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NEWS SIDELIGHTS

Nonsked Unity

Nonscheduled airlines, for the first time in their hectic history, have achieved a measure of unity in fighting against federal restrictions.

Publicity prepared by the recently-organized National Independent Air Carriers has been gobbled up by the daily press, and columnists have taken up the cudgel for what they consider to be "little fellows" in trouble. Comments on CAB's proposed revision of the nonscheduled exemption have been at a ratio of six to one against the move.

Besides protests from more than 30 nonskeds, the Board has received unfavorable comment from about ten maintenance companies and airport operators fearful of losing business, from several ticket agencies and from public officials in Alaska, Detroit and New York. Eight certificated carriers, on the other hand, assert that CAB's new proposal doesn't go far enough; that the nonscheduled exemption is illegal; and that all irregular operations with transport-type equipment should be banned.

Atomic Angle

The move to disclose the number of atomic bombs the U. S. possesses—either to members of Congress or the public—may inject a new and important factor into the controversy over the size Air Force that should be maintained.

Both Chairman David Lilienthal of the Atomic Energy Commission and Sen. Brien McMahon (D., Conn.) of the Joint Congressional Atomic Energy Committee, have suggested disclosure.

McMahon pointed out that Congress cannot pass intelligent judgment on the President's $15 billion defense program for the coming year without information on the atomic bomb stockpile: "It's like a general who must train his troops without knowing how many rounds of ammunition they will be issued."

Feeder Finance

Reconstruction Finance Corp.'s refusal to lend $600,000 to Parks Aircraft Sales and Service, Inc., to finance activation of Parks Air Lines' midwestern feeder routes has thrown the spotlight on other moves to aid still dormant short-haul carriers.

Energetic Atlantic Airlines President S. J. Solomon is exploring methods of obtaining money to put life into several feeders which individually have been unable to take advantage of their franchises.

Parks announced last fall that if RFC refused to grant a loan, the company might try to finance the feeder operation through sale of about $2 million worth of real property, including airports.

Transport Report

The Air Coordinating Committee plans to send to the National Security Resources Board a statement of general policies as a preliminary to the formulation of detailed plans for mobilization of the air transport industry.

This policy statement, which reflects the views of civil agencies, the military services and the airlines, will cover the allocation of commercial transport aircraft, pilots and facilities to the armed forces and essential civilian services in the event of war. A system of priorities to be used in connection with transportation of passengers, mail and cargo will be discussed together with measures, including proposed governmental machinery, necessary for the most efficient operation of a wartime airlift.

New Labor Move

Representatives of the nonscheduled airlines met in Washington last week with Dave Behncke, boss of the Air Line Pilots Assn. (AFL), to ask Behncke's ALPA to supervise AFL organization of all their employes.

Nonskeds feel that if they are ALF-organized they will acquire the powerful political backing both on Capitol Hill and in the executive branch of the government that they need in their last-ditch fight for survival against the current policies and practices of the Civil Aeronautics Board.

Sales Threat

Officials of major transcontinental nonscheduled airlines insist that announcement of plans to sell their aircraft abroad because of CAB's threatened crackdown was not just a publicity stunt. Should the Board promulgate its contemplated revision of regulations, the matter may be appealed to the courts by some irregular operators, but others probably will fold up almost immediately.

The independents claim that of the more than 100 companies holding letters of registration from CAB as large irregular operators, more than 60 are active. It is estimated that these 60 nonskeds utilize over 200 transport-type aircraft, employ 3000 persons, have carried around 200,000 passengers in the past year and have gross revenues aggregating $35 million annually.

CAA Files Examined

Press representatives who examined official correspondence relating to purchase of four radio ranges by the British from Aeronautical Radio, Inc., reported they saw no indication of irregularity in activities of CAA Administrator Del Rentzel in connection with the transaction.

Rentzel had made the files available after characterizing as "misleading" reference made to the transaction in the January newsletter of the United Pilots and Mechanics Assn. The UPMA reference while accurate in its wording, was incomplete.

Licensing Parley

Preliminary negotiations on reciprocal licensing of aircraft useable in dual civil and military roles are the subject of meetings between top-level CAA and Air Materiel Command personnel, with particular reference to the Boeing C-97A.

Boeing has applied for licensing of this airplane commercially in essentially its current form. Differences in requirements are being thrashed out on the technical level between the Los Angeles CAA technical office, Boeing engineers and representatives of the U. S. Air Force.

PAA Grown Enough?

Former CAB Chairman James M. Landis, who is sparking the effort by American Overseas Airlines employes to keep their company alive, sees eye to eye with Howard Hughes and Ralph S. Damon in their bitter opposition to Pan American's revitalized chosen instrument drive.

If he appears before CAB in opposition to the PAA-AOA deal, Landis will raise the question of whether Pan American Airways has not already grown beyond the desirable strategic size for an airline.

AVIATION CALENDAR

Feb. 19-27—National Sportsmen's Show, Grand Central Palace, New York.

Feb. 22—ICAO Airworthiness division, Montreal.

Feb. 23-24—Aerial agricultural spraying conference, Community Bldg., Manhattan, Kansas.

Feb. 24-25—4th annual aviation conference, Washington-Youree Hotel, Shreveport, La.

Feb. 26-27—Third annual Pacific Coast Midwinter Soaring Championships, Torrey Pines, San Diego, Calif.

Mar. 3—Society of Automotive Engineers, metropolitan section, air transport meeting, Engineering Societies Bldg., New York City.

Mar. 7-10—Institute of Radio Engineers Convention, Hotel Commodore, New York City.

Mar. 10-12—Annual meeting of American Society of Tool Engineers, Hotel William Penn, Pittsburgh.

Mar. 10-12—Seventeenth annual meeting, American Society of Tool Engineers, Hotel William Penn, Pittsburgh.

Mar. 14-16—Symposium on engineering research, Center for Continuation Study, University of Minnesota, Minneapolis.

Mar. 18—Annual national aircraft propulsion meeting, Hotel Carter, Cleveland, sponsored by IAS.

Mar. 22—ICAO African-Indian ocean air navigation meeting, Algiers.

Mar. 22-24—Air Transport Assn., annual airline engineering and maintenance conference Continental Hotel, Kansas City.

Apr. 11-13—Society of Automotive Engineers national aeronautic and air transport meeting, Hotel New Yorker, New York.

Apr. 11-16—Western Metal Congress and Exposition, sponsored by American Society for Metals, Shrine Civic Auditorium, Los Angeles, Calif.

Apr. 19-21—AIEE southwest district meeting, Baker Hotel, Dallas, Tex.

Apr. 22-24—Second Annual Oklahoma City Air Show, sponsored by Oklahoma City Chamber of Commerce.

Apr. 24-27—American Assn. of Airport Executives convention, Oklahoma City.

Apr. 25-27—American Association of Airport Executives, Oklahoma City.

Apr. 28-29—Sixth IAS personal aircraft meeting, Hotel Allis, Wichita.

May 2-4—2nd annual meeting of the Airport Operators Council, Denver.

May 19-21—Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Detroit, Mich.

May 23-24—Annual meeting of the Magnesium Assn., Edgewater Beach Hotel, Chicago.

May 24-27—Second joint conference of IAS, Royal Aeronautical Society, New York City.

June 20-24—AIEE, summer general meeting, New Ocean House, Swampscott, Mass.

July 3-4—First Annual Southern California International Air Race, Long Beach.

July 13—ICAO North Pacific regional air navigation meeting, Seattle.

July 20-21—IAS annual summer meeting, IAS building, Los Angeles.

PICTURE CREDITS

11—INP; 12—Wide World; 13—Boeing; 14, 18—Ryan; 16—Convair; 17—Fairchild; 20, 21—Aqua Flight; 22, 23—American Helicopter; 33—Pan American (lower); 34—Northwest.

NEWS DIGEST

DOMESTIC

Republic Aviation Corp. last week announced that two new models of the F-84 Thunderjet now are in production. Deliveries have been made to the Air Force of the F-84D, while the first F-84E is expected to be completed in the spring.

One of North American's two experimental Navy attack bombers (XAJ-1) crashed in Santa Monica bay last week while on a test flight.

CAA now has no intention of going ahead with the elaborate Ardmore, Okla., pilot training base previously considered, but is studying plans for a more modest pilot program at the present CAA center at Oklahoma City.

Navy experimenters have developed a solid fuel rocket to enable ramjet missiles to attain efficient operating speeds quickly. Already tested, it gives the missiles a tremendous initial thrust.

Curtiss-Wright Corp. will move its general offices from Rockefeller Center, New York City, to Wood-Ridge, N. J., headquarters for its subsidiary, Wright Aeronautical Corp. The step will be taken around Mar. 1, and will put company activities in one area.

FINANCIAL

Continental Motors Corp. reports net earnings of $3,378,123 in the year ended Oct. 31, 1948, on sales of $108,157,527. For the preceding year, the company had a loss of $1,292,874 on sales of $91,505,042. Company voted a dividend of 10 cents per common share payable Mar. 3 to holders of record Feb. 11.

De Havilland Aircraft of Canada reported profit of $3,215 for the fiscal year ended Sept. 30, 1948, compared to loss of $616,104 for preceding year. Working capital for the Canadian firm remained at $1,202,000.

FOREIGN

Representatives of 12 international airlines met in Brussels to establish preliminary machinery to discuss skycoach service across the North Atlantic. Further facts will be gathered for presentation to a May meeting in London or Paris of the 12 airlines, all members of International Air Transport Assn.

Australia will flight test its first homebuilt jet fighter in March. The first of 50 ordered by the Royal Australian Air Force, it is a modified version of the de Havilland Vampire. Engine is a Rolls-Royce Nene.

INDUSTRY OBSERVER

► **Latest Pratt & Whitney Wasp Major VDT engine develops 4360 hp., exactly one horsepower per cubic inch displacement. This rating is with water injection at full combat power. Takeoff rating is 3800 hp. and normal lated power is 2800 hp. The variable discharge turbine principle was first tested on a Pratt & Whitney R-2800 in March, 1947 and was not tested on the R-4360 Wasp Major until August, 1948. The new engine is scheduled for installation in the Boeing B-54A bomber and the RB-54 photo reconnaissance plane.**

► Convair officials are denying West Coast rumors that they are thinking of a non-pressurized version of the Convair-Liner to sell for $300,000 in competition with the Douglas Super DC-3 (AVIATION WEEK, Jan. 31). Indications are that the proposal has been tossed around informally among company engineers with no firm plans for doing much about it.

► **NACA supersonic wind tunnels will be available to private contractors for supersonic guided missile studies in a program arranged by the committee on guided missiles of the Research and Development Board. Tunnels have previously been used only for basic scientific research but the new arrangement will make them available for tests of specific models proposed by manufacturers. Program is temporary while supersonic tunnel facilities are being expanded at contractor's plant, after which time the NACA will return to its primary role of basic research.**

► AiResearch Manufacturing Co. of Los Angeles is making a new high speed ammunition booster designed to feed 20mm and .50 caliber ammunition at nearly twice the rates of World War II equipment. Feeders are powered by small electric motors and reach maximum accelerations in a quarter second.

► **Mooney Aircraft Inc. of Wichita is completing tests on a new model (M-18L) with a 65 hp. Lycoming engine replacing the Crosley engine. Production on the Crosley-powered Mooney single-seaters has been stopped due to a series of minor problems and to permit investigation of increasing the power output through use of a small blower.**

► Australia is making arrangements with foreign aircraft manufacturers to establish branch plants in that country for the manufacture of carrier-based planes. Australia plans to build up a carrier task force for operations in the Southwest Pacific.

► **Vickers is planning a European tour for its Viscount turboprop-powered airliner to stimulate export sales. Tour will not begin until after the Viscount has received its official certification.**

► Airline maintenance reports indicate a number of vexing minor difficulties in Convair-Liner operations. Among those most frequently cited: cracked windshields, augmentor tube failures in the exhaust system, cracks in elevators and stabilizers, and failures in lines, fittings and filters of the hydraulic system.

