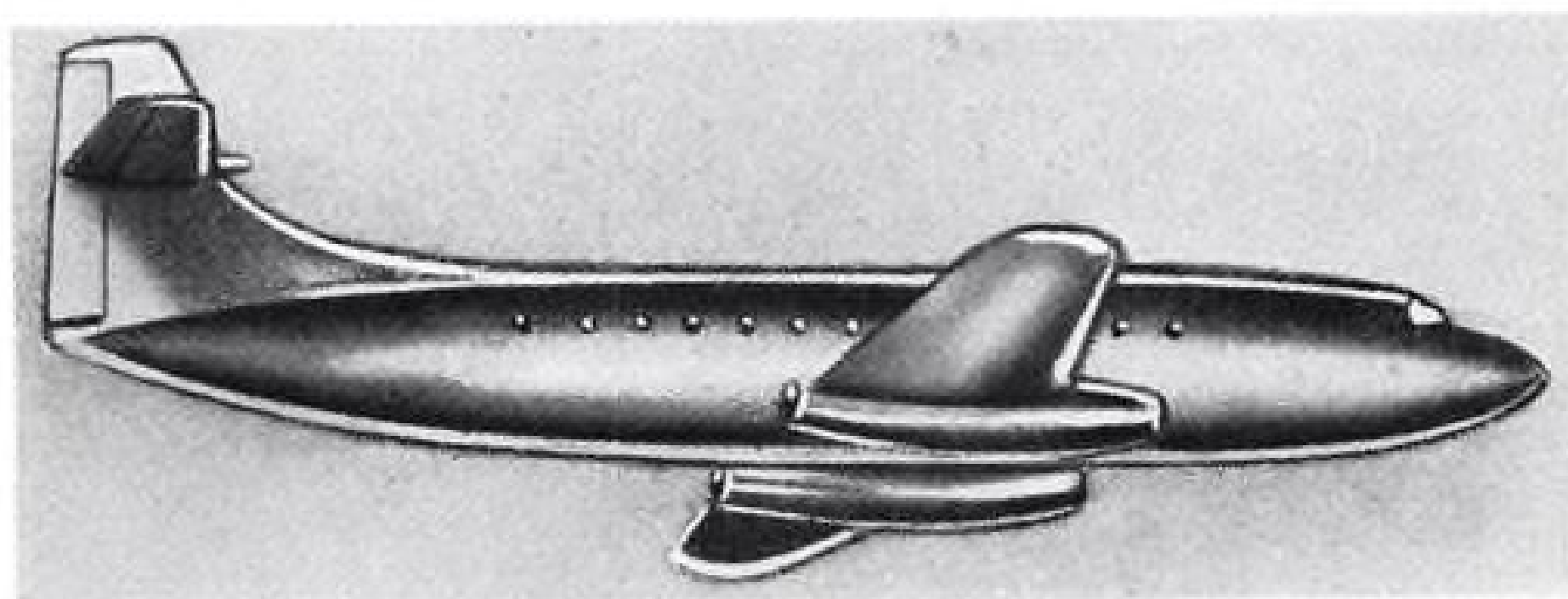
KOLLSMAN AIRCRAFT INSTRUMENTS

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CANADIAN AVRO JET TRANSPORT

Artist's impression of projected A. V. Roe Canada C-102 jet airliner reveals conventional lines and siamese mounting of four Rolls-Royce Derwent V turbojet engines. Craft is expected to be completed early next year. Avro engineers have been forced to compromise basic design features of high-altitude, high-speed jet with short-haul passenger service requirement, which may create grossly inefficient airplane. (Flight sketch)

BRIEFING PRODUCTION NEWS

► **Pratt & Whitney** division of United Aircraft Corp. will sponsor a two-day service and operation clinic at the plants of each of its four authorized sales and service representatives to acquaint personnel with the latest factory-recommended practices. The four dealers are Southwest Airmotive Co., Dallas, Tex.; Pacific Airmotive Corp., Burbank, Calif. and Linden, N. J.; Airwork Corp., Millville, N. J., and Northwestern Aeronautical Co., St. Paul, Minn.

► **Continental Motors Corp.** says aircraft engine shipments during March were the largest since May of last year. It reported total automotive, aircraft, industrial and marine engine shipments of 32,871 units. Unfilled orders are in excess of \$70,000,000.

► **Formica Insulation Co.,** Cincinnati, reports an all-time record tonnage production of laminated material for the year 1947 with over 11 million pounds in all forms of material shipped to customers. The company produces a wide variety of aircraft cable pulleys, fairleads and various other laminated plastic parts for aircraft.

► **Lockheed Aircraft Service, Inc.,** Burbank, Calif., has graduated since V-J Day 831 flight engineers and mechanics for more than a dozen airlines operating Constellation transports. The customer education training program is designed to graduate complete air and ground crews simultaneously with delivery of the aircraft. The flight engineer course covers six to 12 weeks, depending on the experience of the student; the crew chief school comprises a 25-day course in the various systems in the aircraft.

► **B. F. Goodrich Co.** has reached a new all-time high in the sales of rubber cement products. A new synthetic adhesive for fastening brake linings to brake bands is expected to be an important factor in boosting the sales curve. Known as Plastilock 601, the new cement replaces rivets as brake lining attachment and permits the lining to be worn right down to the band instead of only about half way before a replacement is needed.

► **G. M. Giannini & Co.** reports substantial price reductions for all instruments in production at the Pasadena, Calif. plant. The price changes reduce the cost of Microtorque Potentiometers as much as 30 percent with similar cuts in the price of Giannini pressure transducers, temperature transducers, accelerometers and other equipment. Lower production costs plus a two million dollar backlog for the current year permit these reductions.

► **Cherry Rivet Co.,** Los Angeles, has opened a Chicago branch office at 5707 West Roosevelt Road, Cicero, Ill. The branch will stock an inventory of Cherry Blind Rivets and maintain a service shop for tool repairs and experimental work in connection with Chicago area requirements.

► **Piasecki Helicopter Corp.,** Morton, Pa. is negotiating with Helicopter Engineering Research Co., Philadelphia, for the license of several Piasecki basic helicopter patents to HERC, including a design patent for a Piasecki helicopter which closely resembles the HERC JOV-3 now being test flown. Officers of the latter firm are all former Piasecki employees.

► **Pacific Airmotive Corp.** has appointed the following operators as authorized service station dealers for the Scintilla Magneto Division of Bendix Aviation Corp.: Grand Central Airport Co., Glendale, Calif.; Ross and Lehman Aircraft Repair, Concord, Calif., and North Bay Aircraft Service, Santa Rosa, Calif. Grand Central is also an authorized service station dealer for Stromberg carburetors, Eclipse-Pioneer accessories and Ranger engines.

► **AiResearch Manufacturing Co.,** Los Angeles, has received a contract to replace all cabin pressure controls in the fleet of Lockheed L-49 Constellations operated by British Overseas Airways Corp. The new equipment makes possible automatic cabin pressurization from the ground up. AiResearch is currently supplying the new Constellation, Boeing Stratocruiser and Convair Liner as well as 99 percent of all military jet planes, with cabin pressure instruments.

► **Carbee Tool and Manufacturing Co.,** Los Angeles, Calif., has changed its name to Airite Products Co. They are engaged principally in manufacture of aircraft component parts.

► **Bell Aircraft Co.'s** Model 47D helicopter has been granted a blanket CAA license to dust with sulphur. This is the first time that all aircraft of a specific model have been given blanket privilege.

Long Range Buying

Legislation asking for long-range aircraft procurement was introduced last week by Sen. Owen Brewster (R., Me.) on behalf of the joint Congressional Aviation Policy Board.

The measure would direct the Secretary of National Defense to submit to Congress on Jan. 15 each year a report outlining a five-year aeronautical procurement and research program for the Air Force and Naval Aviation. The measure authorizes the program "within the limitation of appropriated funds."

It also authorizes immediate appropriation of funds "as may be determined to be necessary for the immediate expansion of the military air power."

Another measure introduced by the Board to streamline procurement policies sets up a temporary commission on military contract audits composed of representatives of the National Defense Establishment, the Bureau of Internal Revenue, and the Comptroller General to make a comparative study of rules and regulations of the three agencies governing the audit, settlement, and allowance of costs and expenses on National defense establishment contracts.

New USAF Office

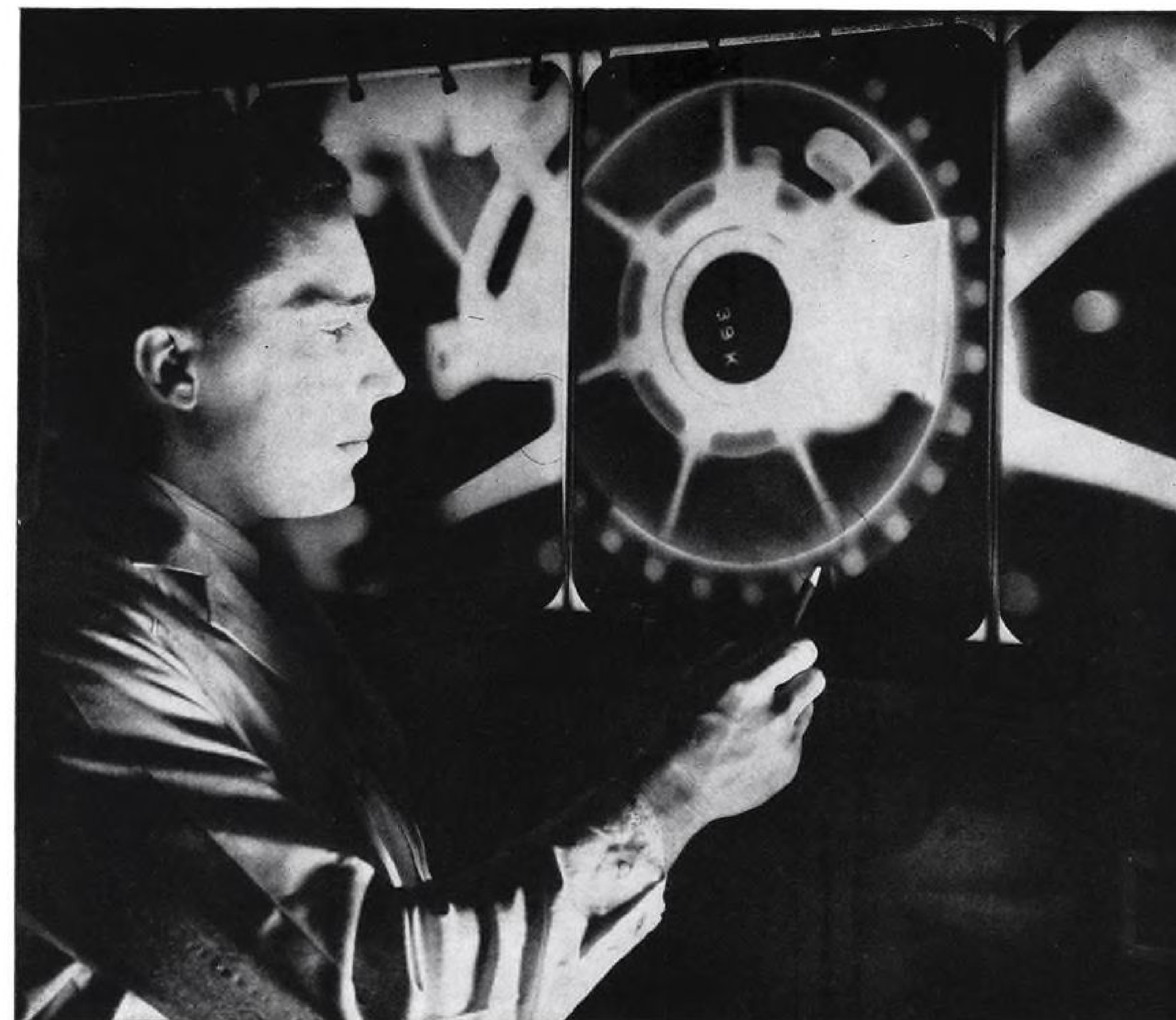
Air Force Procurement Field Office has been established at Consolidated Vultee's Government Aircraft Plant No. 4, Fort Worth, Tex. New set-up does away with the Dallas Air Force Material Office and the USAF plant representative at Convair. Headed by Lt. Col. Beverly H. Warren, new office will be headquarters of Procurement for an 11-state area.

Guatemala?

Minister of Economy of Guatemala is negotiating with the Glenn L. Martin Co. for the purchase of three Martin 2-0-2 transports. The 36-passenger version is for use on the proposed international service of the government-owned Aviateca Airline.

Piper Loss

Piper Aircraft Co. announced net loss of \$222,727 after tax carry-back credits of \$340,500 for fiscal year ended Sept. 30, 1947. Sales for the year were \$12,620,250.



X-RAYS GET THE INSIDE STORY

► This Wright technician is reading an X-Ray negative of a vital engine part. The penetrating X-Ray has revealed a small flaw *inside* the casting — where the sharpest human eye would never see it.

► But like your family doctor, the Wright engineer is more interested in preventing trouble than in curing it. The findings of X-Ray are not limited to the rejection of parts. Information about the behavior and qualities of metals is passed along to the foundry-

man, the forgers, the countless others who make the parts.

► Better parts are the logical — and permanent — result. Technicians in the Wright Aeronautical laboratories X-Ray thousands of parts each month and 40 exposures are made on some of the more intricate pieces.

► Another example of the care — the instinct for perfection — used in development of Wright aircraft turbine and reciprocating engines.

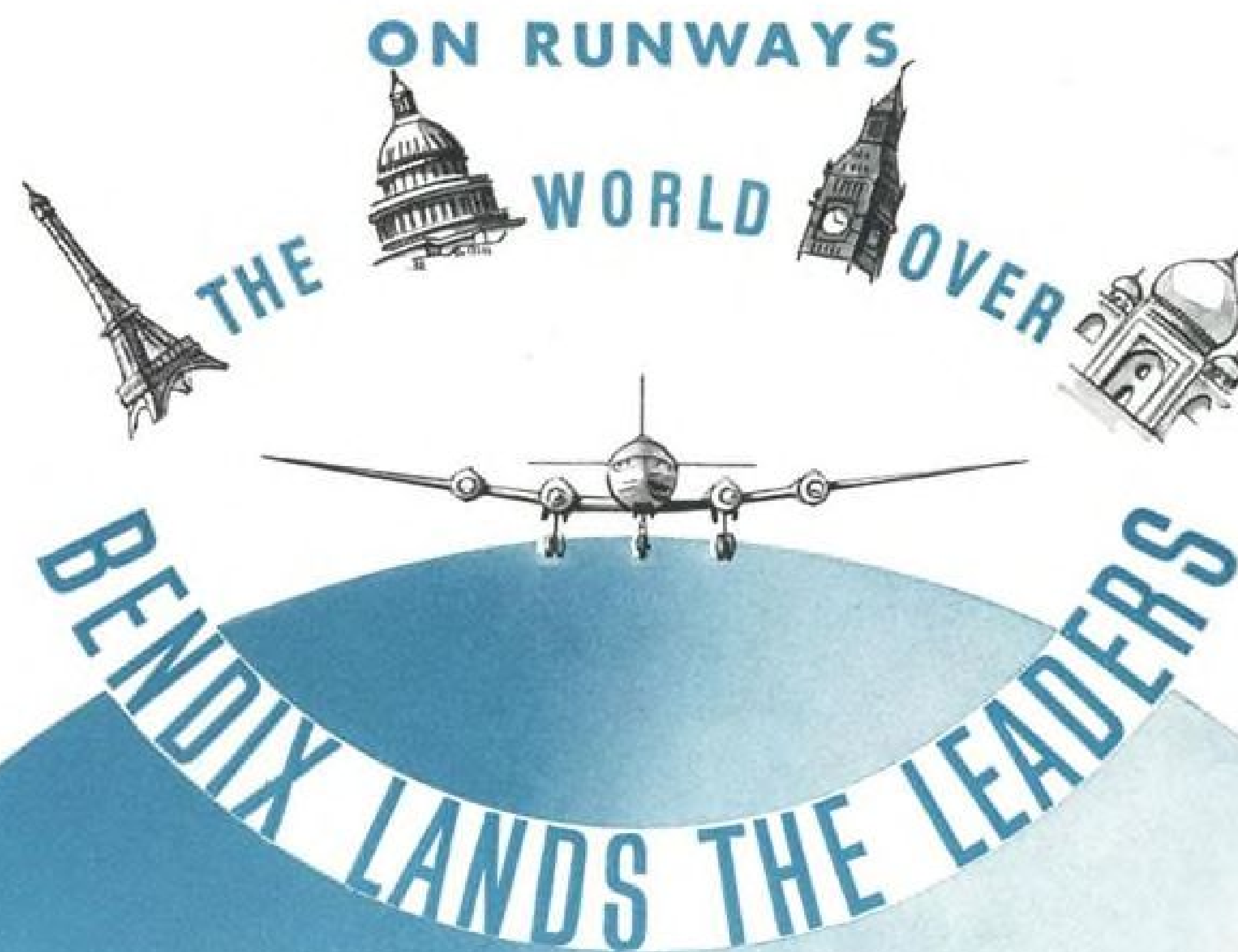


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All-Weather Airway: 15-Year Job

Target system of RTCA to cost nearly a billion dollars and improve airways efficiency more than 50 percent.

By ROBERT HOTZ

Development, intallation and full operation of the target system of all-weather, electronic airways proposed by the Radio Technical Commission for Aeronautics will take at least 15 years. It will require minimum expenditure of \$836,600,000 and, if successful, improve efficiency of the present Federal airways system by better than 50 percent.*

Biggest problems in achieving this system within the specified time limits are apt to be administrative rather than technical. Present plan is to have each agency concerned (Air Force, Navy, CAA, Air Transport Association, etc.) carry out its own segment of the program, with a permanent RTCA steering committee to coordinate and monitor progress. Since RTCA can act only when its decisions are unanimous, this method is not regarded as the best means of insuring rapid and technically sound progress.

► **Suggest New Agency**—Some participants in RTCA proceedings believe a new agency will be required to run the airway program. They suggest that it be part of the Dept. of Commerce and administered by a civilian radio engineer. Policy decisions would be made by a Board composed of representatives of all participating agencies.

A separate airways budget would be submitted to Congress and all funds earmarked specifically for the program.

Another bothersome point is the two-year contract limitation. All concerned believe it should be lengthened to five years along with authorization for negotiated contracts and definite promise of a production market for successful research contractors. About \$75,400,000 will be required for research on target system equipment.

The following equipment is specified for the target system:

Airborne Equipment

► **Traffic Control Unit**—This must occupy no more than 16 sq. in. of the cockpit instrument panel. It will contain a radar beacon which, when interrogated by ground radar, will give the plane's range, bearing, altitude and identity to ground traffic control stations. Other half of the equipment will be a private line visual communication system for routine traffic control communications.

► **Navigation Unit**—This will provide the pilot with his range and bearing

from each ground station, and contain an automatic off-course computer for use on multiple lane airways; ILS and distance measuring devices for instrument landings; surface navigation equipment for taxiing on airfields; air-ground VHF voice communications; pictorial cockpit display of other air traffic, weather reports, approach area holding patterns and airport runway layout and obstructions; and equipment for automatic flight control during en route navigation and landing.

All of this airborne equipment will add approximately 115 lb. to each plane—traffic control unit 20 lb.; private line communications 45 lb.; radar beacon 30 lb.; and navigation unit 20 lb.