► **Transocean Air Lines, Oakland, Calif., has purchased controlling interest in the Oakland Aircraft Engine Service, a heavy aircraft engine overhaul concern. TAL will acquire the firm's 14,000 sq. ft. of leased floorspace at Oakland Airport and will operate the overhaul activities as a separate corporation. Rudolph Lemcke, formerly a partner on OAES, will be president.**

► Refinancing of Emigh Aircraft Co., builders of the Trojan personal plane at Norwalk, Calif., is being considered. Plant closed recently after producing 33 planes. Eastern capital is expected to come into the organization. Although quietly advertised, the Trojan is one of the most interesting personal aircraft on the West Coast due to an extremely simplified wing structure offering relatively low cost production.

► **Northrop Aircraft has named its new XF-89 all-weather fighter the "Scorpion," following up the line of lethal arachnids which began with the F-61 "Black Widow." Northrop has added a shallow dorsal keel along the upper rear fuselage behind the canopy to improve airflow over the area and improve fin effectiveness.**

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Congress May Settle for 57-Group USAF

House committee set to accept fewer than 70 groups; Senate expected to go along.

Capitol Hill appears set to settle on a 57-Group Air Force program for the coming year.

The 1950 fiscal year military establishment budget started on its long route through Congress last week when hearings were opened by the House Armed Services Appropriations Subcommittee, headed by Rep. George Mahon (D., Tex.). The subcommittee estimates that it will be April before it clears the legislation for action on the House floor.

▶ **Vinson for Compromise**—Chairman Carl Vinson (D., Ga.) of the House Armed Services Committee announced that he would not push for a 70-Group program, as he originally planned. He told AVIATION WEEK that he would be "satisfied" with an $800 million increase in the $4.6 billion allocated USAF in the President's budget for a 48-Group program. The $800 million, earmarked in the budget for Universal Military Training (not likely to be authorized by Congress), would provide for nine additional groups and increase USAF procurement funds by $435 million to a total of $2,075,000,000 for the coming year. Leading members of the House Armed Services Appropriations subcommittee see eye-to-eye with Vinson on the USAF issue.

Meanwhile key members of the Senate Appropriations Committee reiterated their endorsement of a 70-Group USAF, but indicated that they might be amendable to a compromise, such as the Vinson plan postponing its attainment two years—from 1952 to 1954. Following is comment by members of the Senate Armed Services Appropriations Subcommittee:

Sen. Elmer Thomas (D., Okla.), chairman: "I supported the 70-Group program last year, and I still stand for development of the Air Force to a satisfactory degree, but I would not want to commit myself further before hearings."

Sen. Richard Russell (D., Ga.): "I fought for the 70-Group program last year, and I intend to this year, although I might go along on some modification, such as lengthening the period for its attainment."

Sen. Burnet Maybank (D., S. C.): "I favor the 70-group Air Force and achieving it as soon as possible. Unless there are good reasons brought out, I will not go along with any postponement plan. If the country needs a 70-Group Air Force for national security, why not get it as fast as possible?"

Sen. John McClellan (D., Ark.): "Based on the information I had last year, I supported the 70-Group Air Force program, and unless there has been some substantial change in the picture, I will support it again this year. But there may be some satisfactory middle ground."

Sen. Styles Bridges (R., N. H.): "I took the lead in pushing for the 70-Group Air Force last year, and I know of no reason why it is not needed just as much now as it was then.

▶ **USAF Bill Approved**—Non-controversial legislation setting the authorized strength of USAF at 70 groups, involving 502,000 personnel and an aircraft strength of 24,000 planes (procurement of 5,200 planes annually), was approved by the House Armed Services Committee.

Meanwhile, Navy Department's announcement of a cutback program for the coming fiscal year was placidly received on Capitol Hill and failed to stir up any movement for boosting naval funds.

The comment of Sen. Joseph O'Mahoney (D., Wyo.), a member of the Senate Armed Services Appropriations Subcommittee, was typical: "We've already got the biggest Navy in the world. As long as we keep up to snuff on submarine warfare, I don't think we have to worry. . . ."

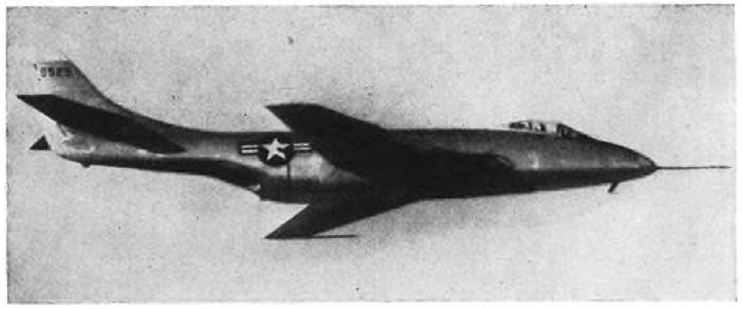
▶ **Navy Cutback**—The Navy's cutback for its aviation program will involve:

- Inactivation of three attack carriers.
- Reduction in operating aircraft from the present 8183 to 7765.
- Inactivation of nine stations.
- Reduction of three stations to maintenance status—at Barbers Point, Oahu; Pearl Harbor; Glynco, Ga.

In addition, the Naval Air Station at Seattle will be converted to a Naval Reserve Air Station.

SKYROCKET GETS A BOOST

Douglas' Skyrocket (D-558-II) gets a takeoff boost from two Aerojet JATO bottles during flight tests at Muroc. The JATO bottles are installed externally and can be jettisoned after takeoff. They are used to decrease the long takeoff run of the Skyrocket when jet engine power alone is used. The Skyrocket is powered by a Westinghouse 24C jet engine and a Reaction Motors 6000-lb. thrust rocket engine.



NEW McDONNELL FIGHTER FLIES

First flight photo of the McDonnell XF-88 shows the rakish lines of the sweptback speedster. McDonnell test pilot Bob Edholm was at the controls as the XF-88 flew toward completion of its Phase I tests at Muroc. Powered by two Westinghouse 24C jet engines the XF-88 is expected to be in the "better than 700 mph." class. It was designed as a long range penetration fighter.

Plan Anti-nationalization Fight

ATA and Transportation Assn. of America, traditional rivals, join forces to combat government ownership.

Air Transport Assn. will team up with Transportation Assn. of America in an all-out nationwide campaign to stave off nationalization of the transportation industry.

This development, ending a decade of feuding over transportation policy between the two associations, was disclosed to AVIATION WEEK by Stuart Tipton, ATA counsel. Tipton and ATA's board of directors will serve on TAA's "carrier panel", slated to hold its organizational meeting Feb. 18.

► **Campaign Plan**—Plan of the campaign will be:

(1) Formation of a comprehensive program for an economically sound private transportation industry. This will involve rewriting all existing transportation laws.

(2) An "educational" project, reaching into every community in the country, to mobilize public opinion behind private ownership.

TAA's organization for accomplishing these objectives is impressive, consisting of:

• **A 40-member board of directors** of prominent executives: James L. Madden, vice president, Metropolitan Life Insurance Co., is chairman. W. A. Patterson, president, United Air Lines, and C. R. Smith, chairman of the board, American Airlines, are members. Patterson also serves on the 11-member executive committee of the board of directors.

• **A nine-member steering committee** to coordinate the association's activities. It includes Donald Conn, TAA's $50,000-a-year executive vice president and sparkplug since its inception.

• **A board** consisting of 13 regional governors.

• **A 12-member legal advisory group** of prominent lawyers.

• **Three specialized panels** representing transportation users, investors, and carriers.

Fred A. Poor, chairman of the board, Poor and Co., and F. O. Prior, vice president, Standard Oil Co. of Indiana, along with Conn are TAA vice presidents. The association has no titled president.

► **Called Railroad Front**—In 1939, after a thorough investigation, a Senate subcommittee headed by the then Sen. Harry Truman labelled TAA a "railroad front" organization. The only proposal pushed by TAA during its first ten years was integration of transportation. This was also the policy urged by the Assn. of American Railroads. ATA vigorously fought both aspects of the proposal: a single regulatory agency for all forms of transportation and single ownership for competitive modes of transport.

The common fight against government ownership prompted ATA to join forces with TAA. Other factors that figured in promoting the unpredicted union were:

• **Change in TAA Policy**—The organization has retracted on its proposal for transportation integration. From all evidence, it is now open-mindedly and impartially aiming to solve the problems of the transportation field.

• **Increase in TAA Prestige**—Expansion of the association to include men respected and prominent from all walks of the business world has enhanced TAA's standing and influence. ATA is convinced that the association's recommendations will carry great weight, and feels that it would be remiss if it did not participate in the formulation of the recommendations.

• **Lea Appointment**—Designation of former Rep. Clarence Lea (D., Calif.) as TAA's $35,000-a-year director of governmental relations increased ATA's confidence in the association. As chairman of the House Interstate and Foreign Commerce Committee Lea opposed transportation integration. He is also a long-time friend of ATA's executive vice president, former Rep. Robert Ramspeck (D., Ga.).

Forrestal Asks New Air Power Concept

American air power may soon exert the dominant influence in the world once wielded by the British Navy, Defense Secretary James Vincent Forrestal told the National Press Club in Washington.

Forrestal deplored the tendency to measure American air power in terms of Naval air or in terms of the Air Force strength and pleaded for a new concept of the total air power of the United States.

► **New Concept**—"My own view," Forrestal said, " is that the development of the use of air power in the next five or six years may come to a point where it may possibly become in terms of air what the British Navy was in terms of seapower.

"In the meantime I think you need to preserve every element of air power you've got, and I think it is essential to any war that we might have to face in the next five or six years."

► **Bombing to USAF**—Forrestal emphasized that he believed the concept of strategic bombing as evolved by the Air Force had a definite place in U. S. war plans and that there was no question about USAF having "precise and specific" responsibility for developing this type of warfare. He admitted that the question of how the National Military Establishment was going to deal with air power had not been "fully answered in a satisfactory way." He estimated that approximately 60 percent of the current military budget was devoted to air power.

In the foreseeable future air power will require advance foreign bases from which to operate, Forrestal said, but pointed out that "it would be a bold prophet who said that would always hold true." Forrestal also urged newsmen to discount the claims made for new weapons during their early stages of development indicating that this applied to both the Navy's supercarrier and the USAF B-36.

This quick stop method of the Boeing XF-47, through use of a 30-ft. diameter ribbon parachute, was demonstrated at Andrews Field last week at the end of the record-making flight. These photos, taken earlier, show the sequence: Top, parachute pops out and begins to unfurl while plane still is airborne; center, chute is fully open as plane is about to touch down; lower, snow is scattered as wheels touch. The parachute is stowed internally under the tail of the Stratojet.

XB-47 in New Speed Conquest

Boeing's jet bomber flashes the 2289 transcontinental miles in 3 hr. 46 min. on "uneventful" record flight.

A new unofficial transcontinental speed record of three hr. 46 min. has been established by the swept-wing Boeing XB-47 jet bomber. The 62½-ton craft covered the 2289 miles from Moses Lake Air Force Base, Wash., to Andrews Air Force Base, near Washington, D. C., at an average speed of 607 mph.

The new record compares with the 4 hr. 13 min. 23 sec. mark set by Col. W. H. Councill in a Lockheed F-80 fighter over the 2470 miles between Long Beach, Calif., and New York City Jan. 26, 1946. Councill averaged 584 mph.

The huge bomber was piloted by Maj. R. E. Schleeh, deputy chief bomber operations, Air Materiel Command, with Maj. J. W. Howell, also attached to AMC, as copilot. Flight was described by the crew as "uneventful" and "routine". Only apparent difficulty was the loss of an air intake bullet, which dropped off No. 3 engine during the landing circle at Andrews Field. The bullet is a sheet-metal cover that smoothes airflow into the intake and covers the engine accessories.

► **New Policy**—The airplane was the first XB-47, which completed Phase I tests at Moses Lake last fall and is now undergoing Phase II tests by Air Force pilots. Assignment of Maj. Schleeh to the flight follows recent AMC policy to place project officers in the cockpit of the aircraft for which they have been responsible. Maj. Schleeh had only a few brief check flights in the aircraft prior to the takeoff. Navy Bureau of Aeronautics has followed this policy for many years.

The flight was made between 32,000 ft. at the start to 37,000 ft. near its end. The plane was clocked over the Andrews Field tower at 13,500 ft. whence it began its let-down. Maj. Schleeh missed the end of the runway by several yards and touched down in the muddy ground. Shortly thereafter the new 40 ft. ribbon tail parachute was released and blossomed out to decelerate the landing run. The XB-47 touches down at about 130 mph.

About 12,000 gal. fuel were required. The 18 JATO units were not installed in the airplane and a normal jet takeoff was made.

► **New Suits**—Both Majs. Schleeh and Howell were wearing special flying suits under tests by AMC. The suits are very lightweight olive drab nylon and require no under or outer garments. The cabin was pressurized only to an equivalent altitude of 23,000 ft. since complete cabin pressurization tests have not yet been completed. Pilots used oxygen throughout the flight, as well as air conditioning equipment.

Performance of the airplane was the best exhibited in cross-country flight to-date. The plane averaged 648 mph. the first hour of the flight with winds slowing down as the plane continued eastward over a great circle route that passed 20 miles south of Chicago. Previously, the XB-47 had averaged 500 mph. on a Moses Lake-Alamagordo, N. M. flight last fall.

The two XB-47 prototype aircraft are powered by six General Electric J-35 turbojet engines developing 4000 lb. static thrust, but the 10 production B-47A bombers will be powered by General Electric J-47A engines developing 5000 lb. thrust.

New Target Date

Much delayed CAA reorganization has a new target date for completion of May 1. The Hoover Commission's reorganization which is expected to recommend regrouping CAA with other federal agencies into a transportation division of the Commerce Department may cause further reshuffling in the big aviation agency before target date arrives.

Ground view of new Navion.

Ryan to Sell Navion at $10,965

Four-placer for 1949 embodies new features, among them more power, streamlining and radio equipment.

Price tag of $10,965 for the new 1949 four-place all-metal Navion personal plane was announced last week by T. Claude Ryan, president of Ryan Aeronautical Co., San Diego.

Powered with a 205 hp. Continental engine, which gives an increase of 20 hp. for takeoff over last year's Navion powerplant, the 1949 model has its retractable landing gear newly streamlined with doors and fairings. The reduced drag and additional power raises the airplane's cruising speed to 155 mph. It is credited with 900 ft./min. rate of climb. The 1949 Navion in performance tests has demonstrated takeoff in 560 ft. and clearing a 50 ft. obstacle in 875 ft. with full gross load of 2750 lb., no wind at sea level. It lands in 450 ft.

▶ **New Radio**—A new RCA receiver and six channel VHF transmitter and minimum drag antennae, including a whip antenna on the fuselage, Bell antenna beneath the fuselage and fin to fuselage antenna are standard equipment. More standard instruments are provided, including rate of climb indicator, dampened fuel gauge, outside air temperature, and manifold pressure gauge.

Control knobs are shaped for easy identification to pilot's touch. Flap control is in shape of an airfoil section, and is newly arranged to permit flap settings at any position between full retracted and the full 43 degree lowered position.

Mixture-control knob is diamond shaped. Key-type ignition switch is also provided.

▶ **Lower Noise Level**—New and thicker acoustical and thermal insulation is in fuselage side panels and ceiling of sliding canopy, and a firewall. Heavier gauge Lucite windshield reduces noise and vibration, and new Lucite side windows filter sun rays. Ryan dual muffler and heater system exhausts gas through a cowl gill beneath the fuselage.

Dual fuel pump system in last year's Navion has been improved by installing a vane-type gear driven pump as the main installation, in place of the rubber diaphragm type previously used, and continuing the electrically driven standby fuel pump.

▶ **Other Improvements**—Dynamically balanced wheels and tires for all three wheels, improved sliding canopy mechanism, new type hydraulic pump, rheostat dimmer for night operation, new exterior air scoop to ram air into cabin ventilation system, wider back seat attained by removing side arm rests and installing folding center arm rest; new rear seat design with thicker foam rubber padding, higher back and head rest roll, are also standard equipment on Ryan's 1949 four-place craft.

Optional extra 20-gallon auxiliary fuel tank, is redesigned for installation under rear seat, keeping CG farther forward and clearing cargo space.

New Navion 1949 colors are named Italian creme, royal maroon, Lucerne green and Riviera blue. They are described as softer colors, in corrosion-proof synthetic enamel.

Ryan has recently established five new distributors, giving the organization nation-wide sales and service facilities for the first time, in preparation for an intensive sales campaign for the new model.

Close-up photos show details of 1949 Navion interior.

New Yearbook

Exactly how many new military airplanes are being bought?

How much equipment?

Who's got the business?

Working with the largest peacetime aviation appropriations in history, the Air Force and Navy in the past eight months have pumped record sums into the aviation industry.

What has this done to rebuild U. S. air power?

AVIATION WEEK gives a comprehensive report on those question in its Feb. 28 issue, the 16th annual yearbook and second Inventory of U. S. Air Power. Specifications of the leading aircraft and engines of this country and of foreign nations—transport and personal as well as military—will be included. So will all available aviation statistics.

The Inventory of U. S. Air Power will, of course, go to all regular subscribers. Advance orders for extra copies are being accepted. Only a limited number of extra copies will be printed, and will be available at $1.00 each on a "first-come, first-served" basis. Last year, extra copies were sold out within two weeks of publication.

Jones Talks on Airline Financing

CAB member offers short and long term solutions, both with RFC aid, to help carriers over financial bump.

In advocating a broad program of federal loans to the airlines, Harold A. Jones, Civil Aeronautics Board member, has set in motion considerable conjecture on what major moves may be in store for the industry.

Jones spoke recently at the American University Air Transport Institute in Washington. He made careful disclaimer that he was not speaking as a member of CAB but as plain "John Citizen," but many observers feel that the program he advanced may have been a trial balloon.

His major recommendations encompassed both short and long term financing programs.

▶ **Short Term Program**—For short term needs, Jones would have the Reconstruction Finance Corp. lend sufficient funds to financially embarrassed carriers to supply (a) needed working capital and (b) amounts necessary to service their commercial funded debts.

RFC, it is maintained, now has authority to make such loans. The only requirements are that they be approved by CAB and there be reasonable assurance of payment of interest and repayment of the loan.

Also as a short-term measure, Jones would have RFC make temporary equipment loans to companies committed to purchase of new equipment, payment for which would work undue hardship. RFC has the necessary authority if such loans are CAB-approved.

▶ **Long Term Plan**—The long term program advanced is far more sweeping in its implications.

Jones proposed new legislation to permit RFC to guarantee equipment trust certificates for the airlines, modeled on a former section of the RFC Act providing federal guarantees of railroad equipment trust certificates.

He suggested that current commercial loans now secured by equipment could be refinanced and new RFC guaranteed equipment trust certificates sold to investors. These would have all the security of a Treasury note and might not require much more interest.

▶ **Voluntary Refinancing**—As part of this program, until necessary legislation could be enacted, all financially embarrassed carriers unduly jeopardized by a funded debt position would be permitted to enter a voluntary refinancing plan with the Board's approval. RFC would refinance the equipment loans on a fair basis permitting more reasonable interest, sinking fund and repayment terms.

Such refinancing could be accomplished by direct loans or the purchase of equipment trust certificates by the RFC, methods believed possible now under provisions of the RFC act.

▶ **The Money Involved**—Jones said the amount involved in this long range refinancing program would be about $250 million if all airlines sought readjustment of their capital structures. The point is made that these funds would not be given away; the RFC would merely be guaranteeing a loan or making one directly.

The financial condition of the airlines is currently regarded by Jones as "precarious." Further, in his opinion, the national interest, national defense and welfare of the people is a compelling reason for the assistance recommended.

▶ **RFC Report**—Some observers believe Jones' recommendations must be viewed with the recently completed report on airline finances undertaken by RFC at the request of the President.

This report has undergone various revisions in attempts to reflect rapidly changing conditions of recent months. The final version was in the White House but had not been made public by midweek.

Jones may have had the RFC findings made available to him; he would hardly give public expression in opposition to any RFC recommendations.

▶ **On Competition**—Overlooked in some quarters was Jones' highly significant reference to "extent of competition."

"There may be too much competition over many routes," the CAB member declared, "but the Board and industry are working on it, and the condition will be remedied." This may mean that along with the refinancing proposals broad revisions of the airline map may be attempted.

▶ **Reaction**—Reaction of the Jones recommendations varied according to the relative positions of observers. Airlines badly in need of financing welcomed the program. Those carriers which successfully have surmounted such difficulties viewed this new proposal as more government interference in industry and a preservative of situations which are unsound and need to be corrected.

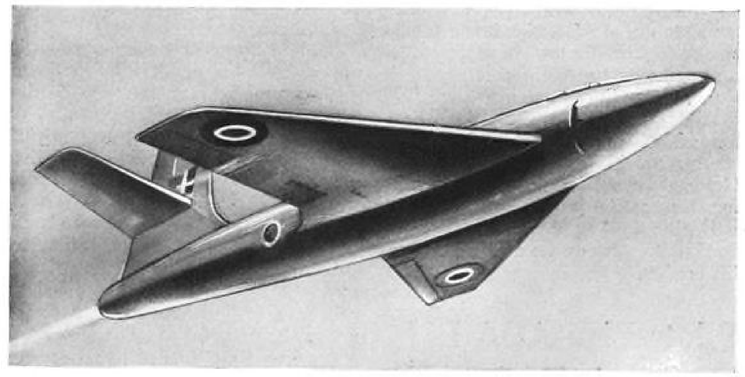
Banks with "slow" airline credits saw an opportunity to be bailed out. Other banks were fearful that their good airline credits would be usurped by a federal agency.

Airlift: More Tons Than Wartime Hump

The Berlin airlift has now delivered more supplies to that blockaded city than were airlifted across the Hump from India to China during the last war.

USAF, Navy and Royal Air Force planes delivered 877,953 tons over the 300 mile route from Western Germany to Berlin in the first seven months of the airlift. USAF planes delivered 736,374 tons over the 500 mile Hump from India to China during three years of the last war.

▶ **Tonnage Breakdown**—USAF and Navy planes have delivered 651,953 tons of fuel, food and other supplies to Berlin on 78,297 flights. RAF has deposited 220,204 tons on 40,674 flights. Total of 39,480,000 miles and 245,450 hours of flying time have been logged



NEW BRITISH FIGHTER?

Although British security regulations still prohibit the British press from discussing the swept-wing version of the Vickers Supermarine Attacker, above drawing recently published in a Rolls Royce advertisement is believed by informed sources to be an accurate picture of the new, security-cloaked fighter. The straight-wing version of the Attacker is being produced as a Royal Navy carrier fighter.

LOADING THE GRAND SLAM

These Convair workers are loading one of the two 21 ton practice bombs carried in the B-36 on a simulated combat mission from Ft. Worth to Muroc, Calif. Note the special bomb dolly required for the 42,000 lb. missile. The 84,000 lb. bombload dropped by the B-36 on Muroc is double the previous record of 42,000 lb. carried by a specially rigged Boeing B-29 in an Air Force test last summer.

by American crews on the airlift.

Cost of the American share of the operation is computed at $106,750,000 for the seven month period ending Jan. 27. USAF is seeking a $110,000,000 supplemental appropriation from Congress as reimbursement for airlift costs.

Breakdown of this figure: $25,222,000—total operating cost; $37,743,000—total support cost including heavy maintenance commercial airlift, airport construction etc.; $29,624,000—reserve for termination costs; $4,690,000—loss of 13 C-54 and six C-47 transports; $9,371,000 for depreciation.