Ground Equipment

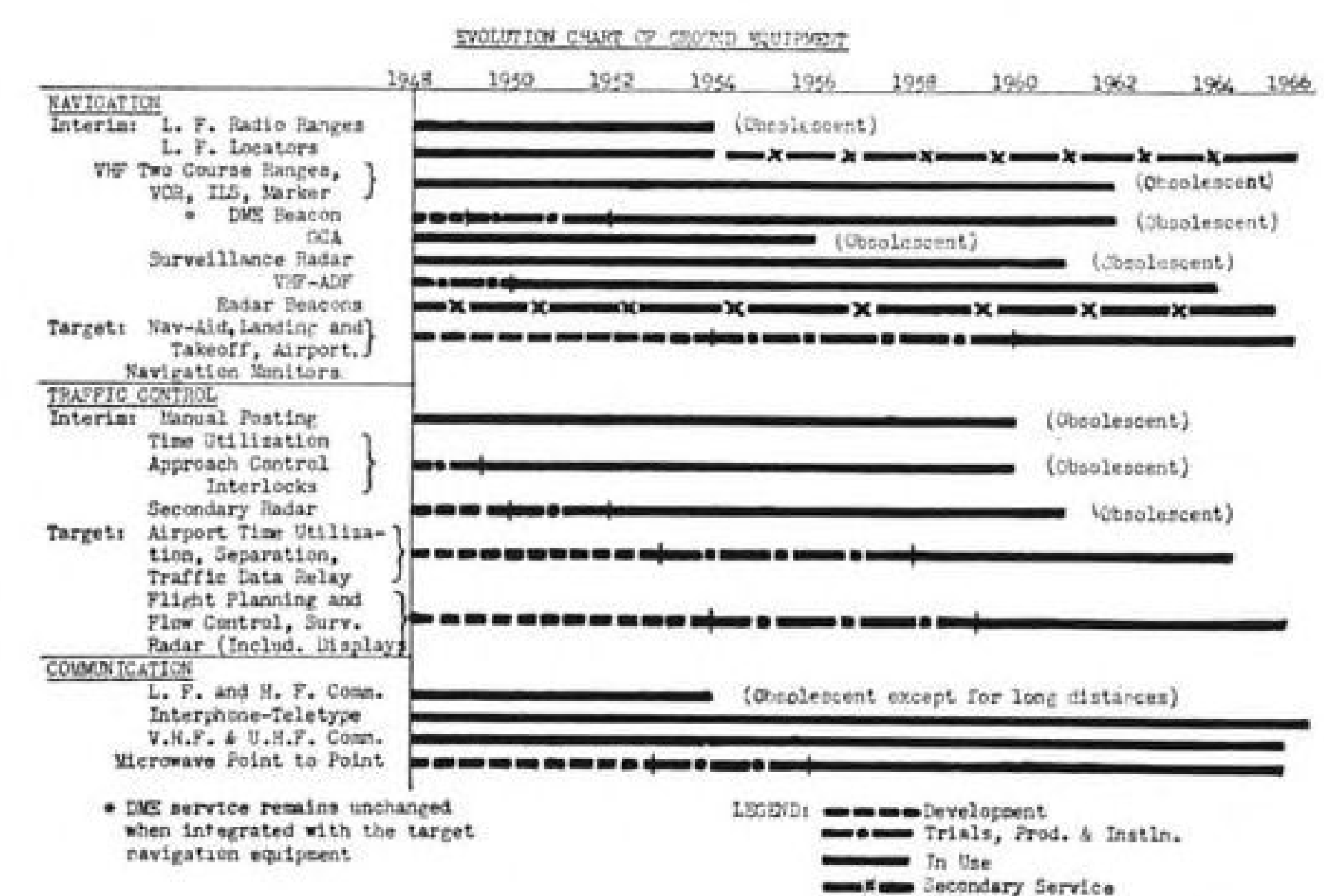
► **Traffic Data Relay Equipment**—This consists of two elements: secondary

radar to interrogate airborne radar beacons and receive altitude, bearing and distance information continuously, and periodic identification from all planes in flight; and the private line visual communications link that transmits and receives routine traffic clearances, safety separation signals and pilot's instruction requests without use of voice channels. The private line will also receive at regular intervals air-derived navigation information for each plane in flight and will transmit it to the automatic air traffic control equipment.

► **Automatic Air Traffic Control**—This consists of these elements: airspace separation; flow control; flight path planning; airport time utilization; and detailed flow control and general planning display equipment.

• **Airspace Separation Equipment** provides a block control analyzing airspace occupancy data and transmitting it to planes with necessary separation signals to insure safe operations.

• **Flow Control** receives position and identity reports from aircraft in flight and compares these with previously scheduled flight paths to provide a smooth, even traffic flow. It transmits clearances required for safety and traffic flow through the airspace separation equipment to insure against issuance of



clearances which are considered to be unsafe.

Comparing ground-derived with air-derived navigation information, it spots and reports any significant deviations to both pilots and ground traffic control personnel.

• **Flight Path Planning Installation** takes data on all aircraft planning to operate over any given route to specific destinations and sets up flight paths to handle the traffic in the best pattern.

• **Airport Time Utilization Equipment** will be designed to insure maximum utilization of runways. It will assign specific landing and takeoff times.

• **Detail Flow Control Display** will provide both symbolic and pictorial displays of any portions of the approach area, that may be desired at any particular time. Display will contain position and schedule data on all aircraft in the area.

• **General Planning Display** will present symbolic information on all aircraft arriving or departing from airports within a general control area.

• **Nav-Aid Equipment**—This ground station, based on polar coordinate principles, will provide aircraft with their bearing and distance from the station plus static-free VHF communications. It will also transmit traffic data into the airborne pictorial display on the plane's instrument panel.

• **Landing Installation**—This will provide aircraft with their deviation from the centerline of the landing runway, vertical deviation from whatever type glide path is being used, and distance from the touchdown point. Monitoring equipment will provide the ground stations with indications of aircraft positions in final approach, during landing and departure. It also provides equipment for talk-down landings (CCA).

Airport surface navigation equipment will provide pilots with information necessary to taxi around the airport surface through heavy traffic and bad weather. It also provides traffic controllers with position data on all airport surface traffic movement.

• **Target Potential**—When complete, the target system will consist of 550 en route stations equipped with search radar, traffic data relay equipment, safety separation equipment (block signals) and Nav-Aid; 550 airport control areas; and 50 general control areas each of which will contain a general planning unit and a detail flow control unit.

The system is designed to handle a fleet of 100,000 aircraft of which 55,000 will be private planes, 10,000 airline transports and 35,000 military aircraft. Approximately 15,000 military planes and 5000 commercial airliners are expected to be equipped with dual airborne equipment for safety purposes.

Major technical problems to be solved in the target system include development of a schedule computer and the

Research Review

Slots: Advantage and Disadvantage

While they increase lift of wing, they may also have adverse effect on airplane's spinning characteristics.

By ROBERT McLARREN

The ability of nose slots in combination with trailing edge flaps to double the lift of an airplane wing has been well known for two decades.

Various slot forms and mechanisms have been used successfully on dozens of aircraft of all types and sizes.

► **Slot Supplements Speed**—This characteristic of providing high lift coefficients renders the slot an invaluable aid to high-speed aircraft, which are equipped with comparatively low-lift airfoil sections chosen for their low-drag qualities. Current examples include the North American XP-86, Northrup XB-35 and YB-49, Boeing XB-47, and others. As thin airfoils come into wider use and such sharp-nose sections as the double wedge and biconvex forms reach the flight test stage the use of slots may be mandatory if reasonable landing speeds are to be preserved.

► **Effect on Spin**—Tunnel tests by the National Advisory Committee for Aeronautics indicate, however, that open slots may have serious adverse effects on airplane spinning characteristics.* The tests indicate that both the nature and the degree of the effect of slots on spinning characteristics are largely the result of the airplane's mass distribution. Practically complete separation of the effects of slots can be obtained by consideration of the inertia yawing-moment parameter $(I_x - I_y)/mb^2$; in which I_x is the moment of inertia of the airplane about the longitudinal axis, I_y the moment of inertia about the lateral axis, m the mass of the airplane, and b the span.

For values of this parameter less than 0.0080, open slots had only a small effect on angle of attack and vertical velocity in the spin but values above this quantity caused the airplane to flatten the spin and brought about a

private line communications system. Top priority is recommended for private line research and development since it is a key in both interim and target systems and will relieve the already overcrowded voice communications channels.

* This is the second of two articles on air traffic control proposed by RTCA. First article, concerned with the interim program, appeared in AVIATION WEEK, Mar. 22, 1948.

decrease in the vertical velocity.

► **Parameter Dependence**—The value of the inertia yawing-moment parameter depends on the relative loading along the fuselage and wings. When weight is added along the wings or removed from the fuselage this value increases, but when the design comprises a heavy fuselage and light wings the value decreases.

In designs of the latter distribution of weight in a spin, open slots tend to have a favorable effect when the elevator is neutral or down, but little effect when the elevator is full up.

In designs with a proportionately large distribution of the weight along the wings, such as multi-engine aircraft and those with heavy fuel and armament loads along the wing, the effect of slots on the steady spin is to retard recovery—and this effect may be of serious magnitude.

In either case of mass distribution, however, slots change the angle of wing tilt which leads to a lowering of the inside tip.

► **Problem Posed**—These results might indicate the inadvisability of automatic slots, which open as the angle of attack increases beyond a predetermined value. This feature, however, is one of the important merits of slots, thereby posing a difficult problem for the engineer with both a favorable and an unfavorable effect resulting from the use of a device.

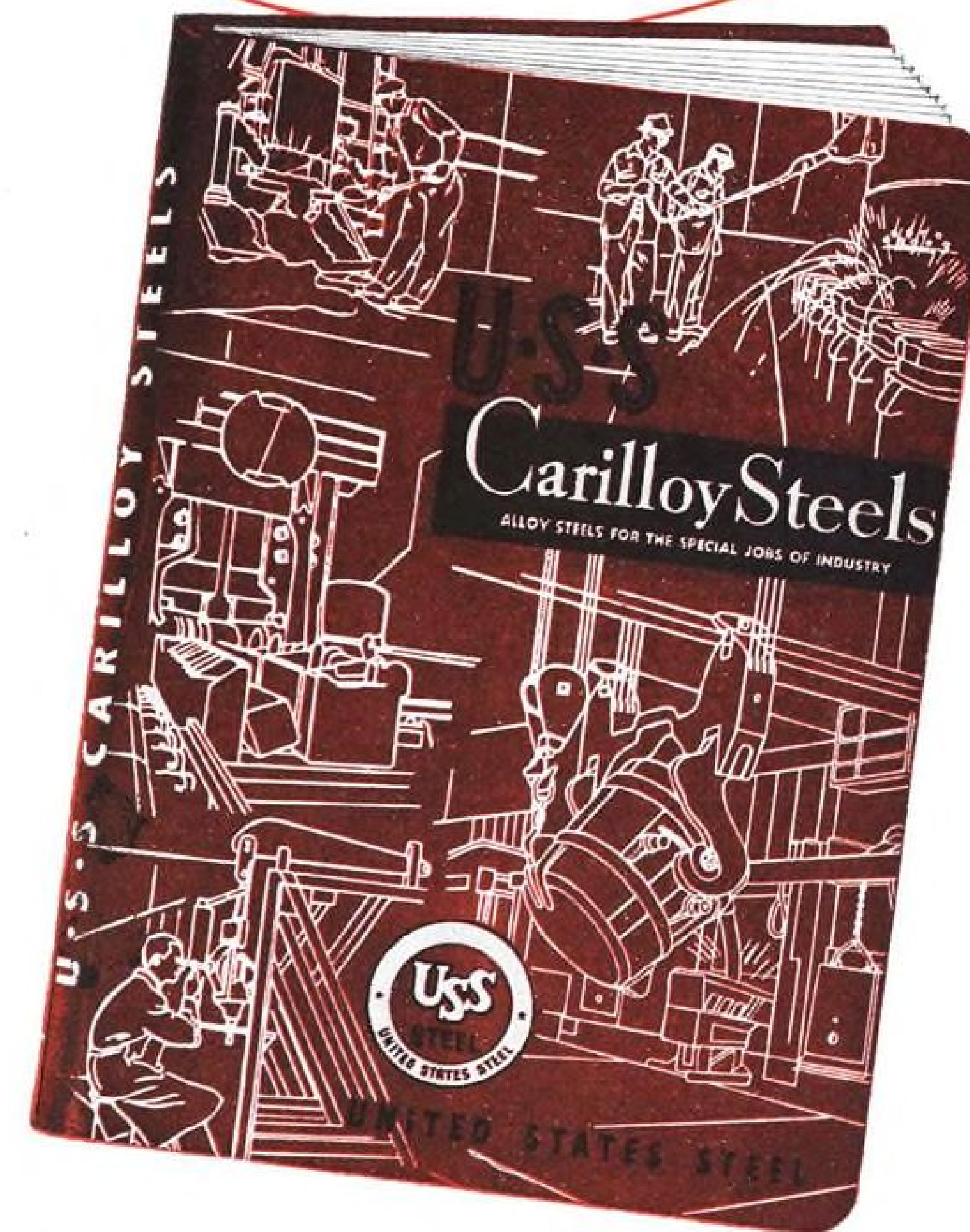
The value of automatic slots in greatly increasing the stalling speed of an airplane, thereby acting to minimize its spinning propensities, may outweigh the adverse effects of their use after the spin has begun.

These tests provide the engineer with a criterion which will generally predict the effect of slots on the spinning characteristics of a new design, with a clear indication that if slots are to be used the inertia yawing-moment parameter must be held below a predetermined value.

Reference

* Neihouse, Anshel I. and Pitkin, Marvin: Effect of Wing Leading-Edge Slots on the Spin and Recovery Characteristics of Airplanes. NACA War-time Report L-504.

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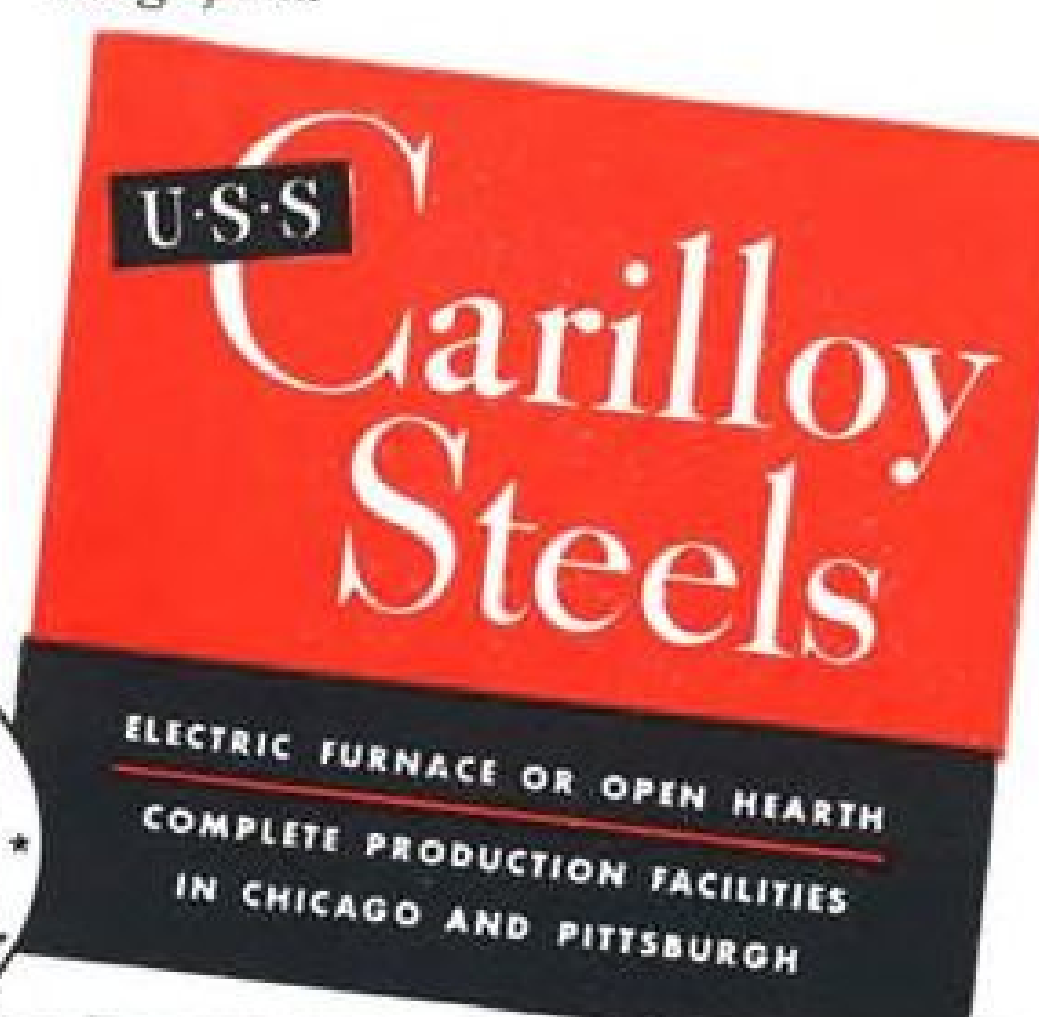
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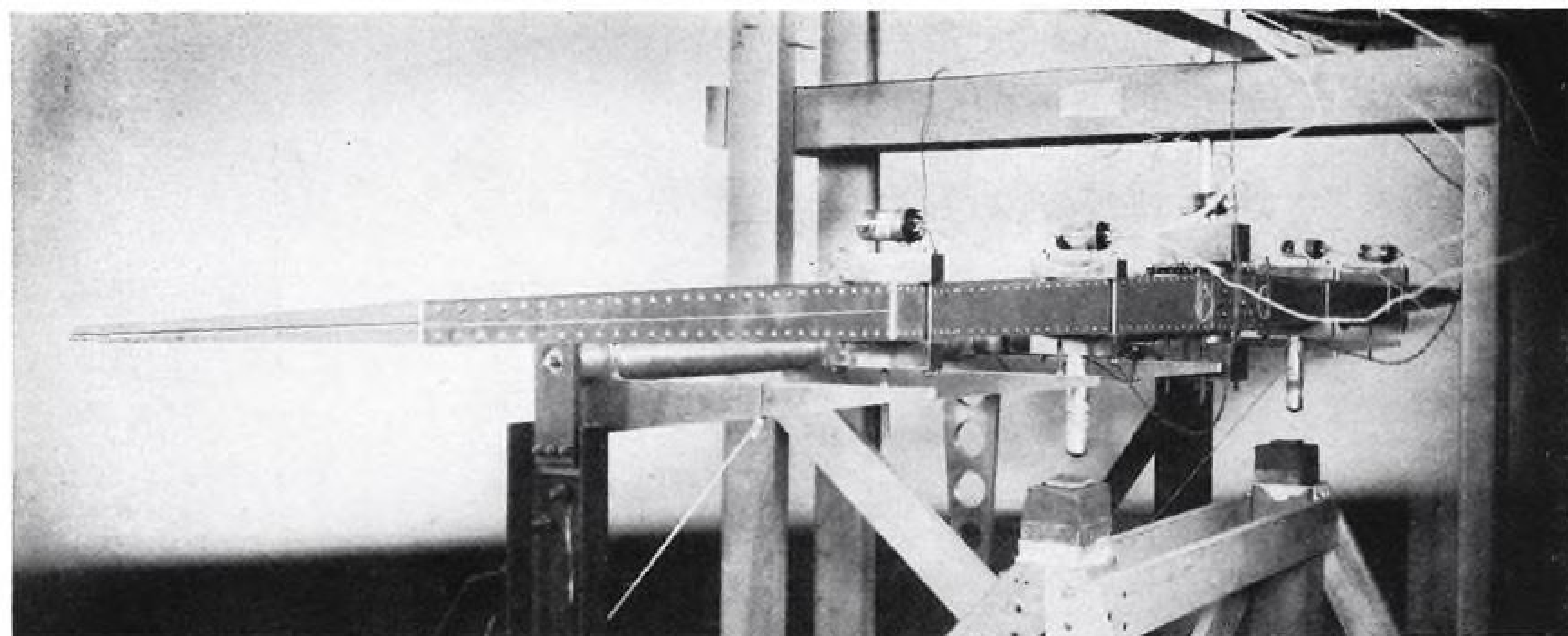
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UNITED STATES STEEL



Dynamic model of "four engine airplane" with alighting gear beneath inboard engines, used in unsymmetrical landing tests at the NBS.

Landing Impact Vibration Studied

National Bureau of Standards undertakes long-term investigation of transient vibration of plane structure in effort to help design.

An extensive investigation of vibration of airplane structure as a result of landing impact is in progress at the National Bureau of Standards under the direction of Dr. Walter Ramberg.

This vibration problem has assumed serious aspects with the advent of large transport planes. Craft of earlier and more rigid types were designed for landing condition by treating the airplane as a rigid body subjected to an impact force which could be obtained from drop tests of the gear.

Large transport planes designed on this assumption, however, showed an alarming tendency to develop failures in the wing or tail, which could be ascribed only to transient vibration of the structure excited by landing impact.

► **Analysis Difficult**—Analysis of the transients during landing impact is complicated by the fact that these involve many natural modes of vibration of the airplane, and response in each mode depends on the force-time curve at the point of contact. For a given airplane, the curve will vary from one landing to the next.

► **Suggested Approach**—In view of these complications Biot and Bisplinghoff* proposed in 1944 an ingenious statistical approach to the landing problem. The vibration of the structure in a given mode is reduced to that of an equivalent linear oscillator. The maximum amplitude in that mode is estimated from an envelope of "dynamic response factors" which bounds the response to impact force-time curves of any shape that may be expected in the landing.

An upper limit to the resultant amplitude is obtained by adding up the maximum amplitudes in the various modes.

The theory provides a straightforward and rational means for estimating vibration during landing impact. Its application in design seemed advisable provided that it could be checked by landing tests under carefully controlled conditions.

► **Laboratory Studies** — Unfortunately there is no way of making controlled landings of full-size airplanes. The stresses set up will vary from landing to landing depending on the pilot's technique, attitude of the plane, wind direction, and irregularities in the landing strip.

Since controlled landings to check the theory are best made in the laboratory on a model of the plane, the Bureau of Aeronautics requested NBS to conduct such tests.

It was desired that the tests should check, in particular, the adequacy of the following assumptions made by the theory:

- 1. Maximum amplitudes in the various modes of vibration may be added without regard to phase.
- 2. The most severe impact force-time curve during the landing approaches, in effect, one of the curves used by Biot and Bisplinghoff to derive their envelope of "dynamic response factors."
- 3. It is sufficient to confine the analysis to the first few modes of vibration.
- 4. The force-time curve at the landing gear is independent of the flexibility of the structure of the airplane.

ity of the structure of the airplane.

► **Flexural Transients Studied** — The work was started with a study of flexural transients set up in a highly idealized model of an airplane. The model consisted of a tapered box beam fabricated from aluminum alloy sheet and angles.

Dimensions of the beams were chosen to give a distribution of mass and of flexural rigidity approximately proportional to that for a well-known transport airplane. Four "engine masses" were mounted symmetrically on the model so as to excite flexural vibrations without torsion when it was dropped vertically to receive a landing impact below the C.G.

The model contained an alighting gear below the fuselage with means for adjusting the time history of the impact force acting on the wings. Measurements were made of impact force, spring force, and damping force transmitted by the gear, bending moments at two stations, and accelerations at the fuselage.

► **Model Held Strain-Free**—Release in a "strain free" condition is important to prevent vibration of the wing during free fall, caused by the sudden release of gravity forces which produce initial sag of the wing under its dead weight.

The model was initially held in a practically strain free condition by supporting at several points and adjusting supports until the strains caused by the dead weight of the wing were negligible.

The model was released in its strain free condition by removing all supports

simultaneously from under the wing at an acceleration greater than 1G. Flexibility of the tires was simulated by adding rubber to the synthetic "landing field" upon which the model was dropped.

► **Forces, Moments Measured** — Landing impact force, and the damping and spring force transmitted by the gear were measured with pickups utilizing strain sensitive wire. Bending moments in the wing were measured with wire strain gages and acceleration at fuselage was measured with one of the vacuum tube acceleration pickups developed by Dr. Ramberg.

Records of these quantities were obtained under various conditions of landing ranging from a "soft" landing (impact of relatively long duration) to a "hard" landing.

► **Comparisons Made**—Observed bending moments and accelerations were compared with values computed from Biot and Bisplinghoff's theory. In addition, a more exact analysis, taking account of phase differences, was made for one of the actual impact force-time curves.

The comparison showed that the values obtained from the theory were 15 to 140 percent greater than the measured values, and that the error caused by neglecting phase differences was negligible.

It was concluded from the tests that the theory would give a fair estimate, generally on the safe side, for the transient vibration in an airplane subjected to symmetrical landing impact leading to flexural vibration of the wing.

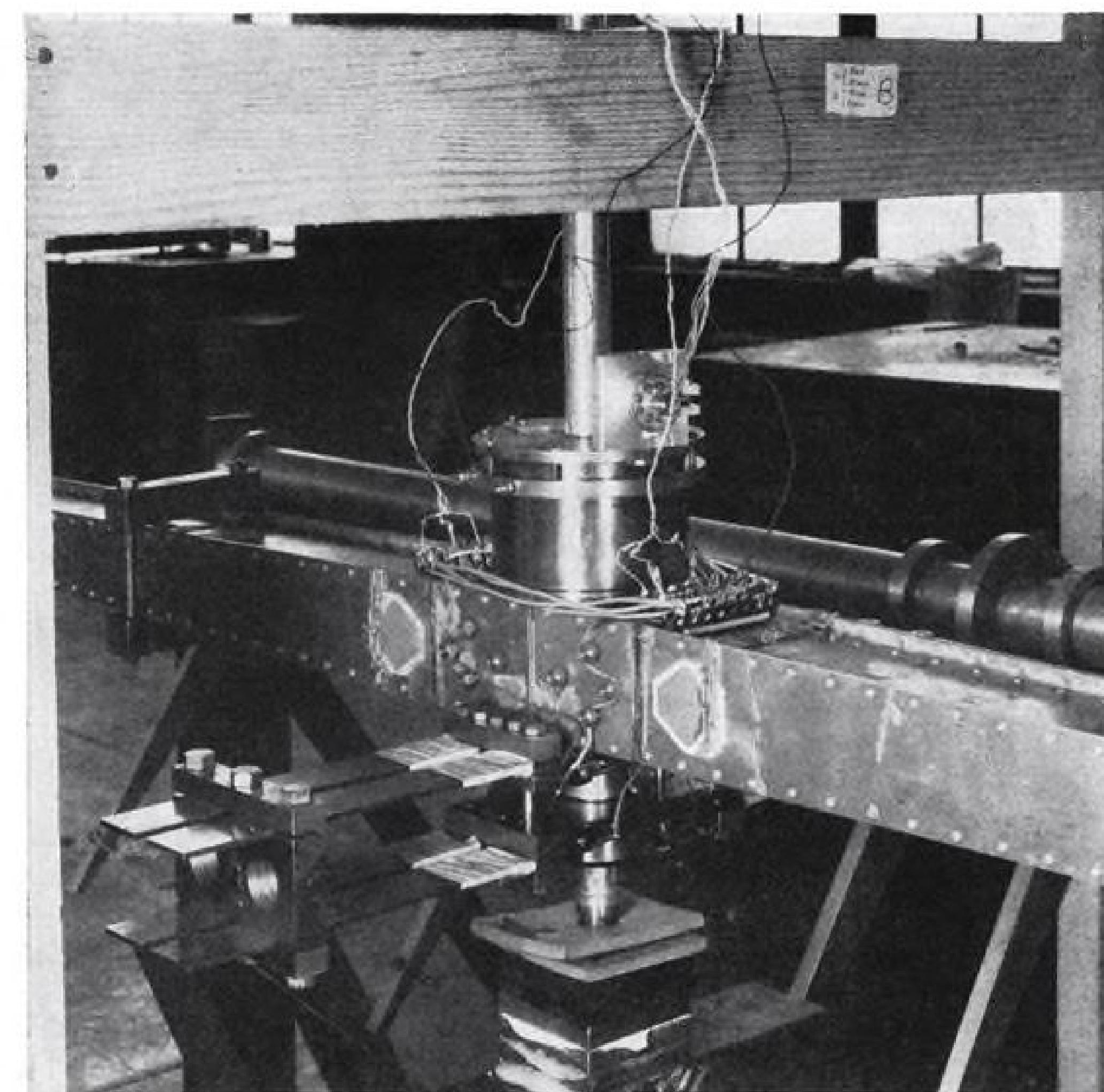
Measurements on actual landings of large transport airplanes have failed to substantiate this conclusion. In certain cases, the measured accelerations were much larger than those computed from the theory. It has been suggested that this might be due to inadequacy of the envelope of response factors and that it might be due to interaction between the landing gear and the flexible airplane.

► **Discrepancies Analyzed**—The first explanation was studied by including the effect of unsymmetrical landings in the impact force-time curves or "forcing functions" which lead to the envelope curve.

It can be shown that unsymmetrical two point landings will excite unsymmetrical modes of the wing with a forcing function that can be approximated by a full sine wave.

Response to such a forcing function was found to be about 50 percent greater than that given by Biot and Bisplinghoff's envelope curve for a time of impact approximately equal to the period of the mode considered.

This provides at least one possible explanation for the observed discrepancy



In NBS landing impact tests, "four engine airplane" is released in strain free condition by removing several supports from wing at acceleration greater than 1G. Flexibility of tires is simulated by adding rubber (lower center) to synthetic "landing field."

ancy between measured and computed accelerations during actual landings.

Second explanation was studied by determining the effect of bending of the wing in its fundamental mode on the forcing function applied by the idealized landing gear used in the one point landing tests of the model wing.

The wing of the plane was replaced by a cantilever beam with a tip mass. Effect of flexibility was increased by increasing the proportion of mass carried at the tip. In each case, the force was determined when this model made contact with the ground at a given velocity of descent.

The experimental solution for the effect of flexibility was obtained by measuring the impact force for drop tests with masses at the wing tips and with all mass at the fuselage. Both tests and analysis showed that the flexibility reduced the maximum force at the landing gear. The reduction was slight, less than 10 percent, in nearly all cases.

It was concluded that the observed discrepancy between calculated and measured accelerations during service landings should not be attributed to wing flexibility.

► **Study Continuing**—Investigation of landing impact is continuing along both experimental and theoretical lines. Unsymmetrical two point landings have been made with the same model

equipped with alighting gears underneath the two inboard "engines."

Recorded transients in these unsymmetrical landings are being compared with theory.

► **Other Checks** — Tests are being planned to study torsional transients set up in a model with "engine masses" set forward relative to the centerline of the wing.

Additional tests for studying the transients set up during the alighting of a model wing airplane on water are also planned.

Eventually it may be necessary to extend the work to a study of transients excited by the horizontal components of landing force which "spin up" the landing wheels. Service landings indicate that these may cause serious vibration of the airplane.

Along theoretical lines, methods are being investigated by the Bureau to shorten the laborious work of computing natural modes of vibration of the plane structure and to compute the response to hard impacts which may excite vibrations in many natural modes.

References

*Biot, M. A. and Bisplinghoff, R. L.: Dynamic Loads on Airplane Structures During Landing. NACA Wartime Report W92.



Wide side cargo access is feature of Cancargo's "flying wing" Loadmaster, designed for heavy freighting in hinterland.

Airfoil Fuselage: More Lift and Cargo?

Burnelli "flying wing" tested in Labrador with backers claiming it has exceptional cold weather performance.

First Burnelli "flying wing" monoplane, the Loadmaster, has proven itself, its backers say, as a cargo transport for operation in extreme cold weather.

The transport has been functioning in freighting operations in northern Quebec and Labrador under charter by Canadian Pacific Airlines. CPA has been doing work for the Hollinger iron ore development interests. In a month of winter flying, it has carried a total of 28½ tons of cargo, largest loads being 6600 lb., most loads being close to three tons.

Builder is Cancargo Aircraft Manufacturing Co. Ltd., a subsidiary of Canadian Car & Foundry Co. Ltd. The latter was active in wartime aviation production and also is maker of the Norseman single-engine freighter.

► **No Orders Announced**—No intimation is given by Cancargo of orders for the Loadmaster, but operation of the prototype by CPA tends to lend credence to the rumor that it or the Hollinger interests are ordering some of these craft.

Hollinger Ungava Transport Ltd., has applied for a contract air license from the Canadian Air Transport Board for operation from Mont Joli on the north shore of the St. Lawrence River, into Labrador, the same location from which the prototype was operated under its CPA charter.

► **Fuselage Features**—The Loadmaster is of a somewhat controversial design. It uses an airfoil fuselage section to provide much of the lift for the craft, and affords a large cargo capacity.

Fuselage is wide enough to allow for seating of 24 passengers in four rows with two aisles. Space between passenger compartment sections permit loading cargo in a 7-ft.-wide space capable of accommodating a volume of 546 cu. ft.

As a pure cargo transport, the plane has useful cargo volume approximating 2070 cu. ft.

► **Basic Data**—The craft has an overall span of 86 ft., length is 54½ ft., and height is 13 ft. 4 in. Body width is 20 ft., length 30 ft., and height 7 ft.

It has a gross weight of 28,500 lb., can carry 5 tons as passenger version, or 11,500 lb. as cargo version.

Pilot's compartment is forward of, and above, the wing. Provision is made for a crew of three.

Engines and fuel tanks are located well apart within separate sections of the structure to lessen fire hazard.

► **Performance**—The plane is powered with two P&W R-2000s, has maximum speed of 235 mph. at 14,000 ft., cruising speed of 193 mph. at 10,000 ft., and lands at 74 mph. Service ceiling is 22,000 ft. As a cargo craft it has a range of 2200 mi., as a passenger plane, 1320 mi.

► **Production Advantages**—Design of the aircraft offers a greater economy in manufacture than that of conventional type, the company claims. The body section is constructed entirely of flat sections involving no formers. This is supposed to simplify and lower cost through a reduction in the number of man-hours expended.

Tooling and die costs, major factors, are also correspondingly scaled down, it is claimed.

► **Structural Aspects**—Structural strength of the Loadmaster is derived largely from a series of bulkheads throughout the fuselage section, which absorb primary and secondary airframe loads. It is stated that saving in material is thus achieved, resulting in a lower tare weight than is found in conventional craft of similar size. This enables carrying higher payloads within the gross weight category.

► **Operational Observations**—The dual wheels have proved to be of great assistance in operating from compacted snow or from undeveloped or muddy fields. They also give better braking under icy conditions.

Wheel wells are accessible to the crew while in flight, thus enabling minor adjustments to components in the well area.

Tires may be inspected in flight, and in the event of hydraulic failure the crew can manually release the landing gear at the wells. The gear extends by gravity and automatically locks. Locking can be visually checked without depending on indicators.

For extreme cold weather operation it is claimed that the Loadmaster's cabin heaters are so located that heat can be applied to the induction system, thus eliminating the need for portable ground heaters or special fuel to insure engine starting.

► **Loading Facilities**—In one cargo version, the plane has wide hatches under the wing panel and also at fuselage rear. Hatches at the side of the fuselage are 70½ in. wide and 41 in. high. Rear loading hatch provides an uninterrupted opening 7 ft. wide by 6 ft. high. Trucks can be backed in under the tail between the booms, and freight can be loaded, without resorting to turns, straight into the craft.

In addition, there are two conventional doors just behind the wing panel.

The rectangular-shaped freight section affords space economy, and since the width is the major dimension, span loading can be utilized. This is reported to make the location of the load far less critical than in conventional designs.

Cancargo has recently sent a circular to prospective large air freight shippers in Canada, the United States, and Latin America, requesting information on various operating requirements. This is to gather data for finalizing production of the Loadmaster for rugged hinterland services.

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or commercial giant...

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Maintenance records for all types of planes prove that Packard high-altitude aircraft ignition cable gives more HPR—more *Hours Per Replacement. For this cable is different in design, in materials, in construction . . . engineered for greater mechanical and dielectric strength. Its improved resistance to heat, cold, oil, corona, moisture and abrasion safeguard performance under all conditions. Specify Packard high-altitude aircraft ignition cable for more *Hours Per Replacement.

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(For Aircraft)
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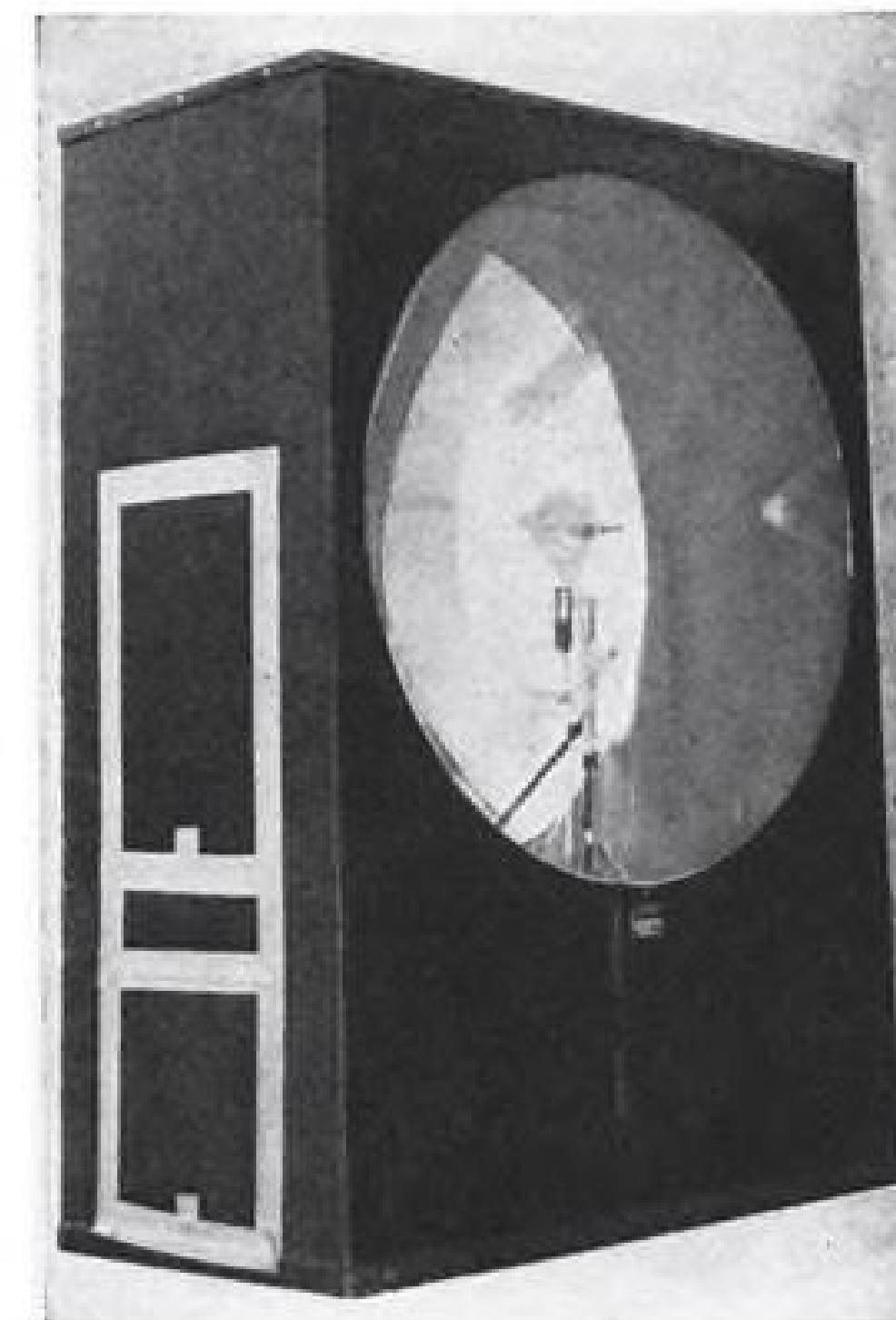
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SPECIALISTS IN FUEL SYSTEMS, COMBUSTION & STARTING EQUIPMENT

NEW AVIATION PRODUCTS



Fog Light

Beam penetration of 3000 yd. under zero fog conditions is claimed for new Neon red-orange airport flasher light produced by **Dallons Laboratories**, Hollywood, Calif. Light is commercial development of design used by Navy for fog signalling during war. Quartz lamp is said to produce wave length approximating 5858 Angstrom units. Device can utilize 110, 200, or 440v. current.



Panel Instruments

Suitable for use in aircraft, radios, power supplies, transmitters, and amplifiers are the 3½-in. panel instruments offered by **Meter Instrument Div., General Electric Co.**, Schenectady, N. Y. Elimination of arc lines and distracting printing from scale, together with lance-type pointer and large numerals, are intended to promote accurate readings.

Unit's internal-pivot construction reduces depth behind panel. High-strength "Alnico" magnet provides high torque permitting use of larger-radius pivots and increased resistance to shock and vibration.

Thermoplastic Material

Aviation applications are seen for thermoplastic, "Versalite," announced by **United States Rubber Co.**, 1230 6th Ave., N. Y. Material is stated to be non-corrosive and stable under changing atmospheric conditions, with high electrical insulating properties and low rate of heat conductivity. Tough, lightweight, and formable into compound shapes as large as 5 × 10 ft., substance can be made in thicknesses above .020 in. Cutting, drilling, and punching can be accomplished on ordinary wood- or metal-working equipment.