► **Bad Weather Record**—USAF reported that despite bad weather conditions during November, December and January Berlin received some tonnage every day. Operations were never halted for more than 12 hours at a time because of weather. USAF attributes its remarkable bad weather operational record to use of AGA high intensity approach lights; Bartow high intensity runway lights and GCA radar.

GCA landings required by bad weather conditions at Templehof alone were: 2295 for October; 2303 for November and 2798 for December. At all German airlift bases 7200 GCA landings were made during December.

During the first seven months of operation 26 persons were killed in air lift crashes.

Pilots Plan AOA Bid To Stymie PAA Deal

Efforts by Pan American Airways and American Airlines to obtain a quick CAB decision on the proposed sale of American Overseas Airlines' routes and property were jarred twice last week.

Led by the pilots and their ally, former CAB Chairman James M. Landis, American Overseas Airlines' employes laid plans to bid for American's 62 percent interest in AOA, which Pan American wants to acquire.

From 150 to 200 AOA employes already have agreed to purchase about $1 million worth of AOA stock held by American Airlines and total pledges may reach $2 million. It is believed outside interests would supply the remaining funds necessary to acquire American's holdings in AOA.

► **Investigation Sought** — Meanwhile, CAB public counsel in the PAA-AOA certificate transfer case have taken a dim view of the proceeding as now set up. They have asked the Board to institute an investigation of the whole North Atlantic route pattern and requested that this probe be consolidated with the PAA-AOA agreement case, on which hearings were to begin early next month.

Public counsel said there apparently is a substantial possibility that President Truman and CAB might want to distribute the North Atlantic routes of PAA and TWA (the two surviving carriers) on a different basis from that suggested in the agreement between Pan American and American Overseas. "As matters now stand," they declared, "the President, who will ultimately determine whether the North Atlantic route pattern should be modified at this time, is limited to a mere yes or no on the proposal of AOA and PAA.

► **Problem Outlined**—"The present North Atlantic route allocation was made on the basis that there would be three carriers, and not two. The proposal to combine the routes of two of the carriers and to leave in its present status the operator with the weakest financial position (TWA) may not commend itself to the President and CAB as the best way of reallocating North Atlantic routes.

"By institution of a proceeding to determine whether the certificates of all three North Atlantic carriers should be altered, amended or modified, the President and CAB assuming they found that only PAA and TWA should operate across the North Atlantic, would be able to write new certificates for those two carriers and could start from scratch in dividing the routes.

► **TWA Weakness Cited**—"The position of TWA at present does not appear to be appreciably stronger than that of AOA. Even if TWA's routes are somewhat stronger, its financial position is very much weaker. If American Overseas wants to get out now, it must be recognized that there is a real danger that TWA will want to get out in 1952 or before. To fail now to make a step which might strengthen TWA (by realignment of the whole North Atlantic route pattern) is to enhance the danger that the United States will, without desiring it, have a chosen instrument across the North Atlantic."

ANDB Ends First Equipment Survey

Need for improved accuracy of the Civil Aeronautics Administration's omni-range and distance measuring equipment (DME) is indicated in the first engineering evaluation report published this week by the Air Navigation Development Board.

The ANDB report is based on the first comprehensive tests on the new CAA airways equipment made by non-CAA personnel. The Air Transport Assn.'s research DC-3 "Beta" was used for the tests, piloted by W. E. "Dusty" Rhoades, formerly of ATA and now with United Air Lines.

► **First of Series**—This is the first of a series of reports to be published by ANDB evaluating equipment proposed for the interim and target airways systems recommended by the Radio Technical Commission for Aeronautics.

Following are highlights of the first ANDB test report:

► **Omni-range**—Bearing errors ranging up to six degrees were found in omni-range signals. At favorable elevations errors were within plus or minus two degrees but at unfavorable elevations errors of plus or minus three degrees were encountered 94 percent of the time. These bearing errors were substantially the same in both circular and radial flight "Zone of silence" was also encountered over the omni-range station where no accurate course signals were received.

Indications of multiple on-course signals were received in increasing numbers from 10 to 25 miles from the omni-range stations. Most multiple courses were encountered at an elevation of eight degrees at the 10-mile distance and at 6.5 and 5.4 degrees at a 25-mile distance. Further investigation of the radiation patterns are recommended to determine the exact causes of the discrepancies noted. At elevation angles where considerable number of on-course signals were encountered the auto-pilot could not be used due to the fact that course corrections became too violent when the autopilot tried to follow these deviations.

► **DME**—Overall DME system error varied between minus .2 miles at 16-mile distance and plus three miles at a distance of 80 miles. Error increased in direct proportion to the distance from the DME station. Below 40 miles the error was never greater than plus 2.13 miles. Between 40 and 80 miles the error was not greater than plus 3.75 miles.

At small angles of bank (15 degrees) and at a distance of as little as 15 miles the DME signal was sometimes lost and the action of the automatic course computer interrupted.

► **Automatic Course Computer**—Computer errors varied as much as plus or minus three degrees and were off as much as 4.7 miles from the desired course. The overall system errors of ground equipment plus computer errors amounted to as much as 10 miles off the planned course. Generally the aircraft was off to the right of the planned course.

Average overall system errors were from plus a half mile to minus 4.2 miles from the planned course.

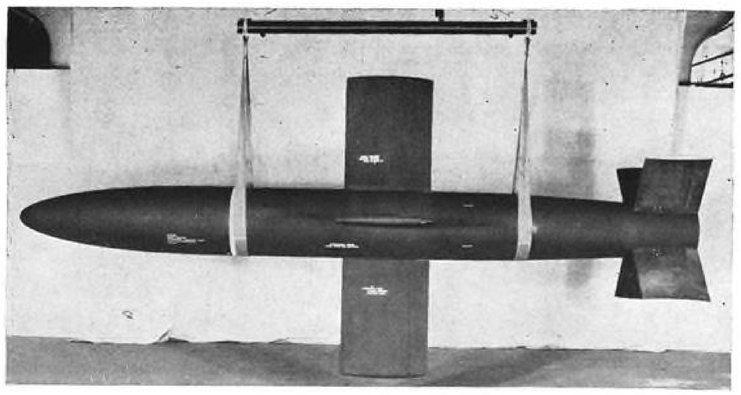
One veteran electronics observer interpreted the tests as indicating that the omni-range system was not as accurate as CAA had led observers to believe but not as inaccurate as the bitterest critics of the omni-range system had charged. CAA said an extensive development program was underway at its Indianapolis experimental station to determine the cause of the errors and correct them. The omni-range has been under development by the CAA for nearly 10 years.

The ANDB report pointed out that the test conducted so far had been confined to the Indianapolis installations of omni-range and DME and were indicative only of flat terrain results. ANDB recommended that further tests be conducted of the omni-range and DME system in mountainous and watery terrain where considerably more accuracy trouble is expected than that encountered in flat terrain.

GCA Primary Aid

CAA has approved operation of the GCA system as a primary landing aid at New York and Washington, and soon will approve the GCA installation at Chicago on the same basis, it was announced last week. GCA may be used for instrument letdowns to minimums of 400 ft. ceiling and ¾ mile visibility.

Pilots of TWA International, Peruvian Airlines, Trans Canada and Scandinavian airlines have already been approved for GCA at New York and Washington. None of the domestic airlines have applied for GCA approval as yet, administrator Del Rentzel said. CAA is now training additional GCA crews at Oklahoma City.



FAIRCHILD GUIDED MISSILE

One of Navy's latest rocket-powered guided missiles, the Fairchild LARK, is shown being readied for delivery at Fairchild's Pilotless Plane division plant, Farmingdale, L. I. Developed for Navy's BuAer, the LARK (official designation is XSAM-N-2) has been under test for some time at the Naval Air Missile Test Center, Point Mogu, Calif. No specifications of its construction or performance are available.

CAA to Amend Federal Airport Act

CAA is readying an amendment of the Federal Airport Act to change the percentage of appropriations that must be apportioned among the states on an area-population basis. Robert N. Cook, executive assistant in the CAA airports office, described the proposed legislation last week to a meeting of the Airports division, American Road Builders' Assn., during the organization's annual convention in Washington.

The proposal now under study by CAA would lower to 60 percent the share of appropriations earmarked for apportionment, leaving 40 percent to be allotted to federal-aid airport projects at the discretion of the administrator.

► **Fund Problem**—Experience has shown that communities in some sparsely settled states of large area have not been able to match federal funds apportioned to those states, Cook explained. Largely as a result of this situation, CAA up to Dec. 31 had been able to make project allocations of only $100,800,000 out of $106,500,00 available in funds and contract authority. Downward adjustment of the percentage tied up by apportionment to the states would make it possible in the future to put to work all sums voted by Congress.

CAA expects to have the amendment ready for review by the Bureau of the Budget in about six weeks. Officials hope to send the proposal to Congress in time for passage during the present session.

► **Jet Spillage**—Jet fuel spillage is not yet a problem on concrete pavements of airports handling commercial traffic, but it can cause difficulty in the future unless joints are sealed with non-soluble compounds, Samuel P. Tauber of the U. S. Rubber Co. told the same meeting. Synthetic rubber compounds are available to meet the need, he said. These compounds—of hot-poured type—have the necessary characteristics of strong bond to concrete, elasticity and long life.

Heavy compaction equipment more than paid its way in consolidating base and subgrade fill on Baltimore's new Friendship Airport. B. E. Beavin, engineer in charge for the Whitman, Requardt-Greiner Co. (Baltimore consulting engineers) told how heavy sheepsfoot rollers and a pneumatic-tired supercompactor that could be loaded to 200 tons produced dense compaction from 6-ft. depth to the surface at a cost of only 31c. per sq. yd., equivalent to the cost of about 1 in. of pavement. The big machine disclosed subgrade weaknesses in time to correct them before pavement was laid—a service that in itself was worth more than the charge for operating the unit on the job.

PRODUCTION

Jewel Bearings

AMC sees need for U. S. maker in case emergency cuts off foreign supply.

DAYTON—Mounting importance of aircraft instruments in USAF procurement programs for aircraft and guided missiles is pointed up by efforts of the Air Force and the Army Ordnance department to find a solution for the critical problem of instrument jewel bearings.

Current primary source for the bearings is in Switzerland. Establishment of a domestic manufacturing source as a standby in event this foreign source might be cut off in national emergency has been the subject of recent Washington conferences, initiated by Air Materiel Command, between representatives of the two services.

► **Draft Contract** — Manufacturers' Methods branch of AMC's Industrial Planning division is drafting a contract expected to be let to an American manufacturer, as yet undetermined, who will be asked to develop necessary equipment, manufacturing technique and material sources to become a domestic producer of the bearings. Development contract will call for research on both old and new materials, heat treating, crystal orientation, etc.

Meanwhile, Ordnance department is discussing a plan to set up its own manufacturing organization to make jewel bearings at Frankfort Arsenal, Ill.

► **40 Million Bearings**—At World War II peak approximately 40 million bearings a month were required for aircraft instruments. With more recent developments in aircraft and guided missiles, requiring much more complicated instrumentation, it is expected that jewel bearing requirements for any future emergency will be several times this amount.

AMC records show that General Electric Corp., a principal American maker of jewel bearings during World War II, reached a peak volume of 400,000 Vee jewels a week and 5000 ring jewels a week. Since war's end, however, instrument jewel bearing production in this country has been almost negligible.

► **Trade Problems**—International trade complications which might result from the establishment of a high-producing American source of jewel bearings are being considered in the planning.

The watch and instrument industry is one of Switzerland's industrial mainstays, and jewel bearing manufacture is an important part of that industry. If a new American source for jewel bearings went into high volume production, the effect of the new competition could be serious on the Swiss economy.

Weighing against this factor however is the danger of a critical shortage in instrument jewel bearings which this country would face without a domestic source, if the Swiss source were cut off. Planning groups point out that the crippling effect of such a situation on both military aircraft and guided missile production would be extremely serious and might well be a decisive factor in event of war.