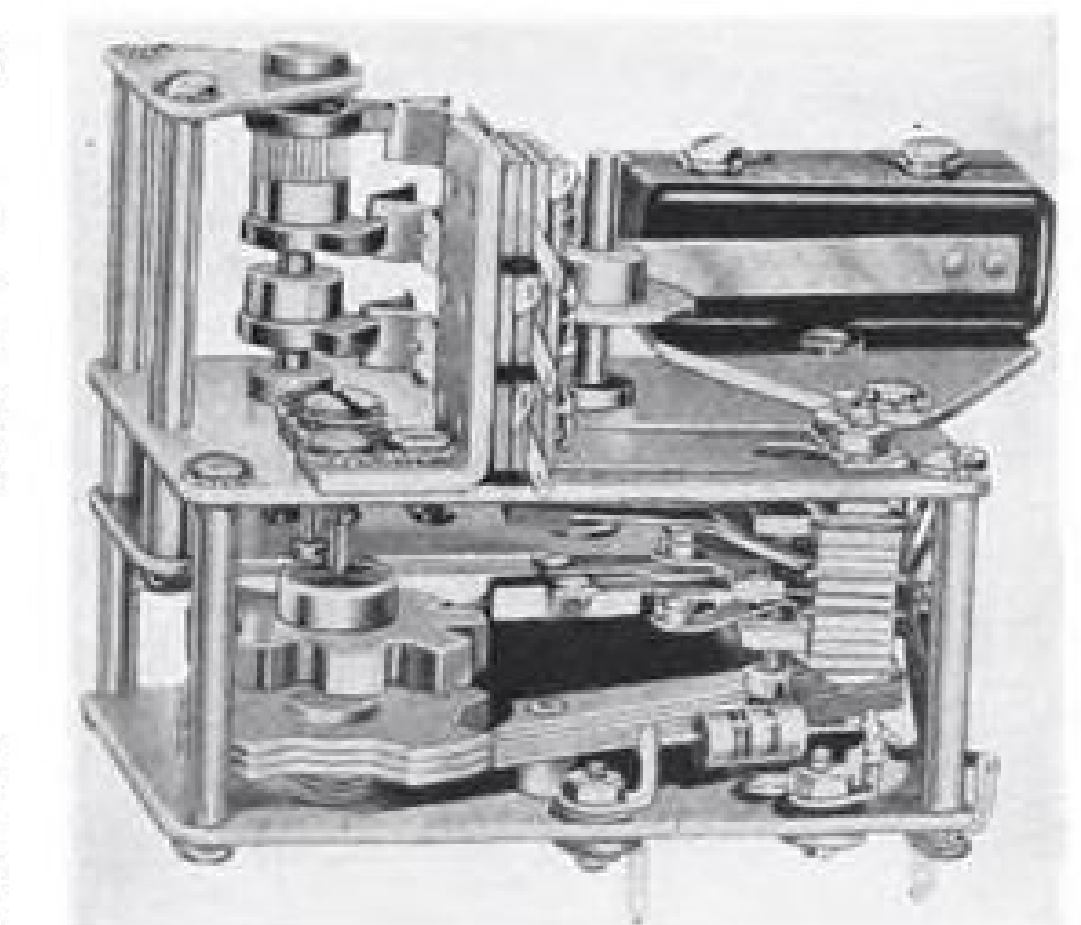
Fire Fighter

Fire-fighting trailer, designed and equipped by **National Foam System**, Phila., Pa., for airport use, produces flame-smothering "Aer-o-foam." Pulled by jeep or pickup truck, trailer has two-compartment tank carrying 250 gal. of water and 25 gal. of foam-making liquid to afford 2500 gal. of extinguisher. In test demonstration with simulated crash or hangar fire, it's stated that unit's pump delivered 100 psi. pressure and extinguished flames in 2½ min.

For Differential Pressures

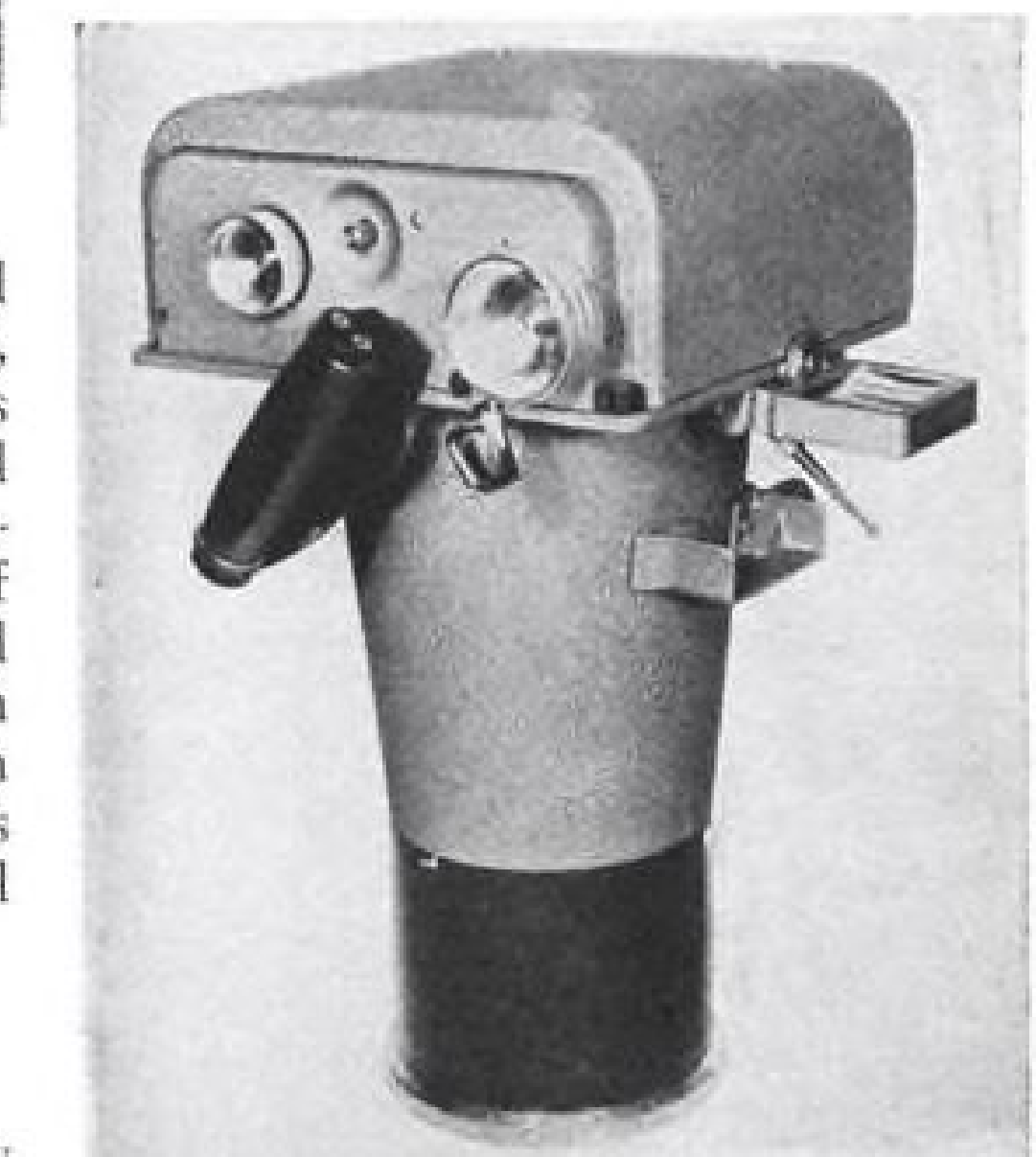
Particularly applicable to laboratory and flight testing of jet turbine engines, where sensitive differential pressure measurements are required, is gage offered by **Kollsman Instrument Div., Square D Co.**, 80-08 45th Ave., Elmhurst, N. Y. Instrument has differential range from 0 to 300 in. of water and working pressure range (difference between inside and outside of case) not exceeding 60 psi. It is calibrated so that main pointer makes one revolution for every 10 in. of water. Gage is capable of measuring differential pressure as small as 0.1 in. of water with corresponding pointer tip movement of 0.075 in., and is compensated for temperatures from -30 to + 50 deg. C. For flight

testing, where readings of instrument are photographed, gage is available with coated glass, reducing reflection.



Airborne Motor

New model constant speed d.c. motor for use in weather balloons, airborne equipment, and similar applications where size and weight must be held to minimum, is offered by **Anglo Corp.**, 4234 Lincoln Ave., Chicago, Ill. Basic motor frame and aluminum reduction gearing occupies 2½ × 3½ × 1½ in. Weight is 10 oz. Motor utilizes polarized magnetic drive principle of vibrating reed. Available for use on line or battery voltages from 3-110, motor has rotor shaft speed of 900 rpm.



Aerial Camera

For commercial aerial photographers, new hand-held 5 × 7-in. camera, F-275, containing Bausch & Lomb f5.6 20-in. telephoto lens, is made by **Fairchild Camera & Instrument Corp.**, 88-06 Van Wyck Blvd., Jamaica, N. Y. Device's long focal range gives large-scale photos and medium-size negatives. Iris diaphragm permits lens openings from f5.6 to f45. Focal plane shutter is adjustable for speeds of 1/125, 1/175, 1/225, 1/300, and 1/400 sec. Direct vision view finder folds up when not in use. Complete with lens, camera weighs 20 lb., is 18 in. long.

SALES & SERVICE

Air Education: JAYCEES Project

U. S. Junior Chamber of Commerce gives its highest priority to local drives to increase aviation activity.

A nationwide air age education campaign being undertaken by the U. S. Junior Chamber of Commerce and its local service group members is expected to benefit the aviation industry—in varying amounts depending largely on local support it receives. It is the Chamber's number one project for 1948.

It offers opportunity for local airport operators to get strong service club backing for their enterprises—and considerable publicity—which would be difficult to obtain without the campaign. However, probably the major benefit to be derived will stem from proposed airport institutes on aviation in education, which the national JAYCEE organization has outlined for use of its local groups.

Teacher Training—Suggested institute program is planned for school teachers in the local schools, with the intention of giving them a better supply of knowledge about aviation to pass on to their pupils. In addition to talks by aviation experts, the institute program calls for introduction of the teachers to Weather Bureau operations, communications, air traffic control, administration offices, Link trainer demonstrations, aircraft display, and maintenance and repair shops. Free local flights will be furnished for the teachers.

Regional CAA air education specialists are instructed to cooperate in arranging these institutes, and the local service groups are asked to enlist aid of the air education departments of the major airlines. If the airlines are unable to arrange for group flights, the national bulletin suggests, the local fixed-base operator will no doubt be quite willing to take the teachers aloft at reduced rates.

Bibliography Ready—Success of the initial institute may be followed by short seminars for public officials, and civic groups, adding to their air consciousness. But after the first institute for the teachers, it is suggested that the local Junior Chamber of Commerce take on as a continuing project the supplying of adequate and up-to-date teaching materials for air education in the schools. A bibliography of teaching materials is available at the U. S.

JCC office, Tulsa, Okla. As a tie-in with the school program it is suggested that model airplane clubs be sponsored, both as a youth recreation project, and as an aid to air education in the schools. National Institute of Air Age Activities, Chicago, has offered to assist the local groups in setting up model clubs.

The national office is also supplying an aviation information kit, which contains instructions on procedure to get local radio and newspaper publicity for the aviation training program. The kit contains a series of sample 15-minute radio scripts which are adaptable for local use. Series includes a discussion of fundamentals of flight, an interview with a state aviation official, a discussion of how to provide airport



WINGED CARTON

Mathieson Chemical Corp. has introduced a new emergency winged container which could be useful to operators called upon to drop emergency supplies to communities isolated by floods or other disasters.

Successful tests were conducted at Westchester County Airport recently when a container was dropped 1000 ft. without contents being disturbed.

The winged carton requires no parachute. When dropped, side panels open up wing-like and the unit twirls like a top in the course of its descent to the ground. It is simply constructed of fibreboard.

recreational facilities for the local community, a dialogue on how to organize and operate a flying club, a program on airmarkers, and an interview with an air age education teacher from a public school.

Airmarking Project—Airmarking of roofs in the local community is urged as another project for the Junior Chambers. Each town should have at least one marker and each city should have at least four in its suburbs. The local Junior Chambers are urged to spearhead civic drives to get the markers put in, after consulting with CAA to get instructions on standard specifications.

Listed as "agencies who can render valuable cooperation to aviation projects" are: state education departments, state aviation commissions, CAA education and airmarking representatives, Institute of Air Age Activities, Civil Air Patrol, Air Scouts, Wing Scouts, educational directors of airlines, manufacturers, Association of Collegiate Administrators for Air Age Education, Personal Aircraft Council of Aircraft Industries Association, U. S. Air Force, Air Force Association, Flying Farmers Association, and several other local service clubs.

Garside Named To NATA Post

Joseph Garside, president of Wiggins Airways, Norwood, Mass., has been elected vice president of the eastern division of National Aviation Trades Association, succeeding F. Leslie Marsden, Buffalo, N. Y. Aeronautical Corp., who resigned.

Executive committee of NATA also has named Jean H. DuBuque, to assist NATA Washington headquarters in conducting a long-range public relations program. DuBuque was an AAF lieutenant colonel in World War II, and recently opened a public relations office in Washington after serving as Director of Aviation for the City of Dallas, and in other industry and CAA posts previously.

Plans to hold the next NATA convention in St. Louis, Nov. 8-10, in conjunction with the meeting of the Aviation Distributors and Manufacturers Association, were approved by the executive committee. Show committees of the two associations are discussing plans for a joint aviation show which may be held in St. Louis in conjunction with the meetings. David Kratz, St. Louis fixed-base operator, heads the NATA show committee and Richard Bomberger, vice president, Sensenich Corp., Lancaster, Pa., heads the ADMA show committee.

.....When you're glad you have a **Snap-on**



Tightening landing gear bolts with Snap-on Blue-Point BOX SOCKETS

Landing...taxiing...taking-off...that's when the landing gear must function perfectly. Important in this mechanism are the landing gear bolts and nuts. To make sure they are tightened to correct maintenance standards, aviation mechanics like to use Snap-on's Blue-Point Boxockets. They like the way the nut-encircling grip distributes the pulling strain equally around the wrench head providing "can't-slip-off-or-spread" factors of safety.

Another feature, contributing to good maintenance workmanship, is the round comfortable, full size hand grip offset from the handle to provide adequate knuckle insurance as well as for working over obstructions.

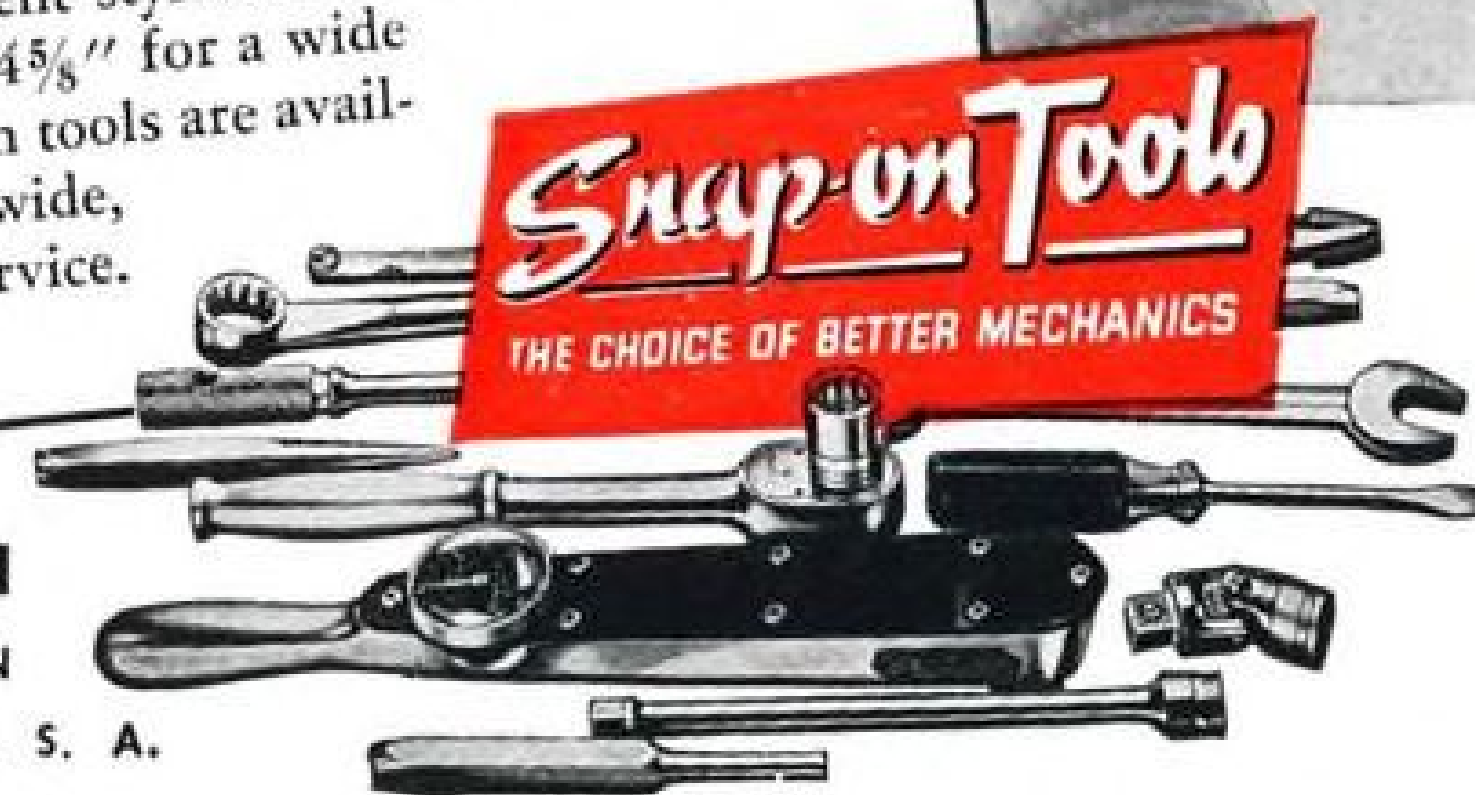
Snap-on offers 13 different styles of Boxockets with sizes ranging from 3/16" to 4 5/8" for a wide variety of work. Snap-on tools are available through a nationwide, direct-to-user tool service.

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THE CHOICE OF BETTER MECHANICS

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57 Varieties of Industrial Flying

Analysis by CAA of types of flying done in non-scheduled commercial flying indicates that several thousand aircraft are engaged in a total of more than 100 flying "jobs," with 57 of these activities listed as major enterprises.

CAA lists the following types of operation, with the number of operators, and the number of planes used in each:

- Spraying ripened fruit with "stop drop," 45 operators and 121 planes; plant pollenization, 46 and 90; crop defoliation, 120 and 323; dusting, 463 and 1303; spraying, 283 and 720; seeding, 423 and 909; sign towing, 99 and 128; glider towing, 78 and 113; mapping and surveying, 56 and 92; aerial photography, 174 and 254; forest patrol, 88 and 141; highway patrol, 10, and 22; power line patrol, 83 and 152; pipeline patrol, 28 and 50; oil well service, 115 and 223; soil erosion inspection, 42 and 101; ambulance service, 145 and 169; mail and newspaper delivery, 81 and 146; food drop in snow, 169 and 191; fence patrol, 444 and 455; checking cattle, 466 and 477.
- Hauling food and equipment, 153 operators and 204 planes; mineral prospecting, 24 and 26; game survey, 60 and 85; coyote hunting, 328 and 518; eagle hunting, 9 and 12; hunting lost persons, 280 and

412; herding wild game, 50 and 78; determining snowfall and water levels, 36 and 49; fish and game patrol, 36 and 50; telephone line patrol, 10 and 17; skywriting, 34 and 50; nonrigid airship advertising sign displays (neon lighting) 20 and 29; airborne loudspeaker advertising, 35 and 39; rainmaking, 73 and 131.

- Mosquito control, 55 operators and 165 planes; spotting schools of fish, 26 and 40; stocking lakes and streams with fish, 3 and 47; air police, 104 and 164; trap patrol, 6 and 13; fur transportation, 11 and 19; forest fire fighting, 67 and 126; herding livestock, 35 and 45; helicopter operations, 31 and 45; checking fallow land, 136 and 206; anti-frost agitation, 26 and 25; checking crops, 271 and 329; oil search (radar), 2 and 3; truck line patrol, 1 and 1; transporting dynamite, 1 and 1; spreading fertilizer, 29 and 51; checking windmills and waterholes, 200 and 200; range surveys, 1 and 9; checking irrigation, 14 and 14; oil company business transportation, 15 and 44; knocking ripe foods from trees, 1 and 1; weed control, 20 and 20, and miscellaneous jobs, 45 and 45.

Richard F. Fender, chief of CAA's nonscheduled aircraft operations division, points out that many operators use a single plane.

past, it has been a 50-50 matching plan. However, hereafter the state will not participate in land acquisition or hangar construction.

The commissioner also will be permitted to finance the installation of single-strip landing fields. This will enable smaller communities to come into the state airport program.

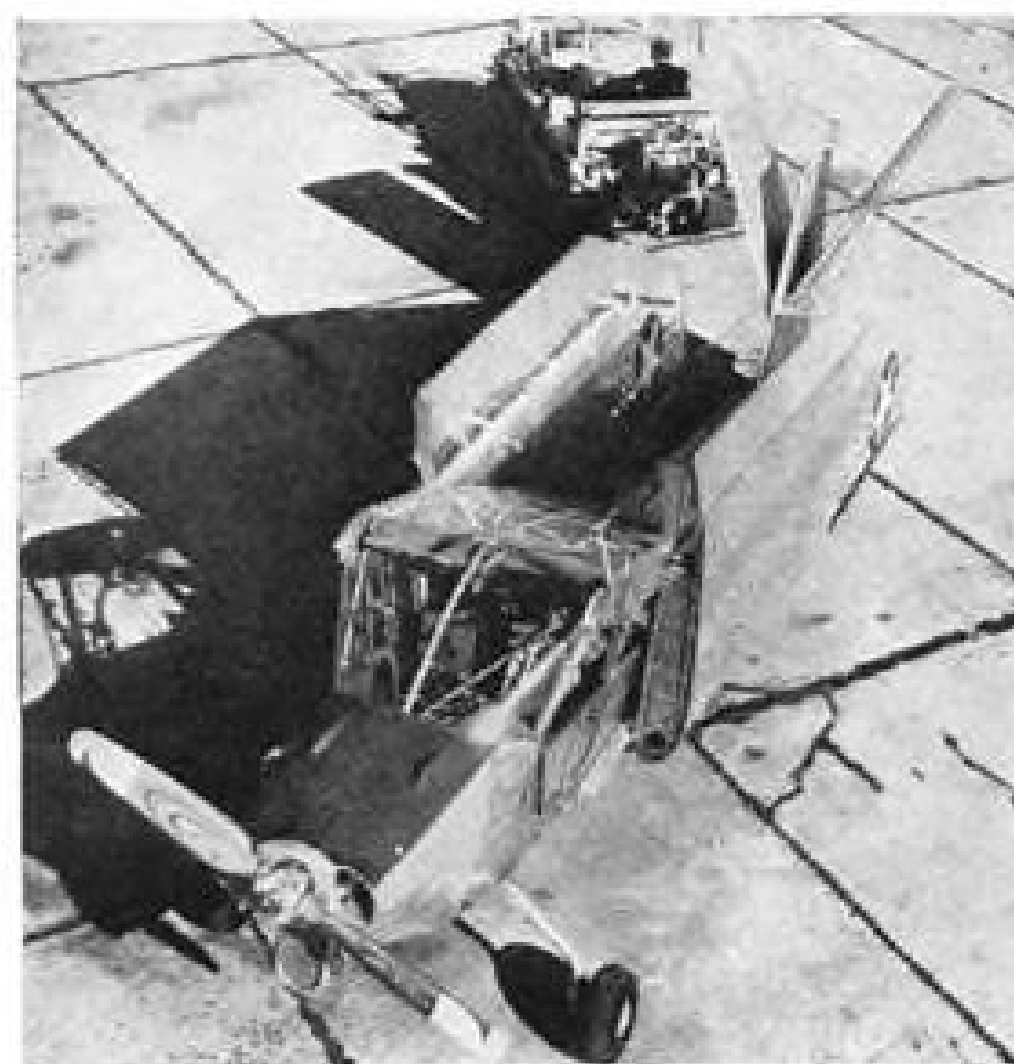
Along with the new policies for airport development, the legislative advisory committee approved new expenditures totaling \$586,955 for airport work in the state the next year.

Idaho Airmarking

A statewide airmarking program for Idaho has been completed, and contract let to Signs Unlimited, Boise. Company representatives are touring 125 cities in the upper Snake, Challis-Salmon and north Idaho areas, securing easements on roofs suitable for signs. Painting crews will begin work about May 1 marking names of cities and distances and direction to the nearest airport.

A check by the state department of all Idaho towns shown on the Federal air maps disclosed one-third with roofs too small to accommodate the specified 20-ft. high letters, and a total of 191 existing markers. Signs Unlimited will receive \$35 per city marked and \$50 where it paints an arrow pointing north and latitude and longitude in degrees and minutes.

Last summer 66 roofs were marked in southern Idaho. This year's operation will complete the airmarking program for the entire state.



COMPACT L-13

A lesson in how compact a lightplane-type can be is demonstrated in this new photo of the Consolidated Vultee L-13 liaison plane for the Air Force. Folding wing and tail surfaces make for easy stowage and hauling and, if adapted for a personal aircraft, would go far toward clearing up the vexing shortage of hangar space. (Ross-Pix)

Vagabond Catches On

Piper Aircraft Corp. has reported March shipments of 72 two-place 65 hp. PA-15 Vagabonds, lowest price plane currently in production, at \$1990 flyaway Lock Haven, Pa. The showing is unusually good for first month delivery of a new plane and indicates that price consciousness is still a major factor in marketing airplanes. Piper also delivered 48 PA-11 tandem trainers, and 7 of the older P-12 three-place Super-Cruisers, for a total of 127 planes shipped for the month. This probably puts the Lock Haven company into first place for number of planes delivered in March. Largest four-placer shipments reported were for the Stinson Voyager, 92. Piper expects to have the new PA-14 four-place Family Cruiser available, beginning in May.

'Sky Merchant' Returns

Esso Standard Oil Co.'s DC-4, the Atlas Sky Merchant, has returned from a 44,500 mile 100-day trip through South America, Asia and Africa, with its complement of ten American businessmen whose aim was to get first-hand foreign trade information and become acquainted with world merchants.

Heading the group was F. H. Bedford, Jr., president of the Atlas Supply Co., an Esso subsidiary. Other passengers were company executives.

More than 46 stops in towns and villages in Africa, Egypt, India, French Indo-China, Australia, Japan and other foreign countries were recorded by the Sky Merchant, which carried a crew of seven.

The aircraft was fitted out as a "flying show room," complete with displays of Atlas aviation tires, batteries and accessories. The interior was specially designed to accommodate promotion and dealer training meetings.

The flight left Miami Jan. 13, and returned to New York Apr. 15.

Piedmont to Supply Spray Equipment For Indo-China

Piedmont Aviation, Inc., Winston-Salem, N. C., has completed an agreement with the French-Indo China government to provide aircraft equipped with DDT spraying apparatus. Under the agreement, Piedmont is to furnish the aircraft, manufacture and install the special spraying equipment, and ferry the aircraft to the West Coast where they will be crated for shipment.

BRIEFING FOR DEALERS & DISTRIBUTORS

TAYLORCRAFT PRICE CUT—Reduction of delivery price of the 1948 two-place 65 hp. Taylorcraft from \$2345 to \$2295 has been announced by C. G. Taylor, president, Taylorcraft, Inc., Alliance, Ohio. Price reduction is passing on a savings resulting from a reduction by Continental Motors in price of the 65 hp. engine.

THOSE TOUGH NAVIONS—As a sequel to the recent story about the Navion and the Jackass (Aviation Week, March 29) Ryan's Bill Wagner has sent in a note about a Texas hailstorm, where the hailstones—like everything else in Texas—appear to have been larger than anywhere else. Clippings from the Austin papers described the hail as "mostly the size of marbles, with larger stones having a diameter of 1½ in." Car windows were smashed, holes knocked in shingled roofs, and Austin schools reported more than 600 window panes broken. Oh yes, there was something in Wagner's note about some airplanes parked out at Municipal Airport. The fabric-covered planes and the ones which had fabric-covered control surfaces took a terrific beating from the hail. And when the storm stopped only one of the 21 planes parked was still airworthy—all on account of its rugged construction. Three guesses are given as to what kind of an all-metal four-placer manufactured at San Diego that one airplane was.

4,000 SAFEFLIGHTS INSTALLED—Since the first commercial installation of SafeFlight stall warning indicators two years ago, there has been no record of any airplane equipped with such an indicator being involved in a stall or spin accident, Dr. Leonard M. Greene, inventor of the device, reports following analysis of CAA, AOPA, and insurance company records. CAA accident statistical tables show that every year one airplane in every 170 is involved in a fatal stall-spin accident. The indicators have now been put in over 4000 planes, including types ranging from 65 hp. two-place trainers to large airliners and jet fighters. By the time these 4000 planes complete a year's service, if the present good record continues, the indicators will have prevented approximately 23 fatal accidents. The Safe Flight Instrument Corp., White Plains, N. Y., reports that sales of the stall indicator have nearly doubled in each of the first three months of 1948.

AIR ASSOCIATES' NEW STORE—Visual merchandising laboratories of Goodyear Tire & Rubber Co. have designed the new Air Associates Inc. store at Dallas. Air Associates, incidentally, has been distributing Goodyear products since it started business 21 years ago. The new store has 1032 sq. ft. of active display space, divided into 15 departments, where thousands of items for the pilot, mechanic and the plane are shown in wall and floor display cases and fixtures. Adjoining is a carefully planned stock room, providing accessible storage for items on sale. R. B. Kenty, Air Associates vice-president, and also president of Aviation Distributors and Manufacturers Association, says that the new store ranks as one of the best equipped and well stocked aviation parts and equipment outlets in the world. The Goodyear visual merchandising service is part of a service originated by the company for its auto tire dealers but recently extended to dealers and distributors of Goodyear aviation products division as well.

LIGHTPLANE FIRE EXTINGUISHER—Van's Air Service, St. Cloud, Minn., has been named national distributor for the new Kidde packaged fire extinguisher system for lightplanes. System includes a bottle of carbon dioxide gas which can be released from a cockpit control to flood the engine compartment in event of fire. Original experimental installation was tested in an Ercoupe. Device is now available for Ryan Navions and is being demonstrated in a Navion by Everett Welsh, who is making a national demonstration flight tour. Kits will be ready soon for the Stinson Voyager, Beech Bonanza, and other planes. Complete installation adds 18 lb. to the airplane and sells for "less than \$200."

LEASING LEADS TO SALES—A new plan for leasing new planes on a monthly basis is leading to sales, Aviation Market Newsletter, Dallas, reports. Plan, as outlined by a dealer, offers to lease a \$9000 airplane for six months at \$1000 a month, payable in advance, permitting customer to terminate the contract at any time without obligation. Customer agrees to carry full insurance and maintain aircraft and its equipment in good serviceable condition. He has option of purchasing the airplane at any time during the six months by applying to the full price all his monthly payments. A finance company reports it is handling two or three such lease contracts a week with Navion and Bonanza dealers, selecting only prospects with excellent credit rating.

—ALEXANDER McSURELY

Arrival Notification

Solution to a problem which long has proved expensive and a headache to the cross-country private flyer has been suggested in a plan submitted to Western Union Telegraph Co. officials. Proposal is to permit the cross-country flyer to wire a single word "arrived," and his name, back to the point of departure, at a special rate similar to the "travelgram" arrangement which the telegraph company discontinued during World War II. W. J. Bain, Colorado State Aeronautics Director, Denver, is asking for comments by other state aeronautics directors on the proposal and will transmit a consensus to Western Union, which has indicated a willingness to "explore" the proposal.

Free Bus Service

Martin Field, a private airport near Walla Walla, Wash., has inaugurated a free scheduled bus service between

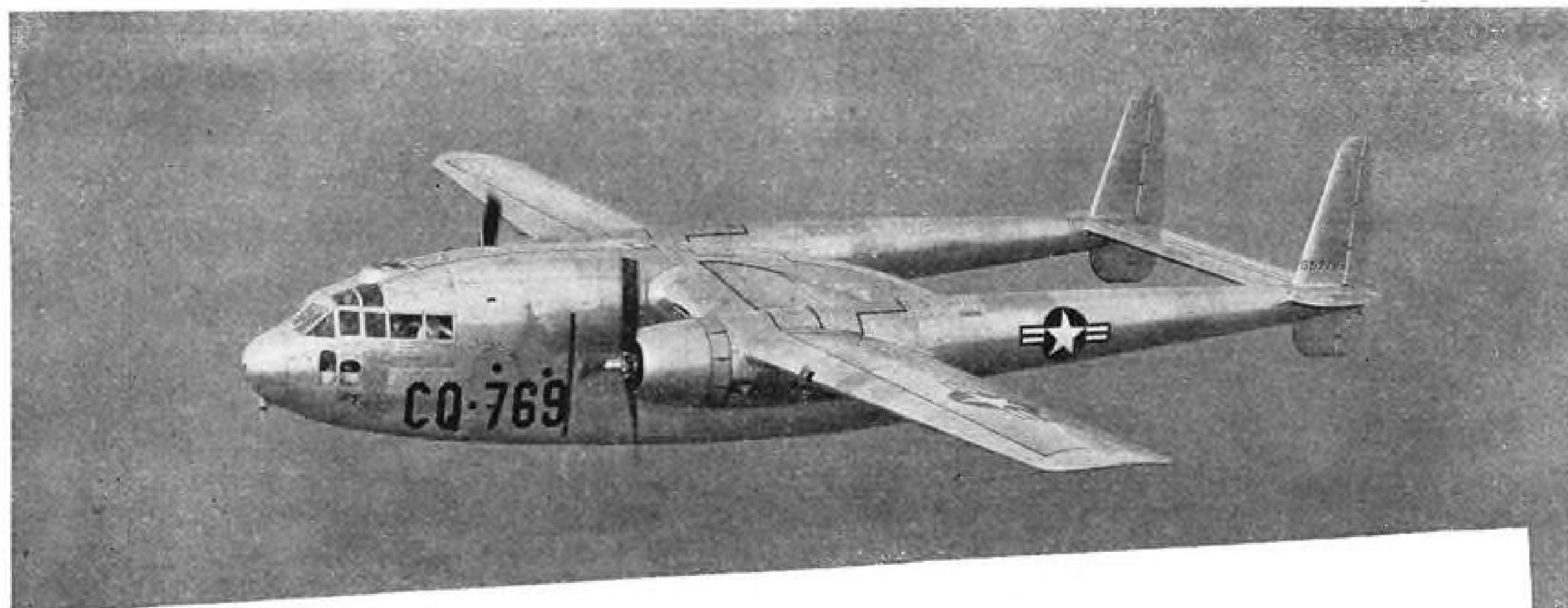
the airport and the center of the city for air travelers and customers, according to Herman L. Martin, owner.

Leading hotel is the downtown terminus for the route, with departures every hour from 7 to 10 a.m. and from noon to 4 p.m. Martin Field has two sod runways, 1800 and 2400 ft. long, 300 and 150 ft. wide. It has a flying school, repair station and charter service.

Liberalize Airport Policy

Two major changes in policies of the Minnesota Aeronautics Department have been approved by the Legislative Advisory Committee of the Minnesota legislature, as requested by State Aeronautics Commissioner Leslie L. Schroeder.

In building airports about the state, the commissioner will be permitted to match municipal funds on the basis of two-thirds furnished by the state and one-third by the municipality. In the



Now! An Even Bigger, Better Flying Boxcar —The Fairchild Packet C-119

Something new in the air.

Out of the tried and proved first plane ever designed specifically for cargo-carrying has come this latest creation of Fairchild engineers—a super Packet.

Like the original C-82 Packet, the C-119 is a product of close cooperation between Fairchild, the Air Force and the Troop Carrier Command.

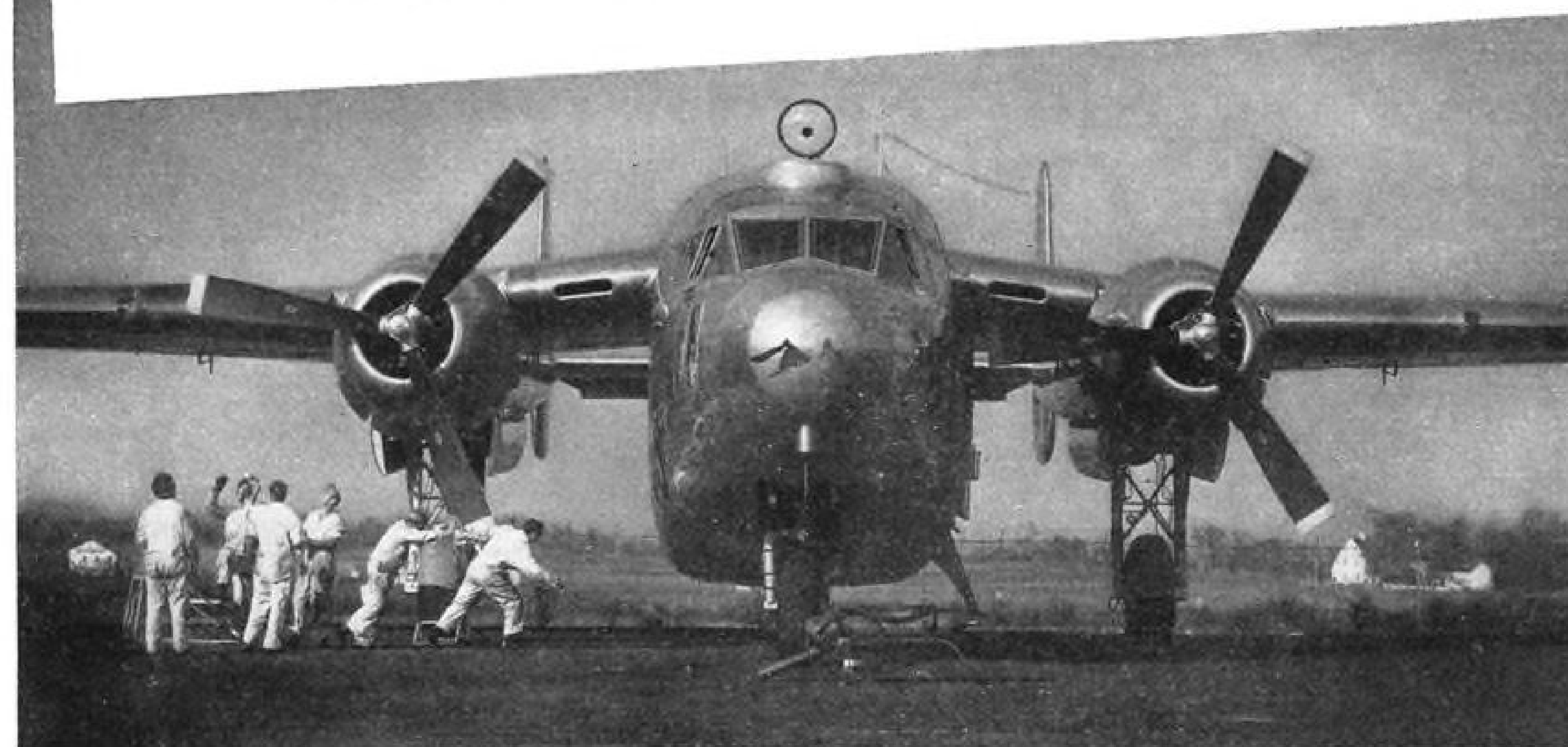
With increased payload, speed and climb,

the new Packet can transport 12 tons of men, equipment and supplies 1500 miles non-stop. As an ambulance plane it is equipped to carry 36 litter patients and attendants.

This new Flying Boxcar incorporates improvements and modifications proved in thousands of hours of actual service. All in all, it is flying evidence of an air-transportable Army . . . and of Fairchild engineering and research skill.

Fairchild Aircraft

Division of Fairchild Engine and Airplane Corporation, Hagerstown, Maryland



FINANCIAL

Mail Rates: Self-Sufficiency the Key

In proposing new rates for five major trunklines, CAB feels way toward long-desired relative yardsticks.

The recent Civil Aeronautics Board mail rate action on the five major trunklines is likely to remain a controversial issue for some time to come.

The Board proposed increased mail rates which are assumed to range from 59.70 to 68.38 cents per ton mile, compared with 45 cents, the prevailing rate for the "Big Four". Northwest's effective rate was increased to 70.90 cents per ton mile, contrasted to the 60 cents now being paid. The inclusion of Northwest in the same proceeding results from that carrier's transition to a trans-continental airline. The current Board action creates a new grouping which will now become the "Big Five."

► **Disappointment**—The show cause orders were a deep disappointment to the airlines involved. They had had expectations of substantial mail pay relief.

In all instances, the carriers undoubtedly will accept the new rates afforded on a temporary basis. United and TWA already have indicated they will seek a higher revision through permanent mail rate proceedings. Northwest probably will do the same. Eastern and American most likely will take exceptions to the Board's findings but accept the rates proposed by the Board without further proceedings. A full-dress permanent rate proceeding represents a long and involved process and some time may elapse before a final determination is reached.