PRODUCTION BRIEFING

General Electric Co. has delivered its first J-47 (TG-190) jet engine to the U. S. Air Force from its new Lockland (Ohio) plant. Lockland will function solely as an assembly and test center with all engine parts furnished by sub contractors. K. F. Houseman, plant manager, expects Lockland employment to hit a peak of 1500 persons early in 1950.

AiResearch Aviation Service Co., Los Angeles, has developed a 3 by 5 ft. atmosphere chamber test stand for field testing and calibration of aircraft cabin pressure instruments. Formerly all such instruments had to be returned to original manufacturers for a 2000 hr. check. USAF, Continental Air Lines, British Overseas Airways Corp., Air France and Air India are among early customers for the new test chamber.

Wright Aeronautical Corp. has delivered the first two Cyclone 9E 1500-hp. engines to Douglas Aircraft Co. for test installation on the new Super DC-3. (AVIATION WEEK Jan. 31.)

Cub Aircraft Ltd., Hamilton, Ont., will manufacture television sets for the Canadian market under license from the U. S. firm Transvision Inc.

B. F. Goodrich Aeronautical division has stepped up production of deicing equipment at its Akron plant to a peak equaling its largest wartime output. Biggest orders are coming from USAF transports on the Berlin airlift and its supporting operations.

Minneapolis Honeywell Regulator Co. has signed a new $400,000 contract with USAF and Navy for production of electronic fuel gauges for jet fighters. Navy will use the new gauges on the Grumman Panther, USAF has specified their use on the North American XF-93A and the Northrop F-89. Due to violent boiling of jet fuel at high altitudes the Honeywell gauges read fuel quantities in pounds rather than gallons and are required to give accurate fuel indications even though the fuel expands or contracts by as much as 15 percent in volume. The Honeywell fuel gauge already is standard equipment on the Boeing B-50 and C-97; Fairchild C-82 and C-119; and Douglas C-74 and C-124.

Lockheed Aircraft Service Inc. has received Navy contracts totaling $1,220,000 for overhaul of 19 C-54s and 2280 flight instruments. The Navy transports are currently assigned to the Marines and will be turned out at the rate of two a month from LAS's Burbank, Calif., facility beginning in April.

Link Aviation Inc., Binghamton, N. Y., is recruiting engineering personnel for development work on a new series of trainers Link has scheduled for production.

► **Waco Aircraft Co.** will produce a new sun lamp to be known by the trade name of "Orbitan". Waco will set up an appliance division to manufacture and market the new lamp.

RYAN NAVIONS FOR USAF

Ryan Navions being built for the U. S. Air Force are shown at Ryan's San Diego plant awaiting propellers before delivery to the service. Ryan has a contract to build 153 military versions (L-17) of the Navion for use as light cargo and liaison planes.

LETTERS

No Market Here?

Your staff did a good reporting job in your news story Jan. 24 concerning the Babb Company being commissioned by SAAB Aircraft Co. of Sweden to survey the sales potential for the Scandia in North and Central America.

However, you state "The Canadian market does not look promising, . . . there is probably no market at all for the Scandia in the U.S. . . . it is impossible that many sales possibilities will be uncovered in Central America."

It seems to me you're prejudging this matter. After all, if we agreed with this analysis we wouldn't have taken on the deal. But this isn't the first time the press has played Cassandra in viewing Babb deals. When we bought all the Catalinas and Harvard aircraft we could find after the war, the press couldn't see where we'd find a market either, yet since then we've sold 60 of the former and over 500 of the latter.

We believe our survey will definitely show there is a market for this type aircraft.

EDWARD LUND, Vice President
Babb Company, Inc.
444 Madison Ave.
New York, N. Y.

More About The Wing

Like Mr. H. L. Hanson, who discussed the Flying Wing in the Jan. 10 issue of AVIATION WEEK, I am much interested in all-wing airplanes, particularly those built by Northrop Aircraft, Inc., to pioneer in development of this type.

Consequently, I would like to set Mr. Hanson straight on several misconceptions which occur in his rather superficial discussion of "The Wing."

In the first place, I felt that the article by Robert McLarren on Flying Wing design was singularly free from misleading impressions for a popular exposition of a technical subject. McLarren's article contained reasonably accurate comparisons between the characteristics of modern existing all-wing and conventional aircraft. The report which Hanson quotes as the source of "a more rational method of comparison" between the two types of aircraft, NACA T. N. 1649, is a very limited comparison of the characteristics of an all-wing design (which never passed the wind-tunnel model stage) with its conventional counterpart, merely the same design with tail booms and tail surfaces added. NACA T. N. 1649 points out specifically that the airplanes considered were both very much underpowered, having top speeds of only 200 mph and rates of climb of only 600 fpm.

A much more comprehensive analysis of the performance capabilities of conventional and all-wing aircraft is contained in a rather detailed study appearing in NACA T. N. 1447; this report concludes that a large all-wing aircraft will probably have better performance characteristics than the equivalent conventional airplane when designed as a bomber or long-range transport.

Speaking only for myself, and not for the services, I think Mr. Hanson's undocumented criticisms of the Wing on the score of stability reflect archaic thinking. Just because conventional airplanes are stabilized and controlled through the long lever arm provided by rigging the controls at the end of the fuselage is no indication that airplanes without fuselages and tails do not have stability. This form of thinking belongs in the same category with that of the French peasant who scorned the automobile because it did not produce manure.

Although the lever arm for elevator action of the Flying Wing is short, the power actuated controls give entirely adequate pitching control. The c.g. of the Wing is located far enough ahead of the aero-dynamic balance center to provide pitching stability which is fully competitive with that of conventional airplanes, especially since shifts in load distribution occur mostly in a spanwise direction limiting the necessary fore and aft center of gravity travel to a fraction of that occurring in conventional airplanes.

A shrinking of the huge vertical surface carried by many conventional aircraft reduces the static yawing stability of the Wing, it is true; however, since the Wing does not suffer drag increase due to yawed flight, and since large vertical tails are in many cases actually undesirable for dynamic stability, the Wing again retains fully competitive lateral characteristics to those of conventional airplanes.

A large backlog of flying experience on the YB-49 and B-35 has shown that excellent turns can be made without rudder and that, in general, these planes are far more maneuverable than other competitive conventional planes.

With regard to range, lift/drag ratio and the Breguet formula, I thought that McLarren was quite clear and accurate in the examples used to demonstrate the improvements attained with the all-wing design. The Wing has achieved performance advantages from a combination of improved lift/drag ratio and greater ratio of loaded to minimum weight. These two factors, along with the efficiency of the propulsive means, are factors of equal importance in Breguet's formula.

It is true that some conventional aircraft can obtain lift/drag ratios as high as those for the Wing at relatively low cruising speeds. However, at higher cruising speeds for which modern jet and turboprop power plants are best suited, the lift/drag ratio for the all-wing is undeniably superior.

In contrast to Mr. Hanson, I can't think of any conventional craft that has a better weight ratio than the Wing for a given load factor.

This stands to reason since non-load-carrying dead-weight items such as the tail and fuselage are eliminated from the minimum weight. However, fuel and other load items are spread out in the wing, relieving bending stresses, while in the conventional airplane many of these items are concentrated on the center line and increase stresses.

To me, the "slender fuselages of our newest aircraft" are merely an indication of a trend toward all-wing design. Incidentally, those four fins on the B-49 add up to only 4 percent of the wing area.

S. A. KRIEGER, Supervisor of Aerodynamics
Northrop Aircraft, Inc.
Hawthorne, California

"2nd Class Travel"

In your editorial Oct. 4 you use the term "Second-Class" Air Travel.

Would it not be better to find another term to apply to general travel in aircraft rather than "Second-Class"? That would mean finding another name for "First-Class Travel" such as premium or DeLuxe. No one in this country likes to go second-class or own anything second-class, or at least he doesn't like to admit it.

GERRITT WESTON
U. S. Royal Tire Advertising & Sales Promotion
U. S. Rubber Co.
New York, N. Y.

No 'Blues' In Wichita

As an ardent reader of AVIATION WEEK, I was attracted to your editorial page Dec. 13 and read with great interest your report on Wichita aviation activities. Having been there not long ago myself, I completely agree and think that we need more of that enthusiasm these days when so many people are crying the blues. . . .

Congratulations on maintaining a tremendously interesting magazine. It is one publication we have to set up a priority system for when it arrives at our office as everyone wants to be the first to read it.

J. B. HARTRANFT, JR., Gen. Mgr.
Aircraft Owners & Pilots Assn.
Washington 5, D. C.

HRP Is Standard Copter

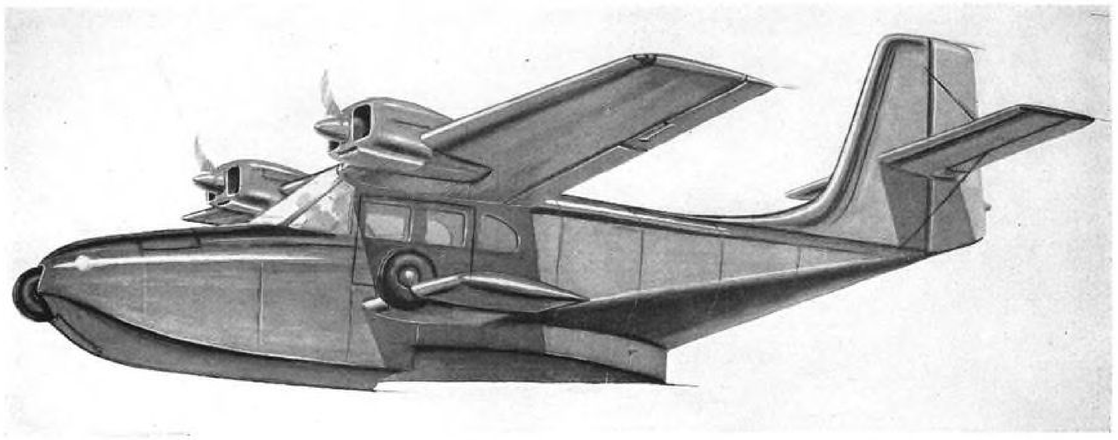
. . . Thank you for the wonderful editorial on mercy copters. I believed it did a great deal of good in reaching people in the Air Force and Navy.

However, you stated that three experimental Piaseckis and two Sikorskys were being sent. The HRP type which the Marines, Navy and Coast Guard are using is not considered and cannot be classified as experimental. Twenty of them have been delivered and it is known as a service machine and so classified by the Navy. The two Sikorskys are experimental as they came from Patuxent where they are undergoing evaluation tests along with our XHJP.

I want you to know that we greatly appreciate your interest and cooperation in the past.

HARRY S. PACK, Vice President
Piasecki Helicopter Corp.
Morton, Pennsylvania

ENGINEERING



Versatility Highlighted In Aqua II

New amphibian design, based on prototype Aqua I, is 6-place model for transport, cargo, rescue services.

A new twin-engine amphibian with "station wagon" capacity is being developed by a postwar company in Wilmington, Del. It's the Aqua II, engineered by Aquaflight, Inc.

A high wing, tricycle gear, 6-passenger model with seawings for water stability, the craft is still in the blueprint stage, but an experimental prototype, the Aqua I, has already been extensively flight tested at Philadelphia Seaplane Base.

Only major difference between the two is power—Aqua II will have 185-hp. Continental or 190-hp. Lycoming engines while its prototype is equipped with 125-hp. Lycomings.

Designed as an executive, general utility, or Army rescue plane, the new model is expected to carry a useful load of 1400 lb. for 800 mi. at a cruising speed of around 150 mph.

► **Market Demand**—Aqua II design follows the theory that there's a place on the market for a medium-sized, utility amphibian priced around $20,000. It's aimed specifically at filling a gap between the expensive, high performance executive transport and the four-place business and personal plane.

Development of the new amphibian has been undertaken financially and engineered, for the most part, by Meridith C. Wardle, Aquaflight's president, who was associated with Curtiss-Wright Corp. during the war and with Bellanca for a short time after the war.

Structural design of the new plane is based on inexpensive tooling. Economical construction is illustrated by the fact that the cost of building the prototype was only twice that of the estimated sales price of a production model.

► **Wood Hull**—Noteworthy feature on this craft is the plastic-bonded birch plywood construction used from the floorline down. Rest of hull is metal.

Wardle says he used wood to "avoid the ever-leaking perforated skin of rivet construction" and to obtain a smooth bottom finish for quick, easy water takeoffs.

Hull interior is 48 in. wide, and 10 ft. long from the instrument panel to the rear sound curtain. An additional 6 ft. aft of the curtain is available for storing light articles.

► **Cabin Details**—Forward of the curtain are six seats spaced in pairs, with a center aisle. All seats can be removed for loading cabin with cargo.

Control cables run along the cabin roof.

Seating and loading displacement is not a problem because a wide C.G. range is claimed for this model and little change in trim is required, flaps up or down.

This advantage is attributed to the long tail and horizontal stabilizer placement.

A large windshield and four windows on each side of cabin give maximum visibility for the passengers and the pilot.

Doors, toward the rear on each side, are wide enough to permit loading fuel drums and other bulky items.

Windshield hinges at the top and can be fully opened to give access to stretchers if plane is used for ambulance duty on rough water.

► **Seawing Design**—Landing loads are carried across the hull by the heavy main spar of the seawing. This structure was proven strong enough for impact on rough water when it was tested out in prototype operations along the eastern seaboard.

Lateral stability under crosswind taxiing conditions, however, was not satisfactory with the prototype seawing, necessitating changes in the contour and outboard buoyancy.

These improvements were incorporated in the Aqua II, and the new seawing has a special airfoil-section tip giving increased lateral stability in the water and affording more effective planing area.

► **Designed for Skis**—Seawing houses the main gear which stows forward and leaves part of the wheels exposed at the leading edge of the structure.

Gear is retracted and locked with an electric-hydraulic power package operating at 800 psi. This unit also operates the wing flaps.

Landing gear locking and actuating mechanism is specially designed to protect it from ice accumulation.

Nose gear folds into a well in the bow of the hull. Both main and nose gear struts are made by Electrol, Inc., the main gear being a reworked version of those used on the Seabee. Brakes for the Aqua II are the Goodyear single-disk type.

According to Wardle, a factor limiting use of previous amphibians in the Arctic has been their failure to retain the amphibious feature with skis attached, forcing the use of a cumbersome interchange arrangement.

He claims his plane can be landed on water with skis attached because both main and nose wheels retract forward leaving part of the wheels exposed. This permits attached skis or wheel skis on the main gear to fit snug against the seawing contour, and the nose ski to fold over the front deck.

► **Lift Factor**—The two-to-one taper ratio of the full cantilever, metal wing, which has no tip floats, gives a very pleasing and clean wing configuration.

Practically no change from the prototype will be required in the Aqua II wing structure to meet the power increase of the new model. The two-spar makeup and longitudinal stringer-stiffened skin combination was designed for this contingency.

The short wing—only 36½ ft. span—with its airfoil-shaped nacelle extensions and the 37.5-sq. ft. lifting area of the seawing combine to give the amphibian a sufficiently high lift capacity and low landing speeds.

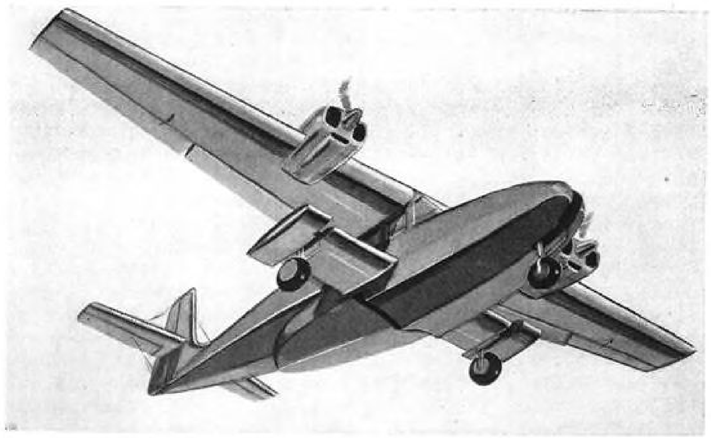
► **Military Use**—As a general utility craft in the Arctic and lake regions, Wardle thinks his plane could be used to replace the dog sled and freight canoe or to transport the large number of migratory workers in the fish-packing and other seasonal industries in that area.

He also believes it would be an economical military rescue plane. With a light load, it can "land in tight places at low landing speeds (40 mph.), refuel from previously dropped supplies, and effect a fully loaded takeoff using Jato if necessary."

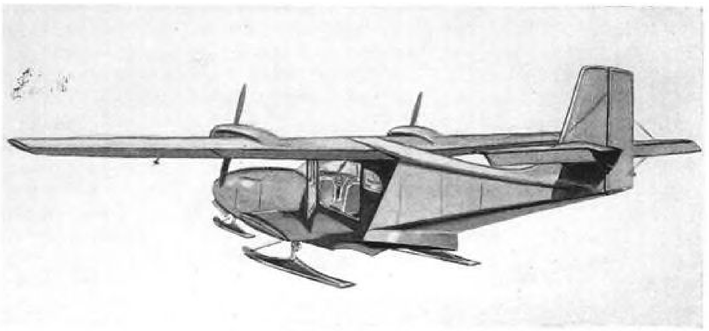
Present plans of the company are to continue flight tests to determine all phases of performance while gaining sufficient capital to start tooling and pilot production operations.

It's hoping for a military development contract as a means of getting started in combined commercial and military production.

Others who have helped Wardle in development of his amphibian are: Frank Mills, veteran seaplane pilot and manager of the Philadelphia Seaplane Base; James R. Coyne, who made the working drawings for the prototype; and Ray L. Vroome, former Lt. Colonel in the Marines, who has been arranging for financial backing and creating sales interest in the new plane.



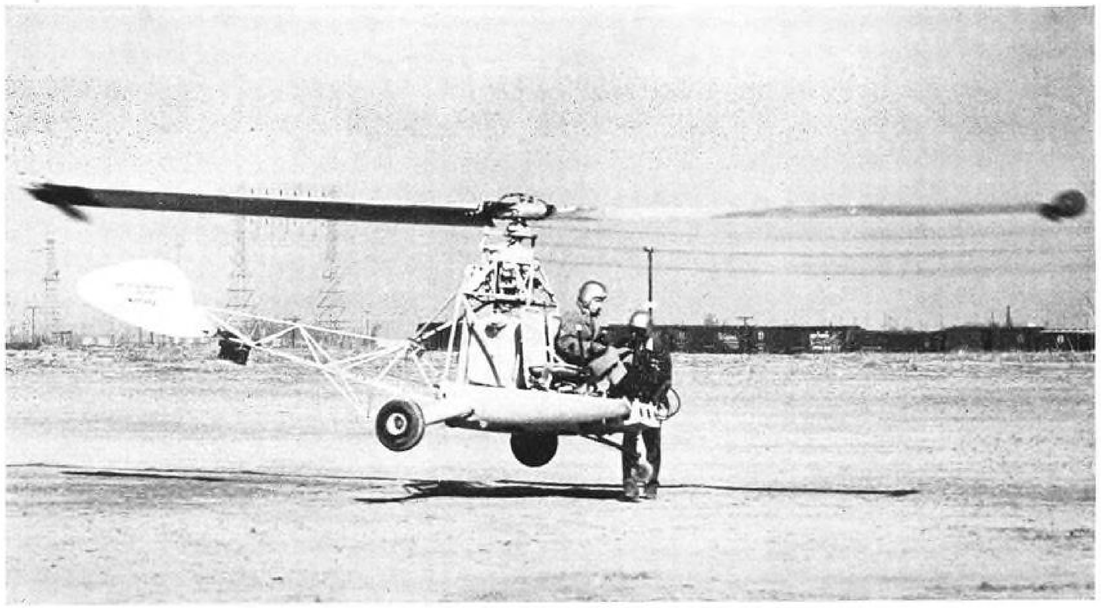
Underside view shows seawing-tip makeup and provisions for housing landing gear.



Version of Aqua II design with skis for Arctic operation.

Aqua II Specifications

Dimensions:	
Span	36 ft. 5 in.
Length	29 ft. 6 in.
Height	12 ft.
Hull width	50½ in.
Tread	10 ft.
Wheel base	10 ft. 2 in.
Weights:	
Gross weight:	4000 lb.
Empty weight	2600 lb.
Useful load	1400 lb.
Estimated performance, craft fully loaded:	
Cruising speed at sea level (69% meto hp.)	145 mph.
Cruising speed at 7500 ft. (69% meto hp.)	153 mph.
Stalling speed with flaps	61 mph.
Rate of climb with both engines at sea level	1000 fpm.
Rate of climb with single engine at sea level	330 fpm.
Absolute ceiling	16,000 ft.
Single engine ceiling	3000 ft.



New Copter Tests Pulsejet Power

American Helicopter's XA-5 built to evaluate engine's potential for affording increased short-haul payload.

A new helicopter—designed specifically for rotor-tip pulsejet power—is now undergoing flight tests at Manhattan Beach, Calif.

It is the two-place XA-5 "Top Sergeant" produced by American Helicopter Co., Inc., and was built and flown in the short period of two months.

The machine focuses attention on structural simplicity attainable in jet-powered designs; radical reduction of working parts; high potential in lifting heavy payloads at short ranges; and the development of a pulsejet engine showing unexpected durability under high whirl stresses.

▶ **Designer's Opinion**—The "Top Sergeant" has come so close to meeting design specifications that Corwin D. Denney, AHCo president, and designer of the craft, makes these observations:

"The pulsejet helicopter, in refined production configuration, should double the payload now available in a reciprocating engine copter of comparable gross weight.

"Design simplicity indicates lower production and maintenance costs than can be foreseen for any reciprocating engine rotorcraft.

"In quantity production, a pulsejet helicopter of the size of the 'Top Sergeant' should sell for as little as $5000."

Denney foresees no pulsejet competition with the reciprocating engine copter for long-distance or long-endurance flight, but for short haul with high payload its potentialities are "enormous," he says.

Preliminary estimates for a series of military models, using the basic rotor and engine principle of the XA-5, show that a pulsejet machine having a 110-ft. rotor and multiple engines could lift 20,000 lb. payload in a gross weight of 25,000 lb.

▶ **Performance Figures**—The XA-5, in its present form, shows a gross weight of 1200 lb. and is designed to hover at an output of 60 lb. thrust from each of its two AHCo-designed engines, each having a maximum static thrust rating of 95 lb. Design maximum forward speed is 75 mph., cruising speed 55 mph.

Craft's useful load, in addition to pilot, is 385 lb. Company engineers feel this will be increased 300 lb., giving a total of 685 lb. useful load and raising the allowable gross to 1500 lb., through efficiency gains expected to appear in a "cleaned up" production version.

Performance estimates for the XA-5 offer an indication of the utility of this design, and can be projected for larger models.

Carrying pilot only, the production version should show an endurance of 3.5 hr. at 55 mph. cruise; 2.75 hr. at 75 mph. top speed; and ranges of 190 and 200 mi. for the two speeds.

With pilot and observer, endurance at the two speeds should be 2.5 and 2.0 hr., respectively, and ranges 135 and 140 mi.

As a rescue craft, carrying pilot only and returning with one passenger at mid-flight, estimated range is 175 mi.

▶ **Application Factors**—While AHCo's immediate interest is in the projection of military uses—rescue, and lifting heavy loads over otherwise impassable terrain—company engineers foresee a wide range of commercial utility, ranging from air terminal taxi service to personal use.

Judiciously, they concede that the noise of the pulsejet is a drawback in commercial planning, but anticipate considerable lowering of noise level through future engine advances. Although the noise level of the XA-5 engines is high at maximum power output, it is easily tolerable at cruising power.

▶ **Engine Simplicity**—To those viewing the "Top Sergeant" for the first time the simplicity of the machine is striking, and was emphasized by a dramatic "show" staged by AHCo officials.