It is in these permanent mail rate proceedings that the clash in philosophies between the Board and the separate carriers may become more apparent. ► **Self-Sufficiency Concept**—The Board evidently leans very heavily on the concept of self-sufficiency for the "Big Five." On this premise, it is felt that a mail rate offers only an opportunity to earn a fair return and does not guarantee that such a return will be earned in fact. Using a series of measures, the Board has concluded that the five airlines indicated are self-sufficient in character and do not require any subsidy mail payments.

The comment is further advanced that the adoption of more modern and more efficient equipment should further the development of self-sufficiency and enable the leading carriers to main-

tain profitable operations without reliance on the Government for financial support.

In making its determinations, the Board classified a series of basic characteristics into size and volume factors, density and plant utilization factors and operational factors. This, in itself, has resulted in some significant findings which are quite fundamental. It is likely that little fault will be found with the method or conclusions reached in the statistical approach used.

► **Rating**—All five companies are rated in respect to the separate factors, with relative positions determined for the individual carriers. This entire process represents a sincere attempt to evaluate the individual characteristics of the airlines, and in a sense may be considered the ascertainment of relative "yardsticks" which may be used in the regulatory processes.

Everyone in and out of the industry, has been clamoring for this for some time. The Board concluded, however, that "inasmuch as no accurate basis exists for weighting the relative importance of the individual characteristics, no firm conclusion as to the relative earning power potentials of the separate carriers can be reached."

CAB stated, nevertheless, that: "It is believed that each of the four other carriers had at least as favorable an opportunity to earn reasonable profits as did Eastern . . ." It is on this basic premise that the Board established a uniform service rate for all five airlines and significantly declared that there is no apparent justification for increasing one carrier's mail compensation to offset "its poor performance in relation to that of its competitors." The burden for effective cost control is placed squarely on management.

► **Formula**—Applying the uniform service rate formula, the Board assigned various block rates, starting with 75 cents a ton mile for the first 2500 ton miles of mail per day, declining 5 cents per block until 40 cents is reached for the 30,000 and over grouping of ton miles.

With this formula and using 1947 mail loads, such increases with the indicated effect on common stock earnings are as follows:

| | Estimated Increase | Per Common Share |
|-----------|--------------------|------------------|
| American | \$1,338,000 | \$0.21 |
| Eastern | 890,000 | 0.37 |
| Northwest | 253,000 | 0.31 |
| TWA | 1,376,000 | 1.40 |
| United | 1,414,000 | 0.74 |

The common share earnings are subject to prior charges such as interest on debt, preferred stock dividends and income tax payments. Further, conversions and options, where exercised, will have an important effect.

► **Not Retroactive**—It is noteworthy that in no case did the Board grant these new rates retroactive to the original date of filing by the carriers involved. The Board proposes to make these new rates effective from Jan. 1, 1948, except for American Airlines whose rate takes effect Apr. 7, 1948. Further, only the domestic services are involved in these new rates. United's San Francisco-Hawaiian operation is not considered at all in this proceeding, and will be subject to a separate determination.

Measured in terms of overall improvement in relative mail revenues, Eastern and American appear to have been the chief beneficiaries. Ironically enough, these two companies are in less need of such mail pay assistance than the other three lines.

Eastern in its July 8, 1947 application requested mail pay of not less than 60 cents per ton mile, reserving the right to request a higher rate at a later date. It received the highest award, 68.38 cents.

American's strategy in remaining the sole carrier in the entire air transport industry in refraining from applying for a mail pay increase, has placed the company in a very favorable light at but a nominal cost. Instead of losing retroactive mail revenues dating back to mid-1947, the company will only forego the increase for about the first quarter of 1948. This loss will amount to only about \$200,000 after tax adjustments and may be a small price to pay for its stature in not pleading for support.

► **Financing Effect**—The decision may seriously affect the timing and character of projected financing programs for United and TWA. In its recent proxy statement to stockholders, United counted very heavily upon added mail pay as an integral phase of its equity financing scheduled at a favorable market opportunity.

The Board leaves the door open to further relief by suggesting that it might become necessary for the carriers to seek overall adjustment in their general tariffs as well as in the mail rate. In other words, this is a suggestion that upward revisions may be made in the passenger and air freight tariffs and if that doesn't remedy matters, another attempt might be made in seeking additional mail revenues. —Selig Altschul

AIR TRANSPORT

Third Crewman: Flight Engineer

CAB orders an addition to flight crews on the DC-6s and Stratocruisers after Dec. 1. DC-4s may be affected.

By CHARLES ADAMS

The Douglas DC-6 and Boeing Stratocruiser have been tagged officially as three-man aircraft requiring use of a flight engineer in addition to the pilot and copilot.

New regulations promulgated by CAB also permit the Civil Aeronautics Administrator to require flight engineers on other aircraft, including the DC-4, under circumstances "where such crew member is essential for safe operation." The Board's action is expected to cost millions of dollars at a time when the nation's carriers are striving to trim their expenses to the very minimum.

► **Amendments Made**—In adopting the rule changes, CAB amended both Part 61 of the Civil Air Regulations, which applies to domestic scheduled air carriers, and Part 41, which deals with foreign and overseas operations. The new provision reads: "After Dec. 1, 1948, an airman holding a flight engineer certificate shall be required solely as a flight engineer on all aircraft certificated for more than 80,000 lb. maximum takeoff weight, and on all other aircraft certificated for more than 30,000 lb. maximum takeoff weight where the Administrator has found that the design of the aircraft used or the type of operation is such as to require engineer personnel."

CAB said it realized the new rules may require the training of additional personnel. It therefore established Dec. 1, 1948, as being "sufficiently advanced to constitute a firm compliance date."

► **Hearings Held**—The decision followed public hearings on the issue last fall (AVIATION WEEK, Oct. 20). CAB said testimony in the proceeding indicated that a competent flight engineer, by assuming certain mechanical duties, will enable pilots to concentrate on the actual flight of the aircraft, radio operation and receipt of traffic control clearances, "particularly during instrument conditions where this is imperative."

The airlines, through the Air Transport Association, strenuously opposed all revisions of the Civil Air Regulations requiring additional flight crew members. ATA asserted that crew complement "is inherently the prerogative of management."

Endorsing proposals for additional crew members were the Air Line Pilots Association and unions representing flight engineers, radio operators and navigators.

► **Resolution Adopted**—Pilots have not been in complete accord on the need for additional flight crew members on the larger transport planes. But ALPA at its last convention adopted a resolution: "Resolved that all four-engine aircraft be required to carry a crew member whose exclusive duty is that of flight engineer."

ALPA Vice President J. E. Wood said his union had become concerned about the increasing size and complexity of modern airplanes and the difficulties involved in their operation under present complicated traffic control procedure. He declared cockpits of both the DC-4 and DC-6 are so wide that many important knobs and controls are hard to reach in a hurry. Wood described the DC-4 as only slightly less complicated than the DC-6.

► **Constellation Cited**—The ALPA official emphasized that the Lockheed Constellation is equipped with a complete flight engineer station. He said that of 629 items requiring the attention of the Constellation flight crew, it is possible to delegate 395 to the flight engineer. Thus, he reasoned, the burden on the pilots of a Constellation (which is licensed to fly only with a flight engineer) is not much greater than that of DC-3 pilots.

ALPA urged CAB to adopt a regulation requiring all four-engine transports now operating with a two-man crew to add an additional crew member (even a third pilot would do) and to promulgate a rule that all new four-engine or larger aircraft be required to have a station for such additional crew members. The changes adopted by the Board are not so sweeping—especially with reference to the DC-4 aircraft.

► **Better Observation**—Wood said an additional crew member would be valuable on planes which (like the DC-4 and DC-6) do not have a station provided in the original design. He declared that many pilots prefer the type

of seating arrangement where the third crew member is able to provide an additional pair of eyes looking outside the cockpit. ALPA cited numerous near-collisions by aircraft in midair as pointing up the need for the so-called extra pair of eyes.

Admitting that the requirement of an additional crew member would cost considerable money, Wood stated that the overall cost of flight crews for fast, four-engine transports is less per passenger mile than for twin-engine craft. He said TWA has been the pioneer in using flight engineers and has been notably successful.

► **Experience Reviewed**—TWA has utilized flight engineers on its four-engine Boeing-307 Stratoliners since these craft went in service in 1940. The original five Stratoliners are still in operation, none having suffered a major accident.

Some pilots and government officials have intimated that DC-6 accidents last fall might have been avoided had a flight engineer been aboard.

The Air Transport Association has suggested that part of the agitation for an additional flight crew member on all four-engine aircraft may constitute attempts by the airline unions to establish "featherbedding" practices in the industry. Significantly, the Transport Workers Union of American (CIO) told CAB that every commercial plane with four or more engines traveling long distances should have, in addition to the pilot and copilot, a flight engineer, navigator and radio officer.

► **Comparisons Made**—Management representatives asserted that flying the DC-6 is an easier operation than flying the DC-4. They objected to injecting a flight engineer into the two-man DC-6 cockpit, stating that such a setup actually would detract from safety.

Most of U. S. carriers having Boeing Stratocruisers on order, including American Overseas Airlines, United Air Lines and Pan American Airways, had made provision for carrying a third crew member. But Northwest Airlines, before the CAB ruling, had indicated it would use the Stratocruiser as a two-man plane on some routes.

► **Cost Estimated**—Although United had planned to use a third man in the cockpit, it agreed with Northwest that the Stratocruiser can be flown with a two-man crew. Boeing engineers state flatly that the Stratocruiser is basically a two-man airplane.

The airlines still are in the dark on just how many million dollars CAB's flight engineer ruling will cost them. Biggest factor is how large a flight engineer station will be required—merely a jump seat between the pilots or the whole works.

► **Wage Expense**—But the carriers know



Remember the average airline pilot we told you about a few months ago?

We gave you his height, weight, hours, and everything but the color of the mole on his back.

Well, now we can tell you about the average flying farmer, of which 558 are represented in the following figures:

He's 36 years old, or a little older than the usual pilot. He has about 439 hours and has been flying about 29 months; so, you see, he's not a novice.

His plane really works for its feed. He gets much more utility out of it than the big-city boys, using it for everything from fence-riding to shopping trips.

And we're pretty sure that a cookie as smart as this demands the same high quality in his aviation petroleum products (meaning Gulf Aviation Products) as he does in his farm petroleum products (meaning Gulf Farm Aids)!

The Birdmen's Perch

By Major Al Williams, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

WHAT AND WHY

Once upon a time, people were so impressed by the fact that airplanes flew that they didn't notice much else about them.

Today, these same people are much more interested in *what* an airplane does *when* it flies. They're interested in how much utility they can get out of it; in how much more work they can get done with one; in how soon it will pay for itself.

Same thing with oils.

There was probably a time when people were so impressed by the fact that oil lubricated that they didn't notice much else about it.

Today, they're darn curious to know *what* the oil does when it lubricates. They're interested in *how much* metal-to-metal-wear prevention they get out of it; in *how much* more actual lubrication they get with a given brand of oil; in how quickly a premium oil like Gulfpride repays its initial cost.

That's why we keep telling you about the Alchlor Process, the extra refining step that removes an extra 15% of non-lubricating impurities from an already refined oil . . . to make Gulfpride Oil.

Because once you try Gulfpride in your own engine, you'll have a fistful of proof that it lubricates *better* and *longer* and *cheaper*!

NO NAME DEPT.

The mail is about 50-50.

Half the letters say keep the Little Known Facts Dept., the other half want Pet Pilot Peeves or Favorite Flying Gripes. Most of the original suggestions, such as "Service Hints For Maintenance Shops," would be more interesting to the lad who

suggested them than to the whole gang of Perch Pilots.

You'll just have to keep up the requests until we get a better idea of what you want, gents.

Meanwhile, will you skyrockets who are holding out for the Peeves or Gripes Depts. start sending your Pet Peeves in?

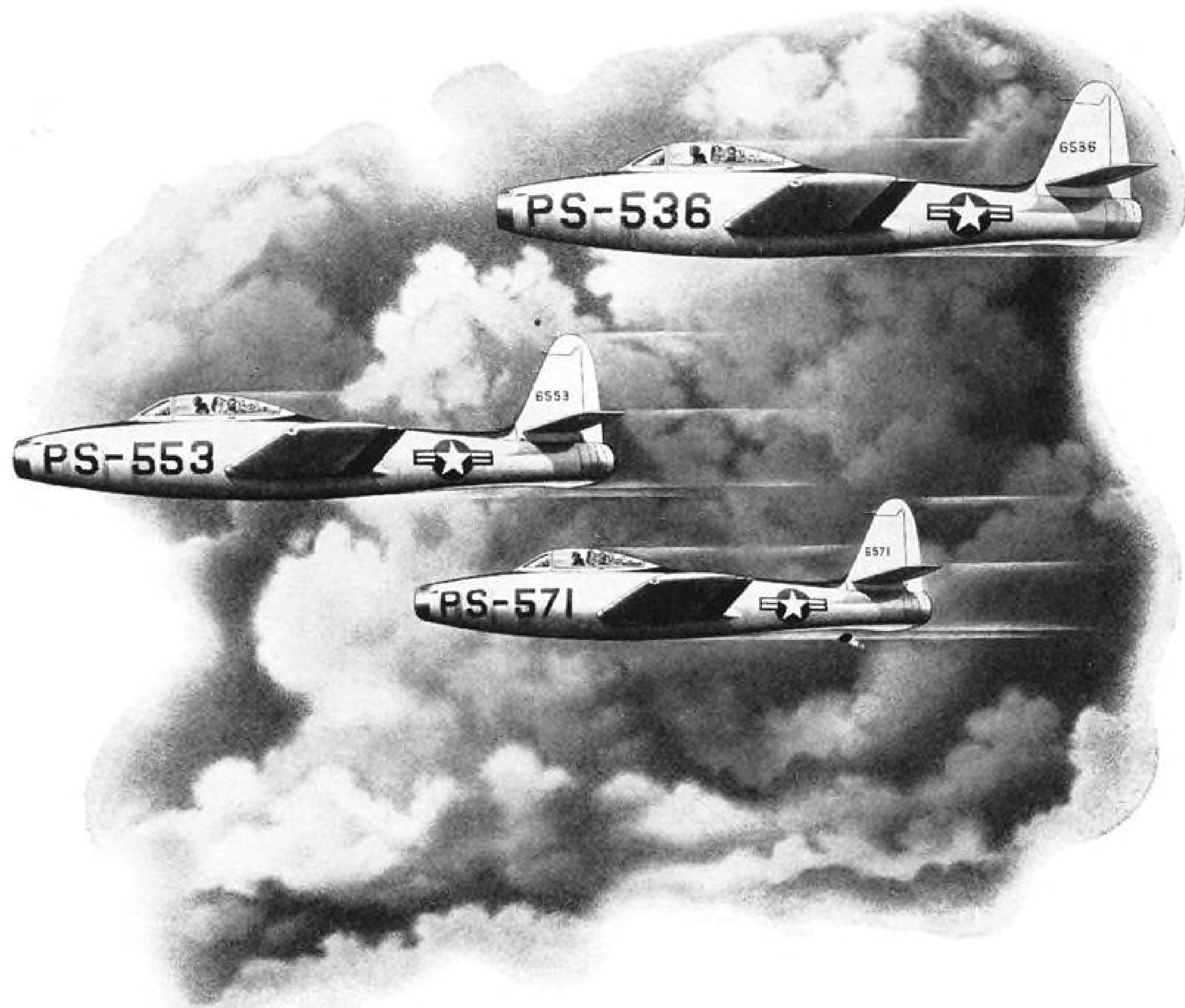


Can't be a Pet Peeves Dept. without Pet Peeves, can there?

Unload all your flying hates (address above) and you'll feel considerably relieved at having gotten them off your chest. And so will we at having gotten some more material for the Perch.

Gulf Oil Corporation and Gulf Refining Company...makers of





PROVEN IN SERVICE ...

Worthy successor to the mighty THUNDERBOLT... the new P-84 THUNDERJET now being flown by two famous groups of the U.S.A.F. . . the 14th, based at Dow Air Force Base, Bangor, Me., and the 20th at Shaw Air Force Base, Sumter, S. C., are daily demonstrating the high efficiency of this, the latest jet fighter on active service. ☐ Soon other groups will be equipped with this 600 MPH THUNDERJET. We are indeed gratified that the close co-operation between the U.S.A.F. and REPUBLIC's skilled design and production personnel has resulted in the development of another great combat plane for the security and protection of our nation.



REPUBLIC AVIATION CORP., FARMINGDALE, L. I., N. Y.

"This Is the Year of the Thunderjet"

REPUBLIC AVIATION

Makers of the Mighty Thunderbolt • Thunderjet • XF-12



Lightweight Transport Readied for Testing

Aero Design & Engineering Corp.'s light transport Aero Commander has been unveiled to public view at the Culver City, Calif., plant and is scheduled for early test flight. It has seating capacity up to seven, with gross weight varying from 3800 to 4800 lb. At the highest figure, its useful load would be approximately 2300 lb. Weight empty is slightly over 2463 lb.

Powered by two Lycoming 200 hp. engines, its designed cruising speed is 165 mph. at sea level. Span is 43 ft. and length 32 ft.

After about ten hours of testing, the company intends to enter CAA certification tests. With a price tag from \$20,000 to \$25,000, depending upon interior arrangement, the company claims that six firm orders with cash deposits were received on the first day of the showing.

In above photo, President T. R. Smith, former Douglas Aircraft engineer, stands beside nose of the Commander. Paul Leaman, secretary-treasurer, is in the pilot seat. (A. U. Schmidt photo)

that flight engineers' pay averages around \$500 monthly. American and United, which together expect to be operating 90 DC-6s this summer, probably will need at least 270 flight engineers. Added wage expense for these two carriers' DC-6s would be over \$1,620,000 annually.

Loss of revenue payload also must be considered. This would aggregate about 200 lb. per plane (flight engineer plus baggage) without taking into account the possibility that a flight engineer station might have to be installed.

► **Other Studies**—Chicago & Southern Air Lines figured it would need 20 flight engineers for five DC-4s if it were required to carry the extra man in this type plane. Cost of training the engineers was set at \$38,400; modification of the ships to accommodate the added crewman \$100,000; annual salaries and expenses \$159,420; salaries of instructors \$9600; loss of payload \$478,200 annually. These expenses do not include the revenue loss which would be incurred while the planes are out of service.

Douglas engineers describe installation of a flight engineer station on an airplane designed as a two-pilot craft (including the DC-4 and DC-6) as a "major modification" requiring considerable research and development to determine what controls can be placed at the station. Air Transport Association Vice President Milton W. Arnold estimated the ultimate cost to the air-

lines of equipping and operating 282 four-engine aircraft with a third crew member conceivably could be upwards of \$57,000,000.

Consolidate Maintenance

Maintenance and overhaul functions of Challenger Airlines have been shifted from Salt Lake City and are being consolidated with those of Monarch Air Lines, Denver.

Challenger and Monarch previously had consolidated their traffic and sales departments (AVIATION WEEK, Mar. 15). Challenger President Donald A. Duff said the latest move does not reflect a merger of the two companies. Each carrier will retain its own corporate identity and financial interests.

Moving Challenger's maintenance division to Denver will affect about 40 persons, some of whom will be absorbed into Monarch. Executive and accounting offices will also be moved to Denver, but operations headquarters will continue in Salt Lake City.

Miami Claims Leadership

Miami International Airport claims top spot in the nation as a port of entry and departure for overseas air travelers in 1947.

Figures compiled by the U. S. immigration and naturalization service disclosed that 426,887 international air passengers went through the city last

year. This was 154,415 more than were cleared through New York—Miami's closest rival.

About 16,748 international travelers went by way of New Orleans, and the combined airports of Los Angeles and San Francisco failed to reach the 50,000 mark. Breakdown of the Miami figure revealed that 216,296 passengers were inbound and 210,591 outbound.

1948 'Skycruise' Season

Resort Airlines, Southern Pines, N. C., pioneer operator of all-expense air tours, plans to offer its 'Skycruises' again this summer.

The carrier has requested a CAB exemption to conduct eight "packaged" cruises distributed through June, July, August and September. An exemption (similar to one granted last year) is being sought because of the possibility that the flights' frequency and regularity would conflict with CAB's stringent nonscheduled regulations.

Resort plans to charge around \$1000 for a 20-day tour departing from New York (with traffic pickups at Cleveland and Chicago) and visiting Sun Valley, Glacier National Park, Banff-Lake Louise, Seattle, Vancouver, San Francisco, Yosemite National Park, Las Vegas, Los Angeles, Catalina Island, Grand Canyon and Colorado Springs. Two-week Skycruises would be offered in the \$600 price range.

The company has been operating all-expense tours since June, 1946. It has a certificate application pending before CAB.