Visitors disappointed in seeing the

Closeup (left) of pulsejet on XA-5's rotor shows engine attach fitting, tailpipe support, fuel and ignition lines. Right: Details of hub, rotor mount and controls. Personnel are AHCo's F. D. Barclay, research director, C. D. Denney, president; and A. C. Thomson, shop head.

XA-5 in disassembly on the shop floor—fuselage, rotor, and engines all separated—are surprised in seeing given a ready-to-fly reassembly in less than 30 min.

On the flight strip a mechanic "discovers" that an engine is faulty and needs a complete overhaul—accomplished in less than 5 min. by replacing the worn valve grid, the engine's only moving part. One mechanic does it in what Denney tells his guests is "the world's fastest engine overhaul."

Flight follows the firing of one engine via squirting the jet of an air hose into the intake, and starting of the second power unit by ram air as the rotor gains speed from the thrust of the engine first fired.

At present, developers of the XA-5 are less concerned with flight showmanship than with the gathering of conservative flight data to prove performance estimates. Dorn Barclay, AHCo director of research, reports that errors in such estimates have been no more than nominal.

Technical interest in the XA-5 attends the fact that it is claimed to be the first helicopter to have a rotor system designed especially to meet the low tip speed requirement for successful use of tip-mounted pulsejets.

▶ **Rotor Details**—The two blades of the XA-5, affording a disk diameter of 33 ft. and a solidity of .066, are rotated at a tip speed of only 300-325 fps., which is in marked contrast to the higher tip speeds shown by rotors of reciprocating engine copters.

Rotor blades are attached to a semi-rigid teetering hub, and receive cyclic and collective pitch changes through a conventional control system. Depth of chord is pronounced, 20 in. for a blade length of 16 ft. Construction is laminated wood, planform is non-tapering. Airfoil shape is derived from the NACA 0012 design, and tapers from 0014 at the blade root to 0009 at the tip.

Steel plates on blade extremities provide mounts for the pulsejet engines. Relief from centrifugal stress upon the blade structure is gained by tying the engine mount directly to the metal rotor hub via a chrome-moly spar passing through the blade center.

▶ **Welding Technique**—AHCo engineers feel that one of the most notable aspects of the XA-5 project is the development of an engine capable of withstanding the stresses of high whirling speeds while running at red-glow temperature.

At this writing the XA-5's engines had logged slightly more than 30 min. of operating time with no indication of fatigue failures. While this is an extremely brief period for engine evaluation, company engineers claim it is a record for high-stress whirl runs of pulsejets.

Two major pulsejet developments are involved in the design—the use of an exhaust-tube welding technique that eliminates welding seam fatigue cracks observed in initial engines after short whirl runs, and a new method of anchoring the tailpipe to restrain the tube under centrifugal bending forces.

Conventional machine welding of tailpipes was found to be highly unsatisfactory from the standpoint of resistance to fatigue cracks. A switch to atomic hydrogen machine-welded seams appears to have eliminated the cracking "bug."

▶ **Maintenance Considerations**—It is too early to predict overhaul periods for the engine, but to date ground whirl- and flight-tests indicate that within time limits now being developed there should be little risk of unexpected power failure.

The engine's conventional metal reed valve system is strengthened by using three-ply reed laminates.

Valve deterioration is indicated by a gradual rather than immediately intense loss of power, and is noted by increase of fuel flow requirement to maintain hovering or cruising flight.

Apparently the only engine maintenance required is periodic replacement of the valve block's 48 reeds, contained in 16 valve panels, at a reed exchange cost amounting to only 60 cents per engine.

Other maintenance on the XA-5 may prove to be relatively as simple as that for engine upkeep, for the copter has only four rotor hub bearings and two supporting the rotor shaft. Rotor hub is secured to the shaft by use of a single bolt.

This indicates low production cost for the copter and gives support to Denney's anticipation of a production unit price of $5000. Admittedly, costs of engineering and tooling for the contemplated military production model will require the pricing of initial units

Hydraulic Progress

IN THE AVIATION INDUSTRY

TEN YEARS AGO the first hydraulic developments were started by Bendix in this modest building in Burbank, California. Then known as Bendix Aviation, Ltd., this organization has become one of the major sources of aircraft hydraulic equipment and has pioneered many outstanding developments. The present 130,000 square foot plant of Bendix-Pacific at North Hollywood, is shown on the opposite page.

1937
- **JANUARY** BENDIX AVIATION LTD., a wholly owned subsidiary of Bendix Aviation Corporation was farmed to sell and service equipment manufactured by eastern divisions of Bendix.
- **JULY** FIRST PURCHASE ORDER was accepted for customer designed equipment.

1938
- **JULY** PLANT EXPANSION provided room for enlarged engineering department.

1939
- **JANUARY** FIRST HYDRAULIC PRODUCT designed and built at Bendix Aviation Ltd. was offered to the industry...a pressure relief valve.

1940
- **JULY** LOCKHEED SPECIFIED BENDIX cylinders and valves for Constellation.
- **DECEMBER** MANUFACTURING AREA of plant doubled by new addition.
- **DECEMBER** FIRST RADIAL poppet type four-way valve designed by Bendix was introduced.

1941
- **APRIL** ENGINEERING WORK STARTED on new type continuous shell accumulator now widely used by practically all major manufacturers.
- **NOVEMBER** NORTH HOLLYWOOD PLANT with 130,000 square feet manufacturing area completed and occupied.

1942
- **FEBRUARY** LARGEST FLASH WELDER west of Mississippi installed at Bendix-Pacific Plant permitting widespread use of flash-welding in cylinders and landing gear struts.

1943
- **SEPTEMBER** CONSOLIDATED B-36 Main landing gear cylinders designed and built by Bendix-Pacific....the largest aircraft cylinders ever built.

1944
- **JANUARY** BENDIX AVIATION LTD. became Pacific Division, Bendix Aviation Corporation.
- **MARCH** MANUFACTURE of 3,000 Bendix designed AN regulators per month started.

1945
- **JANUARY** PNEUMATIC CYLINDERS and high-pressure reservoirs designed by Bendix-Pacific were used to replace motors on B-29 bomb doors to help aerial attack on Japan.
- **MARCH** COMPLETE LINE OF 3000 PSI hydraulic equipment announced.
- **MAY** ALL P-80's modified to use Bendix Geneva-Loc four-way valve on dive brakes.
- **JULY** PRODUCTION RATE for Bendix-Pacific Geneva-Loc actuators reached 2,000 per week.

1947
- **FEBRUARY** 3000 PSI REGULATORS designed by Bendix were accepted by United Air Lines and Douglas to replace original equipment on DC-4 and DC-6 airplanes.
- **DECEMBER** VENTURI TYPE BRAKE VALVES designed by Bendix accepted for Boeing B-50.

1948
- **NOVEMBER** PNEUMATIC BOOSTED master cylinders for Banshee specified.

Bendix-Pacific continuous shell accumulators have been used in over 80,000 installations.

Over 18,000 hydraulic pressure regulators built by Bendix-Pacific.

Bendix-Pacific is one of the largest producers of cylinders, having manufactured more than 165,000 of all types.

As one of the major sources of selector valves, Bendix-Pacific has produced more than 70,000.

More than 20,000 hand hydraulic pumps have gone into service.

The five hydraulic products shown above are typical of the 60-odd proprietary items made by Bendix-Pacific. Company engineers are available to discuss your hydraulic problem. Offices in New York and Chicago.

PRODUCT OF Bendix AVIATION CORPORATION

Pacific Division
Bendix Aviation Corporation
NORTH HOLLYWOOD, CALIF.

at several times that of his initial low estimate.

► **Engine Weight**—AHCo engineers estimate that a reciprocating engine power system for a machine of the "Top Sergeant's" gross weight would weigh approximately 300 lb., including engine and accessories, gear box, clutch, and (in a single rotor machine) torque rotor assembly.

In contrast, the total weight of the two pulsejets powering the "Sergeant" is 46 lb., to which should be added 10 lb. for accessories between the fuel tank and engines—an electrically driven fuel pump, throttle and master shutoff valves, rotometer showing lb./hr. fuel flow, and a rotary seal for transfer of fuel from a stationary line to a rotating line.

In general, the XA-5's control system follows a conventional pattern. A canted-hinge rudder is used for directional control, and is cable-connected to the rudder pedals.

► **Rough Product**—Built to prove to the practicability of the pulsejet rotor system, the XA-5 makes no representation of the appearance and structure of the proposed production version.

The experimental machine is a quickly built product, and is considerably overweight in its fuselage structure. It utilizes the engine bed, cockpit, and landing gear section of an Army R-6 reciprocating engine copter, which were not designed for such an application.

While the "Top Sergeant" is American Helicopter's most spectacular venture, the relatively small organization already has shown considerable progress in other research and engineering activities.

It has been engaged in the design development of mechanically driven valves for pilotless aircraft pulsejet powerplants; demonstrating equipment for university use; human centrifuge for pilot training; and engineering work on supersonic wind tunnel facilities.

Board chairman of AHCo is Earl S. Baldwin, formerly chairman of Automotive Parts Co., Columbus, Ohio, and president of National Automotive Parts Assn.

AHCo's president, Corwin Denney, formerly was project officer of Rotary Wing Branch, Wright Field, and chief helicopter engineer for Marquardt Aircraft Co., Venice, Cal.

Other management officers are John A. White, secretary-treasurer and company attorney; F. Dorn Barclay, director of research, formerly project officer for U. S. Navy Bureau of Aeronautics in Washington, D. C., and former research director for Piasecki Helicopter Corp.; and Alan C. Thomson, shop superintendent, formerly with U. S. Propeller Co., Pasadena, Cal., and Marquardt Aircraft Co.

Smoke Detectors Under Scrutiny

Airline studies show that reduction of sensitivity in devices will give fewer false alarms, still be reliable.

Months of experimentation with smoke detectors used in airline transport planes have brought noticeable improvement in reliability of these safety devices. But compulsory reinstallation of the units—taken out of the airliners because of repeated malfunctioning—may not take place for some time to come.

Early in 1948, after hundreds of false alarms by the smoke detectors, the Civil Aeronautics Administration permitted the carriers to disconnect them.

► **Part of Safety Program**—Originally, CAB ordered the devices installed as part of generally stiffened fire prevention requirements adopted late in 1946 after a series of mishaps involving fires in flight. CAA had hoped the problem of false alarms could be solved by last fall. The Air Line Pilots Assn. is urging the quickest possible reinstallation of the detectors.

About 70 smoke detectors have been in operation on the airlines as part of tests being conducted by the Air Transport Assn. in cooperation with CAA, the National Bureau of Standards and the manufacturers of the devices. ATA plans to summarize the smoke detector situation shortly on the basis of reports submitted by airlines service testing the units. Then, a determination will be made whether the test program should be extended.

► **Sensitivity Adjusted**—Findings to date show that false alarms can be cut down and reliability maintained by reducing sensitivity of smoke detectors operated on either the photoelectric cell or carbon monoxide principle. But CAB will not order reinstallation of the units until certain that advantages from the safety devices outweigh dangers incident to false alarms and consequent forced landings and flight delays.

In the past, the photoelectric cell smoke detectors have turned in alarms when dust or moisture condensation (fog) interrupted the beam. Engine exhaust in sufficient quantities and voltage fluctuations also can activate the device.

Photoelectric cell smoke detectors being tested by the airlines are manufactured by C-O-Two Fire Equipment Co., Newark, N. J., and Walter Kidde & Co., Belleville, N. J. Mine Safety Appliances Co., Pittsburgh, produces carbon monoxide type smoke detectors.

► **Experiences Vary**—Airline tests show some variation in experiences with the photoelectric cell devices. Capital Airlines reported a new-type unit built by the C-O-Two company has operated in a DC-3 for 536 hr. with no reports of malfunctioning. A Delta Air Lines unit in a DC-3 turned in its first false alarm after 487 hr., and two other false alarms shortly thereafter.