EAL SIGN POST

"Trip identifiers" consisting of special metal signs displaying prominently the number and final destination of all flights have been installed by Eastern Air Lines on loading platforms or steps used throughout its system. The new signs, which are particularly useful in preventing confusion at larger terminals, are mounted on the right side of the loading platform (above). New York City passengers are shown boarding an EAL Constellation on Flight 603 for Miami.



PAA MAKES FUR FLY

One of the largest single commodity shipments ever to be flown out of Japan by commercial plane arrived in San Francisco recently via Pan American Airways. The cargo consisted of 3500 lb. of mink, marten and squirrel pelts worth \$80,000. PAA is also flying sizable quantities of Mouton lamb skins from Karachi, Pakistan, to New York and expects to handle about 30 tons per season.

Airline Group Appointed To Work With Military

The airlines remember the frantic spring of 1942. With little warning and hardly anyone knowing what came next, the government took over more than half the carrier's planes.

This week a special new committee representing the airlines is scheduled to hold its first meeting. Purpose: to work directly with the armed forces on the coordination of plans for using commercial air transport facilities in the event of a national emergency.

Decision to appoint the group immediately was reached after consultation with the office of the Secretary of Defense, according to Admiral Emory S. Land, president of the Air Transport Association.

Maj. Gen. Laurence S. Kuter, commander of the Military Air Transport Service, has been designated by Defense Secretary James Forrestal to take charge of preparing plans for utilizing airline facilities during an emergency. Chairman of the industry committee which will work with Kuter is Brig. Gen. Milton W. Arnold, ATA vice president-operations and engineering. Other members of the group are: John A. Collings, TWA vice president-operations; United Air Lines Vice President R. W. Ireland; Laigh C. Parker, vice president-traffic for Delta Air Lines; American Airlines Board Chairman C. R. Smith; and Pan American Airways President Juan Trippe.

Alaska Airlines Stresses Cargo

Freight revenues comprise 61 percent of carrier's gross income in fiscal 1947. Expansion planned.

Alaska Airlines is building its hopes for a profitable 1948 around an ambitious expansion of contract and non-scheduled service to points far off its certificated routes.

In contrast to the domestic trunk-lines, which derived over 80 percent of their revenue from passengers in 1947, the Anchorage-based carrier listed freight as the source of 61 percent (\$1,457,000) of its income. Passengers accounted for only 23.6 percent (\$64,000) and mail 15.4 percent (\$366,000). **Foreign Flights**—During recent months, Alaska Airlines has flown cargo to Brazil, England, Norway, Finland, Holland, South Africa, Japan and numerous points in continental U.S., according to President James A. Wooten. To handle its business outside Alaska, the carrier acquired four additional DC-4S last year.

Hit hard by losses during the winter of 1946-1947 when the company experienced the worst weather in its history, Alaska Airlines showed a \$709,700 net deficit for the fiscal year ended Oct. 31. Despite the loss, gross revenues hit a new peak, rising 65 percent over the fiscal 1946 level. The company expects the upward trend to continue during 1948.

Business Improves—In the last five months of the 1947 fiscal year, Alaska Airlines operated in the black, doing gross business of \$1,500,000, or nearly 70 percent of the year's total. Cargo ton miles flown were 15 times those of the like 1946 period. Most of the traffic continued to be generated on contract and non-scheduled flights off the company's certificated routes.

As part of its expansion program, the line has established a new overhaul base at Paine Field, Everett, Wash., (AVIATION WEEK, Mar. 15). It also has a new maintenance base at Great Falls, Mont.

Tourist Traffic—To augment 1948 revenue, Alaska Airlines has embarked on an extensive program of flying tourists to the territory from any point in continental U. S. where a DC-4 load of 50 passengers can be assembled. Promotion of these tourist excursions is already under way.

Alaska Airlines has had two important passenger-carrying contracts during the first part of 1948. One is with the U. S. Army and involves the transportation of Army dependents from Seattle to Tokyo. This movement began early in February and is expected to continue through Apr. 30. The carrier also had a contract to carry immigrants

between London, England, and Johannesburg, South Africa.

Protests Ahead—President Wooten, who took office last June, anticipates vigorous protests by certificated lines to CAB and Congress. These may result in curtailment of Alaska Airlines' contract and non-scheduled activities. (CAB already has restricted the company's operations between Alaska and continental U. S. by a recent cease and desist order.) He said adverse changes in the general economic and international situation, or future regulation of irregular air transport by foreign countries, also may force contraction of service.

Pachyderm Problems

(McGraw-Hill World News)

High tides may be an occasional problem at LaGuardia, ice at Gander and fog at London; but in South India and East Africa the problem is elephants.

Mysore State numbers among its minor riches large herds of wild elephants tamed to do forest work. One night not long ago a herd of 25 came waltzing through the airport fence at Mysore City, trampled turf, ripped up trees and shrubs and playfully bowled over several power-line poles. Fortunately all planes on the field were out of their way.

More recently airlines operating over East Africa were requested by the International Air Transport Association to fly not lower than 1500 ft., lest they frighten elephants. The request went to carriers over Uganda and Kenya, among other East African spots.

C-46s Purchased

Trans-Air Hawaii, Honolulu, has purchased three C-46s for use in its Hawaiian Island cargo service. The carrier has been operating C-47s.

CAB SCHEDULE

Apr. 26—Hearing on Pan American Airways' application to acquire all property of Uraba, Medellin and Central Airways and for transfer of UMCA's certificate, postponed from Apr. 14. (Docket 3272.)

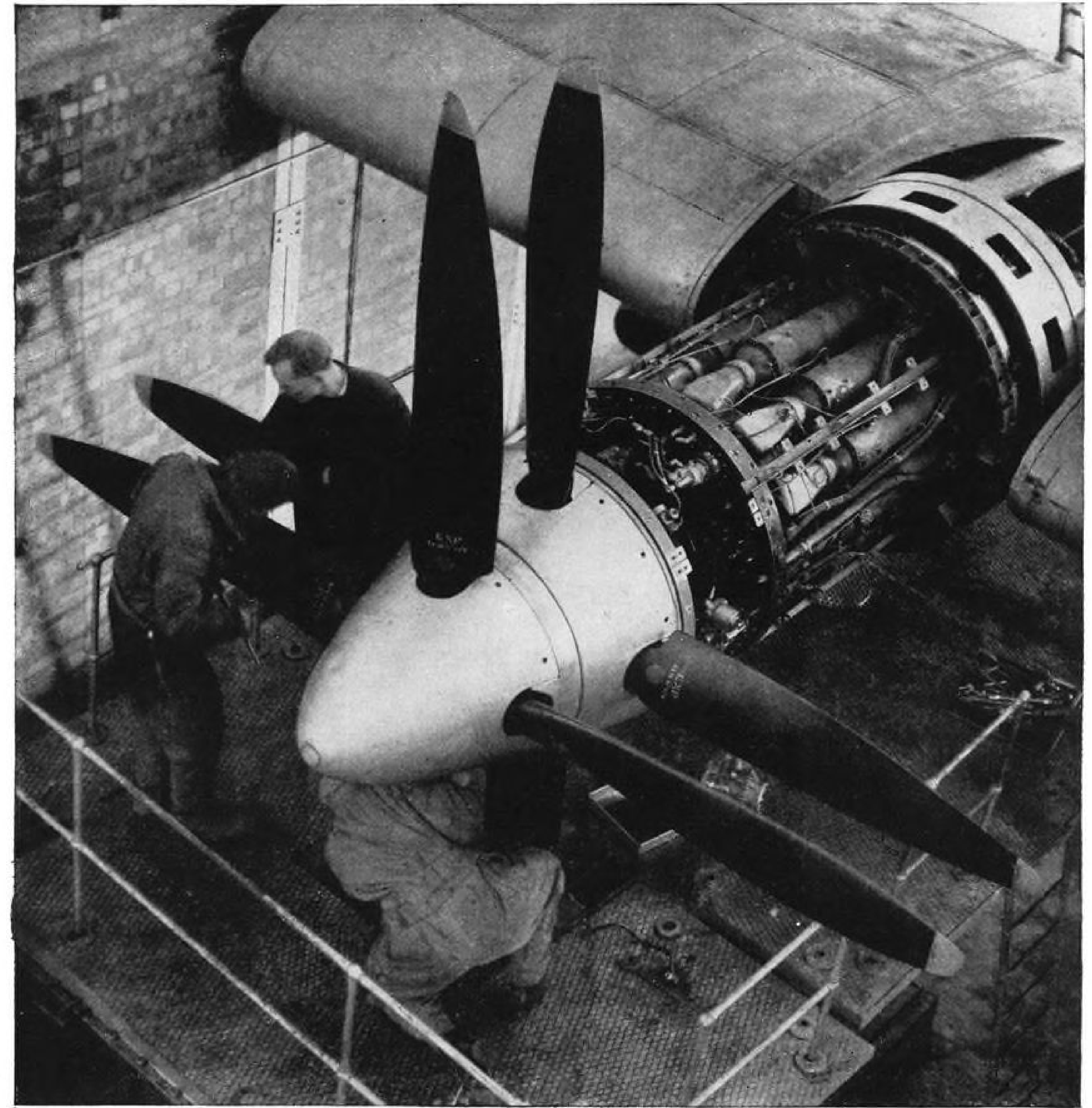
Apr. 29—Prehearing conference on CAB investigation into adequacy of cargo service between the U. S. and Alaska. Postponed from Apr. 22. (Docket 3286.)

May 3—Oral argument in TWA-Hughes Tool Co. investigation. (Docket 2796.)

May 14—Prehearing conference on applications for new Southern Transcontinental services, postponed from Apr. 15. (Docket 1102, et al.)

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

POWER FOR THE PLANES OF TO-MORROW



The installation of the Python provides excellent engine accessibility together with an intake of high efficiency, enabling the designer to take full advantage of the ram effect given by the propellers. Due to the intake position the problem of inhaling a large volume of air is satisfactorily overcome. The figure of 3,670 shaft horsepower has already been reached by this engine and its high power weight ratio and low drag installation make it a very attractive proposition for the larger aircraft.

ARMSTRONG SIDDELEY PYTHON

ARMSTRONG SIDDELEY MOTORS LIMITED, PARKSIDE, COVENTRY, ENG.
(Branch of Hawker Siddeley Aircraft Co. Ltd.)

TWA's New Crisis

Carrier says it lacks cash to cope with Communist threats to its foreign routes.

TWA is approaching another financial crisis, this one complicated by the turbulent political situation in Europe and the Middle East.

Fundamentally, the carrier's predicament stems from last year's severe losses compounded on the record deficits of 1946. But its plight is now being aggravated by the threat of Communist expansion.

► **Cash Position Bad**—Company officials have told CAB that TWA's cash position is fast becoming precarious. They said unless the Board grants at least \$3,000,000 in emergency relief under a retroactive mail rate adjustment for the International Division, TWA's operations may be disrupted during a period when they will be of unprecedented importance to the security of the country.

TWA pointed out that if Communist elements come into power in Italy it is doubtful whether operations can continue to that country. Officials added that cessation of service to Italy would have a serious effect on TWA's cash position.

► **New Routing Eyed**—Flights to and from points on TWA's routes east of Italy would have to be revised completely and rerouted through North Africa. This, TWA said, would require a shifting of personnel and equipment involving abnormal cash expenditures. It would also force a change in plans of booked passengers, bringing about a substantial loss of revenue through trip cancellations and refunds.

(TWA recently suspended service at Lydda, Palestine, because of armed conflict in the Holy Land. The suddenness with which operations were discontinued at Lydda prompted the company to perfect evacuation plans with respect to suspension of operations in all likely areas of trouble.)

The carrier stated that "even if the Communists should not prevail in Italy in this month's elections, no one can predict such a defeat will not cause the Communist governments throughout Central Europe to commence armed operations not only in Italy but in Greece, Egypt and other countries through which TWA operates. The important point," the company continued, "is that TWA is going into the most crucial period of its international operations with the barest possible cash balances to continue service under the most favorable conditions."

► **Domestic Routes Affected**—TWA officials said the company would be wholly unable to continue even a semblance of its present service unless



O'CONNELL SWORN IN

CAB's new chairman, Joseph J. O'Connell, Jr. (right), was sworn in this month by Harold M. Stephens, chief justice of the U. S. Circuit Court of Appeals for the District of Columbia. The chief justice is shown congratulating O'Connell following the ceremony. (CAB Photo)

a temporary emergency mail rate for international route is immediately established. They asserted that the cash drain on the International Division might even prevent continued operation of the domestic service for more than a few months.

The carrier emphasized that the immediate cash requirement of \$3,000,000 is only part of the \$10,000,000 in additional mail pay necessary to permit break-even operations on the International Division from Feb. 5, 1946 (when service began), to the present time. TWA's overseas losses aggregated nearly \$5,000,000 between Sept. 30, 1947, and Mar. 31 of this year alone. Net deficit for both foreign and domestic operations totaled \$14,353,000 in 1946 and \$8,080,000 in 1947.

► **Recent Losses**—With a payload factor of about 51.8 percent, TWA lost around \$807,000 on its International Division in March. Payload break-even point for that month was 71 percent. In April, International Division losses are expected to be about \$520,000 on a 53.5 percent payload factor.

The company declared that for normal purposes it should have a minimum general fund cash balance of about \$7,500,000—sufficient for cash expenditures over a 30-day period. It said that when the general fund cash balance falls below \$5,000,000, normal business is disrupted. TWA then reported its cash balance had fallen to only \$3,880,000 on Apr. 9, 1948, with the prospect of its cash balance going even lower in May.

► **Rate Inadequate**—Officials said the higher mail rates on domestic operations proposed by CAB this month (AVIATION WEEK, Apr. 19) and cover-

ing the period beginning Jan. 1, 1948, will not alleviate the critical situation now facing the company. The carrier asserted the increased cash resulting from this CAB offer would be negligible in the light of present monetary conditions.

Domestic losses aggregated around \$1,727,000 in the first quarter of 1948. A further deficit of about \$671,000 is expected on TWA's transcontinental routes in April.

Robinson Feeder Date Set For June 15 Activation

Robinson Aviation, Inc., has set June 15 as the target date for activating the feeder system which it was granted in CAB's Middle Atlantic Area route decision last February.

The New York carrier was designated for a three-year certificate subject to a showing of adequate airport facilities. Robinson has now informed CAB that fields are available at ten of the 14 stops on its routes.

Four New York points, Auburn, Batavia, Geneva and Oneonta, lack proper facilities. Airports are ready at New York City, Middletown, Binghamton, Ithaca, Albany, Elmira-Corning, Syracuse, Rochester, Buffalo and Niagara Falls.

Active as an intrastate operator since April, 1945, Robinson carried 22,000 passengers last year. Coincident with its designation for the feeder route, the company curtailed service sharply, furloughing personnel and operating only a token service pending actual issuance of the certificate. Three DC-3s are on hand, and a fourth is to be acquired shortly.

Robinson hopes to be able to use Teterboro, N. J., air terminal as its metropolitan New York stop. The carrier told CAB this plan would alleviate overcrowding at Newark Airport and LaGuardia Field and still would give passengers a terminal only 20 minutes away from downtown New York City.

Aleutian Island Route Granted Reeve Airways

Authorization of new commercial air service as far west as Attu in the strategic Aleutian Islands has been announced by CAB.

Reeve Airways, Anchorage, Alaska, was granted a five-year certificate to operate the 1800-mile route from Anchorage to Attu via Cold Bay, Dutch Harbor, Umnak, Atka, Adak, Amchitka and Shemya. Irregular service from Alaska and the Aleutians to the Pribilof Islands in the Bering Sea north of the Aleutians also was authorized.

CAB said substantial traffic potential exists along the route.



FOR BETTER HOT MEALS

A new airline dining service cart which can be hooked up to portable motor generators on the airport ramp to keep meal entrees hot has been developed by United Air Lines for transporting foods from its flight kitchens to the doors of its 50-passenger DC-6s. The mobile cart holds one complete plane-load of cold and hot foods. It is of steel frame construction, with aluminum skin, measuring 36 inches wide, 96 inches long and 60 inches high. Inside, at one end, are six compartments for hot food boxes and four divisions for stowing specially-designed two-gallon liquid containers. The hot food boxes

and liquid containers have electric heating elements and are plugged in when placed in their respective compartments (right). The cart is wired for 24-volt d.c. current—the same voltage as that in DC-6 buffets—and can be hooked up to portable generators on the ramp—should loading operations be delayed. Carts can be loaded inside the flight kitchens, then pulled to planeside and elevated by fork lift to the DC-6 door (left). The hood is then lifted, an end door is let down to form a ramp, and an attendant transfers cold and hot food boxes to the plane's buffet storage compartments.

Airline Dilemma

Trans-Atlantic carriers face end of New York City tax relief in force since 1940.

By STANLEY L. COLBERT

An eight-year-old New York City ruling by a special deputy controller is backfiring on trans-Atlantic air carriers.

The ruling, handed down in 1940, extended city sales tax exemptions on fuel, ships stores and sea stores to so-called "Clipper" ships. Previously the exemption applied only to sea-going vessels. City contention is that "Clipper" ship implied one which uses a water runway, but this is an interpretation not included in the ruling.

► **Change in Planes**—When flying boats went out and land-based aircraft took on overseas duties in 1945, Pan American Airways, American Overseas Airlines, and possibly others, did not stop taking this exemption.

Now the City of New York wants the money.

Over the years, AOA's share should amount somewhere near \$30,000. While Pan American will not comment on the amount the City wants from it, its routes are more extensive and involve more expense for fuel, etc.

But whatever it is, the City wants it. ► **Dickering On**—Negotiations are now

going on between the City tax experts and the legal staffs of the airlines involved (how many airlines is not yet known). But some quarters feel that the issue may come to a head only in court. If this is true, the case would be tried in the Supreme Court, Appellate Division.

Possibly the airlines will base their stand on the fact that although water runway was implied, it was never stated directly in the ruling.

In the case of Pan American, another issue might arise since their landplanes as well as seaplanes still are called "Clippers." "Clipper" ships are specifically cited in the ruling.

Should the City succeed in abolishing the exemption for airlines, it would then lay itself open for a charge of partiality. The exemption still applies without question to ocean-going vessels—the prime competitor of trans-Atlantic airlines.

► **Domestic, Too?**—Interesting sidelight to the issue is a Prentice-Hall editorial note tacked to the end of the ruling as contained in their New York City tax guide.

Says the note: "Since the above exemption refers to the 'ships supplies' rule rather than to the foreign commerce doctrine it would seem equally applicable to airlines operating between New York City and other points in the state or the United States."

January Traffic Up Over Same 1947 Period

The nation's 16 trunklines began 1948 with traffic gains over 1947, but operations continued in the red.

Revenue passenger mileage in January, 1948, aggregated 394,280,000 against 382,874,000 in the same month last year. Mail, express and freight ton miles also showed gains. But the passenger load factor dropped from about 60 percent in January, 1947, to 56 percent in January, 1948.

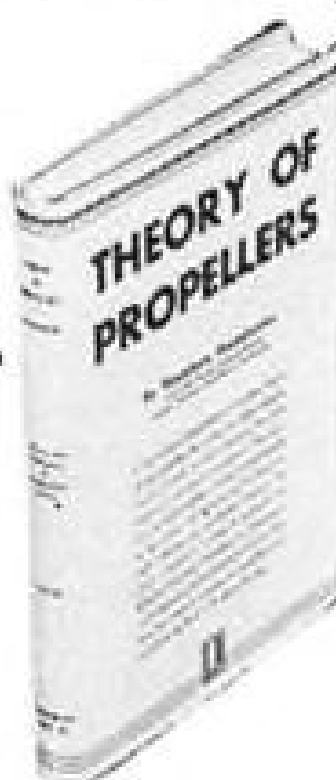
Air Cargo Association

The Pacific Northwest Airline Cargo Association has been organized by representatives of the scheduled airlines at Seattle, Wash., with E. H. Herold, cargo traffic superintendent of Pan American World Airways, acting as temporary chairman.

United Airlines is represented in the association by W. J. Hartland, chief of cargo sales; Northwest Airlines, by John Mulholland, traffic representative, and Frank Okoren, assistant station manager; West Coast Airlines by C. T. Bangsund, assistant general traffic manager, and W. M. Edwards, district traffic manager; Western Airlines by Dan Connell, traffic representative; and Trans-Canada Airlines by K. C. Burns, district sales manager.

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SHORTLINES

- ▶ All American—Has petitioned CAB to increase its mail rate from 54.7 cents a plane mile to 62 cents a plane mile. The 54.7-cent rate was set for the pickup operator last December.
- ▶ Canadian Pacific Airlines—Reports a net loss of \$584,266 in 1947 against a \$372,371 profit in 1946. Company is owned by Canadian Pacific Railway.
- ▶ Mid-Continent—Passenger revenues in first quarter 1948 totaled \$1,065,000, up 26 percent over the same 1947 period. Passengers numbered 60,900 compared with 53,100 in the first three months of 1947.
- ▶ National—Will absorb charges for limousine transportation of NAL passengers between Newark Airport and La Guardia Field starting May 1. Passengers now making connections between the two airports must pay \$2.30 for the service.
- ▶ Northwest—Reports the revenue potential of its Martin 2-0-2s will be improved substantially as a result of CAA action approving a higher load for the ship. The plane now has a "dry" gross weight rating of as much as 39,100 lb. instead of the previous 38,000 lb. Fifteen 2-0-2s currently being built for

NWA are being equipped with water injection devices, making possible further cost advantage. Northwest is also having ten 2-0-2s now in service converted to water injection.

- ▶ Panagra—Has resumed DC-6 service from Miami to Buenos Aires and Santiago, Chile.
- ▶ Pan American—Flew a record 1,423,904 lb. of cargo in and out of Miami during March. Volume included 1,284,268 lb. outbound and 139,636 lb. inbound.
- ▶ Philippine Air Lines—Reports gross revenue of \$8,975,368 in 1947 against \$4,410,335 in 1946. Company now has 1400 employees and will take delivery on three DC-6s this month for use between San Francisco and Manila.
- ▶ Piedmont—Is slated to inaugurate service shortly between Roanoke and Danville, Va.; Greensboro-High Point, Raleigh-Durham, Fayetteville and Wilmington, N. C.
- ▶ Pioneer—Has begun pilot qualification flights over its new routes to Albuquerque and other New Mexico points. Regular service is scheduled to start early in May.
- ▶ TWA—Reports a reduction of 25 percent in departure delays on domestic flights in March compared to December. Average length of ground delays declined from 16 minutes in December to eight minutes in March as a result of the carrier's "on time" program.
- ▶ Western—Has been authorized to suspend service at Palm Springs, Calif., from May 3 to Oct. 31.

Trans-Canada Loses \$1,761,042 in 1947

Trans-Canada Air Lines went into the red for the second straight postwar year in 1947.

Despite a gain in traffic, TCA reported a net loss of \$1,761,042. Deficit in 1946 was \$1,115,256.

Trans-Canada flew 427,967 passengers in 1947, against 305,442 in 1946, and express volume was up 38 percent. But with larger planes in service, the carrier used only 58.5 percent of its available ton miles in 1947 compared with 67.5 percent in 1946.

Program for 1948 includes intensive promotion of airfreight. TCA officials hope to arrange with the Canadian Post Office Department a plan whereby all first class mail will be carried by air whenever quicker delivery would result.

Petitions Denied

CAB has denied petitions by the Post Office Department and Colonial Airlines which requested the Board to suspend the order granting certificates and amendments to various carriers in the Middle Atlantic Area case decision last February.

SEARCHLIGHT SECTION

SEARCHLIGHT SECTION

(Classified Advertising)

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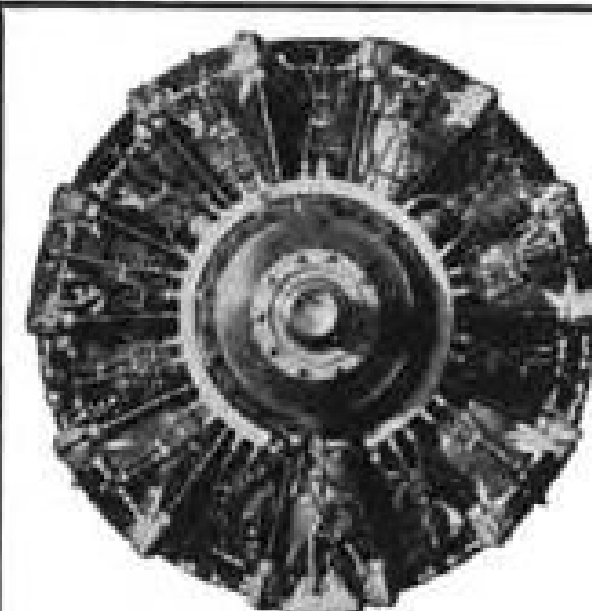
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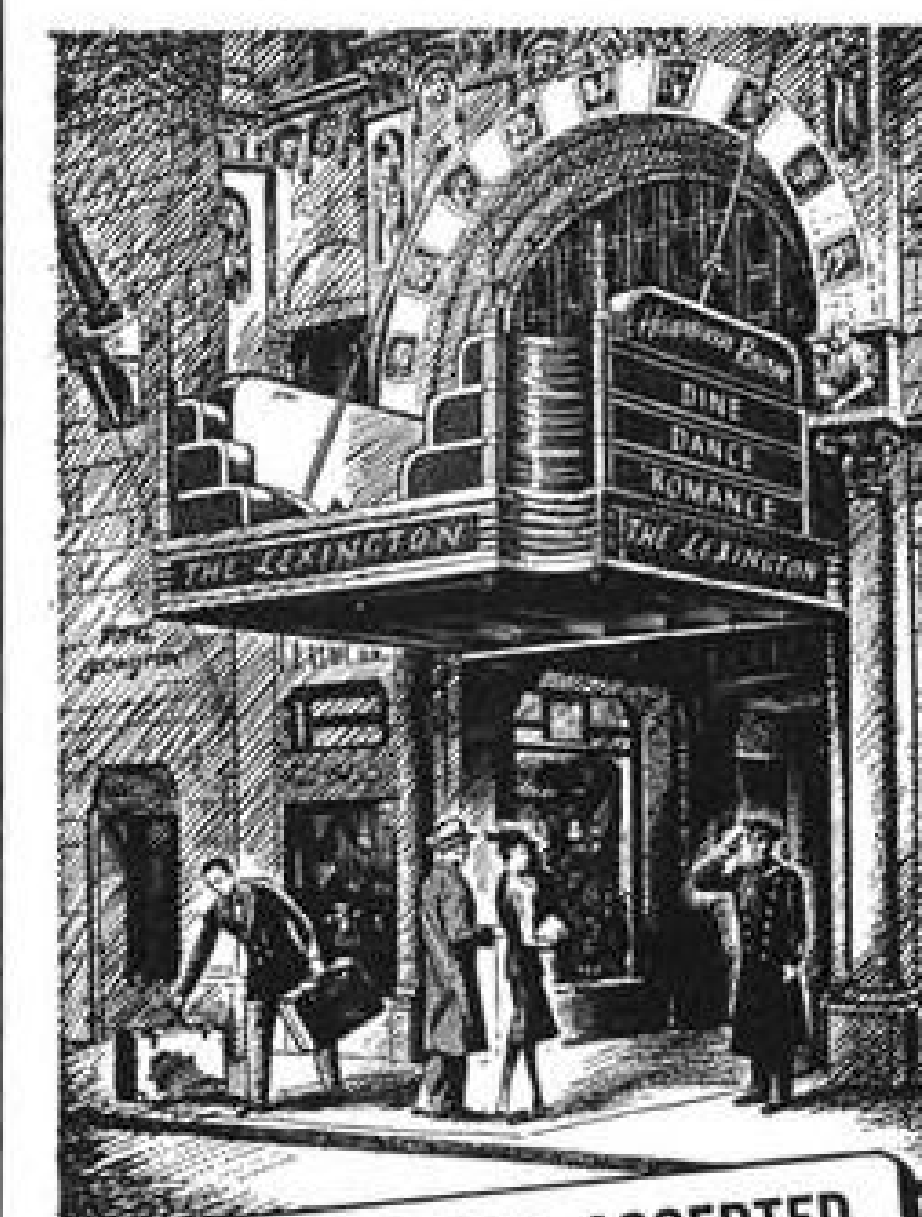
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EDITORIAL

National Defense Catechism

Question: In Washington it was said frequently last week that in England a cabinet officer would resign if his national policy were voted down as decisively as Forrestal's 55-Group Air Force program was trounced in the House of Representatives. Do you think he will resign?

Answer: This is the U. S., not England. This kind of gossip is typical of specious and thoughtless talk Washingtonians bandy about. We don't think Forrestal will resign or be fired.

Question: A newsman asked President Truman at a press conference if Air Force Secretary Symington would be spanked for taking issue with his boss, for demanding a 70-Group Air Force. Do you think Symington will resign or be fired?

Answer: Neither. The Air Force asked for 70-Groups in its 1947 and 1948 fiscal years. The 70-Group idea originated before Symington ever went to the War Dept. Nor did Mr. Symington do any public propagandizing before he went to the President's Air Policy Commission. However, no one could expect a Secretary of the Air Force to repudiate an Air Force policy of several years standing under close questioning of House and Senate Armed Services Committees.

"For three years the Air Force has tried to get a minimum security 70-Group program," Mr. Symington told the House Armed Services Committee Apr. 13. "The President appointed a commission which studied a good many months this problem and came out with a report recommending exactly the program . . . Gen. Spaatz and I testified before that Committee. We testified under oath.

"When we heard that the Administration was not going to support the 70-Group program, I went to my chief, Mr. Forrestal, and I asked him if he did not think it was advisable for us to maintain the position we took last fall before the Finletter Commission, when the world situation was far different than it is today. In his typically fair fashion, Mr. Forrestal said, 'Why, of course'; that the thing for us to do when we came before these committees and were asked questions was to tell what we thought was right."

We don't believe the President of the United States or his Secretary of National Defense would dare to fire a Secretary of the Air Force whose program was passed overwhelmingly, with only three adverse votes, in the House of Representatives. The air-mindedness of the American people has never been better reflected.

Question: Will the House vote on the 70-Group program have repercussions?

Answer: Tremendous. The Truman Administration and the battleship-minded chiefs of Staff are licked, but they don't know it yet. We expect a shakeup among the Joint Chiefs of Staff, even before election day, which means a new outlook on air power by the Truman Administration.

Question: Has Secretary Forrestal lost prestige?

Answer: No doubt of it. But few blame him. His reputation is still high in Washington, but he received bad advice because he is surrounded by a pro-Navy staff, a Battleship-Bayonet Joint Chiefs of Staff, and a chief in the White House who was sold the same bill of goods by the same inner circle.

Question: Why have so many writers failed to tell the people during the current controversy that the Army-Navy proponents are talking about a mobilization force, while the 70-Group Air Force has never been intended as anything but an adequate peace-time force?

Answer: We can't fathom it. But Secretary Symington on Apr. 13 said:

"I might add that the Air Force that we are asking today is in no way an Air Force asked as the result of increased tension in the world. It is the same Air Force, with the exception of some additional people—20,000 for the year 1949, on the average—that was asked for by Gen. Eisenhower and Gen. Spaatz three years ago, long before the world situation was in any condition like this."

Question: Will the Senate vote the 70-Group Air Force?

Answer: We feel sure it will. Sen. Bridges, chairman of the Senate Appropriations Committee, was swamped by criticism over the week-end after he released a press statement indicating he would move slowly on legislation for a 70-Group force. On Monday he was compelled to issue another statement promising "full speed" in granting funds as soon as the bill reached his committee.

Question: Is Symington anti-Navy and anti-Army?

Answer: On Apr. 13 he told Congressmen: "I think we not only ought to have the 70-Group Air Force but also the right Army and the right Navy . . . It seems to us that we could never have an Army as big as the Russian army, which we understand is well over 100 divisions . . . from the standpoint of the Navy, we know we have the greatest Navy in the world, greater than all the other navies in the world put together."

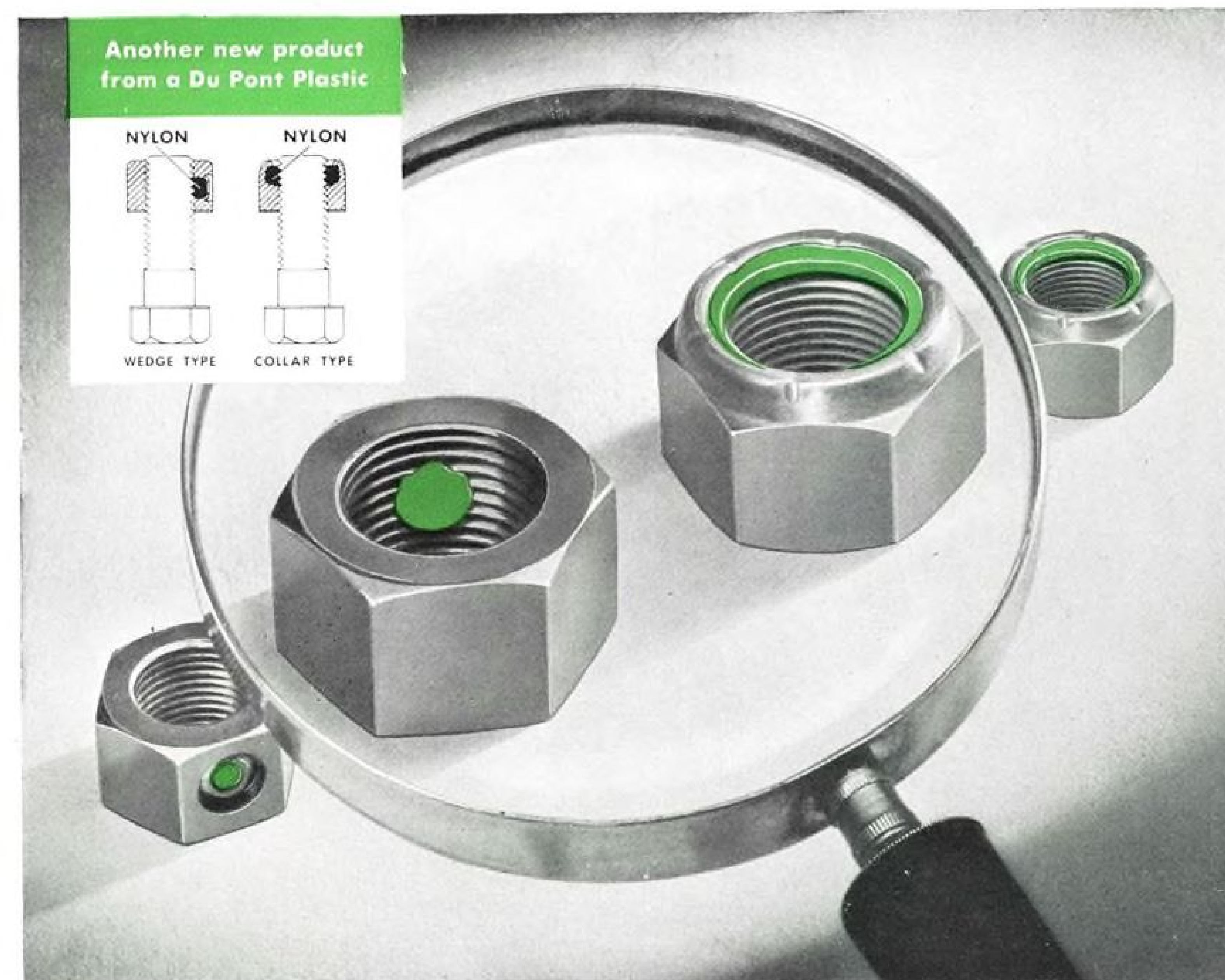
Question: Is Symington anti-UNIT?

Answer: The Air Force Secretary told the House Committee that he and the Air Force are in agreement with the Compton report, which said that if UNIT had to be at the expense of the military services they not only would not be for it, they would be against it.

Question: Has unification failed?

Answer: We don't think so. What has failed is the Administration's gag rule, which sought to prevent free and open discussion of legitimate differences of opinion.

—ROBERT H. WOOD



200 LOCKUPS CAN'T LICK 'EM

New safer lock-nuts made possible by Du Pont nylon



WHAT'S NEW

For safer flying at night, the U. S. Navy is currently testing "Contour Lighting" of aircraft with Du Pont "Lucite" acrylic resin. Streamlined strips of it are formed to fit the wing tips and tail assembly. Light from tiny lamps is transmitted through the strips of "Lucite" which glow and outline the plane. Easily fabricated . . . yet strong, light, and durable . . . "Lucite" stands up to weather and sunlight without warping or yellowing. On many planes, it's standard equipment for enclosures, windows and instrument panels.

Here's something never achieved before . . . self-locking nuts that can be taken off when desired and used as many as 199 additional times or more without losing their firm grip!

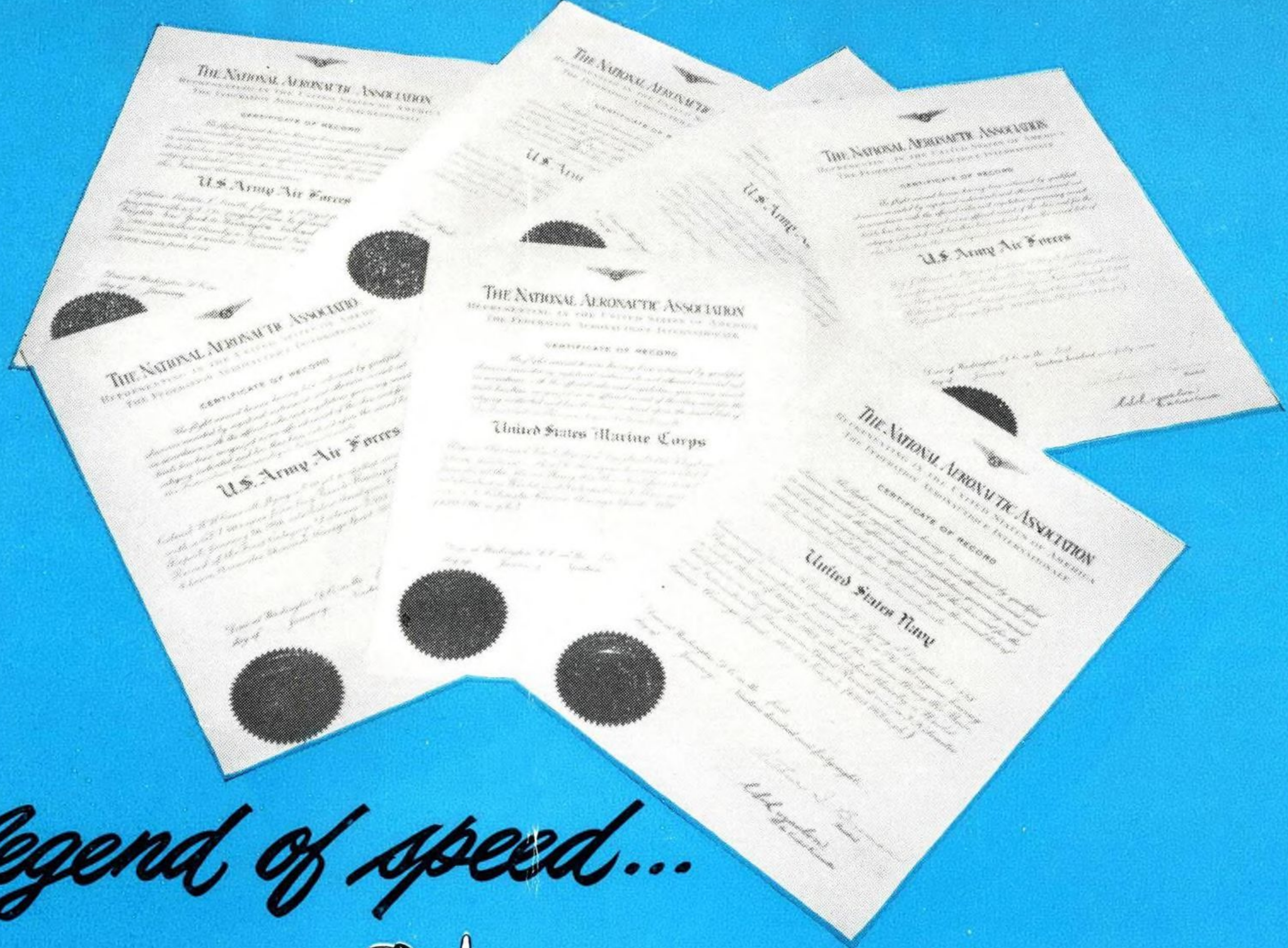
They're made with a tough, resilient insert of molded Du Pont nylon. Severe vibrational stresses can't budge them . . . only a wrench will remove them. For a given size, the 200th removal requires a torque that is only a few inch-pounds under that of the first removal. There's no deterioration in storage . . . little or no loss of structural strength caused by loosened lock-nuts. Nylon resists oils, solvents, gasoline, and moisture—shows little or no effect with age. These lock-nuts are easily and economically adapted to mass production . . . assure dependable, long-lasting service and safety in the fastening of vital parts.

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