Eastern Air Lines accumulated 539 hr. on a 14v. C-O-Two company smoke detector without any adjustments, and a new type A-4 unit on a DC-4 has gone 460 hr. without failure. Six other carriers also have had trouble-free operation with the C-O-Two company device in DC-3s, DC-4s and Constellations during recent service test periods.

One airline reported that four of its six Kidde smoke detectors have operated up to 560 hr. without false alarms. Two installations had two false alarms each, but bench tests revealed no faults in the detector. Twenty-four Kidde units being used by another airline have accumulated an average of 533 hr., with three reported mechanical failures and only one false alarm.

► **Carbon Monoxide Detectors**—A carrier that has been testing Mine Safety Appliances' carbon monoxide type detectors has had several false warnings, but most of these can be attributed to defects in the original installation which have been corrected.

A carbon monoxide detector needs a warm-up period of from 15 to 20 min. from the time the engines are started.

If carbon monoxide has entered the belly compartments from an external source during loading operations, the detector usually will not give an indication until just after the aircraft has taken off. This means crews must take emergency action and return to the field. The manufacturer is working on methods of reducing the warm-up time to about 5 min.

► **Balance Upset**—It has been found that the carbon monoxide (CO) detector can be set off occasionally by discharging carbon dioxide (CO_2) into areas being protected from fire. The sudden decrease in temperature is believed to upset the balance of the sensitive unit, causing a false warning.

A carbon monoxide detector reportedly is not very useful in giving a reliable repeat indication. With the low airflows in the cargo compartment, and high concentrations of carbon monoxide which would result from a fire, several hours would pass before the CO concentration dropped to a point where there would be no warning indication. This time is considered too long to expect flight crews to wait to see if the fire has been extinguished.

NEW AVIATION PRODUCTS

High-Altitude Relay

Hermetically-sealed, miniature, d-c. relay, type CX3554, developed by **Struthers-Dunn, Inc.**, 150 N. 13th St., Phila. 7, Pa., is made to meet extreme operating conditions of modern high-altitude craft. Special aviation design features include shock resistance up to 50 G.; vibration resistance better than 10 G.; high-speed opening and closing without contact bounce; and reliable operation over an ambient range of −75 to 200 C. Sealing is intended to make unit insensitive to humidity changes and capable of rated operation at altitudes as high as 70,000 ft. Relay has SPDT contacts nominally rated at 2 amp. and capable of withstanding inrushes of 12 amp. at 26.5v. Coil is rated at 26.5v. d.c. with operating range of 18/32v. Device has cylindrical shape and mounting feet, and is approximately 1¾-in. high including terminals. Flange diameter is 1.040 in., and distance between hole centers is 1⅜ in.

Portable Sheet-Cutter

Easily maneuverable cutter for sheet-metal, "Nibblex," is capable of making circular cuts with radii as small as 1 in. and reaching into tight places. Tool cuts material up to 20 gage (0.040) without bending, burring or stretching of metal. Also suitable for cutting plastic sheet, device weighs but 13 oz., can be carried in the pocket and be fixed in chuck of any ¼-in. motor in the same manner as drill. Tool consists of 7 simple parts which may be replaced at comparatively little cost. Device is marketed by **Nord International Corp.**, 130 Greenwich St., N. Y. C.

Explosion-Proof Heater

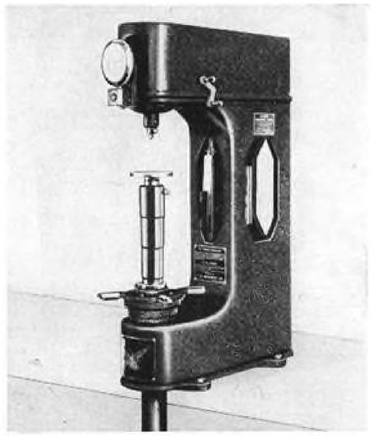
Solution to problem of heating hazardous locations safely is offered by **Electromode Corp.**, 45 Crouch St., Rochester 3, N. Y., through its all-electric explosion-proof unit. Heater is specially designed for use in atmospheres containing gasoline, oil, acetone, lacquer, solvent vapors and other flammables encountered in aviation base activities. Device incorporates cast aluminum, natural convection safety-grid. Heating element is nickel-chromium resistor wire, insulated and sheathed in seamless metal tubing embedded in one-piece finned aluminum casting. This seals element, eliminating fire, shock and burn hazards. Grid remains at low operating temperature, has high thermal conductivity, and is resistant to corrosion and deterioration. Installation is via wall mounting, and unit may be thermostatically controlled through contactor. Three models are available with ratings of 2000, 4000 and 6000w. First two sizes are for operation on 240, 480v. single phase. Large size is for 240 or 480v. single or three phase.

Nylon-Pile Plane Carpet

Two qualities most needed in airplane carpeting—light weight and high wear-resistance—are offered by **Alexander Smith & Sons Carpet Co.**, Yonkers, New York, in new Nylon-faced covering. Pile fabric resists flame, fungi, bacteria and soil, and has color fastness, low moisture retention and dimensional stability. Easy cleaning is accomplished with soap and water or various commercial solvents. Laboratory tests are reported to show shrinkage of less than 1 percent in length and width after shampooing. Drying is quick because Nylon fibers are claimed to absorb about one-third as much water as wool. Resembling wool carpeting in appearance and feel, material is available in rust, green, grey and burgundy, in 27, 36 and 54-in. widths. Weight is approximately 2.4 lb./sq. yd.

Simple A.D.F. Computer

Navigation aid for transport and cross-country pilots is pocket-size, plastic A.D.F. computer marketed by **Flitton & Deuel**, 416 W. 137th St., Hawthorne, Calif. Quick twirling of its three superimposed disks in accordance with directions of easily understood instruction sheet enables finding of Q.D.M.; location of quadrant position; intersection of predetermined heading; obtainance of distance from station; finding time from station; and shooting a fix. Device is reported to have been flight-tested by airline personnel.



Improved Hardness Tester

New Rockwell hardness tester, offering simplicity of servicing, is announced by **Clark Instrument, Inc.**, 10200 Ford Road, Dearborn, Mich. Instrument features spindle housing and beam assembly that may be replaced by operator without requiring unusual skill or special tools. Other advantages include "frictionless" spindle that assures correct minor load, positive tripping to overcome occurrence of incorrect major load by friction or drag of tripping lever on loading beam. Body is lightweight cast aluminum. Unit is applicable for testing hard or soft steel, brass, aluminum, cast iron, copper, alloys, and plastics.

WHAT'S DOING

at Pratt & Whitney Aircraft?

Frequently, people ask us, "What's doing at Pratt & Whitney Aircraft?" It is a thought-provoking question and perhaps you would be interested in some of the answers. Through messages like this we hope to share with you some of our aims, some of our problems, and some of our achievements.

As you know, Pratt & Whitney is in the business of producing horsepower and thrust. It is highly complex — this work of designing, developing, testing and producing aircraft power plants. Even long after an engine has reached the production stage, a corps of engineers is hard at work refining its design in the light of the latest knowledge and experience. Simultaneously, another group of engineers is concentrating on the engines that will be put on the production lines tomorrow.

As matters stand today, we are hard at work in three major fields. First, we are delivering the Turbo-Wasp*, the first turbo-jet engine to bear the famous Pratt & Whitney emblem. This project involves an entirely new set of problems and responsibilities, since completely new production techniques are being developed and proved. This engine is designed to power some of today's fastest fighter aircraft.

Second, we are producing and continually refining the Pratt & Whitney reciprocating engines which have become known the world over for their dependability. These engines will continue to power the long-range, load-carrying aircraft for a long time to come. A new member of this famous family — the Wasp Major-VDT — brings to it some of the advantages of turbines while retaining the advantages of the piston type.

Third, we are devoting hundreds of thousands of man-hours of engineering to the design and development of new turbine types to meet the needs of America's future airplanes, still shrouded in secrecy.

To keep all this going on smoothly, thousands of our employees are engaged in production. Other thousands are busy in our various test sections, wind tunnel experiments, flight test activities and field service branches — all contributing to the hum of activity at Pratt & Whitney, all helping to make our engines the finest that engineering skill can produce.

**"Wasp" is a registered trademark of United Aircraft Corporation*

WHAT IS VDT? WHAT ARE SOME OF ITS BENEFITS?

- ☐ A piston engine?
- ☐ A turbine?
- ☐ Combination of both?
- ☐ High octane fuel?

Several months ago we announced the development of a new type engine. This is a combination of a conventional piston engine and a turbine. It is called VDT — or Variable Discharge Turbine. A highly developed form of this engine is the R-4360 Wasp Major-VDT. This power plant gives promise of adding considerably to the range of heavy bombers and strategic transports.

The first installation of the Wasp Major-VDT is in the Boeing B-54. With its four engines, this bomber will have more than 16,000 horsepower at takeoff and will show substantially improved performance.

WHAT IS THE PRESENT STATUS OF THE TURBO-WASP?

- ☐ Design stage?
- ☐ Development?
- ☐ Testing?
- ☐ Production?

In a sense the answer is — all four. The Turbo-Wasp has passed its official Navy 150-hour type test and engines are coming off the production lines. At the same time, engineers are hard at work on the same type power plant to make it more efficient, more powerful, more dependable. Already some of these engines have been delivered to Grumman for their latest shipboard fighter, the F9F Panther. The type on the production lines right now is known as the Turbo-Wasp JT-6 ("J"-jet, "T"-turbine, "6"-sixth model). This engine has the highest thrust rating of any turbine engine in production in this country.

FOR WHAT WILL THE NEW TURBINE LABORATORY BE USED?

- ☐ Producing turbines?
- ☐ Testing turbines?
- ☐ Materials?
- ☐ Fuels?

On the bank of the Connecticut River, not far from the main plant, the second unit of our new Turbine Laboratory is now more than half finished. The first unit, which has been supplementing our other test facilities, has been in operation for more than a year. Already it has proved invaluable. The new lab will be used entirely for testing turbine-type aircraft engines and their component parts. It will be one of the largest and most completely equipped laboratories of its kind in the United States. To dissipate the tremendous heat generated by the engines under test, huge pumps will draw from and return to the river 7,500,000 gallons of water every hour; nearly four times as much water as is used by the entire city of Hartford in the same period of time. The entire unit is scheduled to be in operation by September of this year. From it will come new, more powerful, more dependable aircraft power plants for the future.

WHICH OF THE NEW AIRLINERS ARE POWERED BY PRATT & WHITNEY?

- ☐ Douglas DC-6?
- ☐ Lockheed Constellation?
- ☐ Boeing Stratocruiser?
- ☐ Martin 202?
- ☐ Convair-Liner?

All but the Constellation are powered by Pratt & Whitney — the Stratocruiser by 3500 horsepower Wasp Majors and the others by 2400 horsepower Double Wasps. Virtually every airline in the world is now employing Pratt & Whitney-powered transports. In the Berlin Airlift, well over 90% of all airplanes participating — both American and British — are powered by dependable Pratt & Whitney engines.

PRATT & WHITNEY AIRCRAFT

EAST HARTFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

FINANCIAL

Trusts Shifting Aviation Shares

Year-end reports reflect growing activity, but more time needed for full sale and purchase evaluation.

Increased activity in shifting aviation shares by investment trusts is very much in evidence with the current release of year-end reports.

With the elapse of at least a full month since the record date of these transactions, observers can evaluate the relative success of such trades at this time. A much longer period, however, will be required to judge more fully the aviation selections of professional trust managers.

Completely devoted to aviation investments, National Aviation Corp.'s periodic shifts continue to be of major interest. As of Dec. 31, 1948, total assets of this fund aggregated $6,592,031. This compared with $6,876,253 at the previous year-end and with $13,307,198 at its peak on Dec. 31, 1945.

During 1948, National Aviation showed net ordinary income of $278,878 which was more than offset by the $307,834 lost on the sale of securities. This left a net loss for the year of $28,956.

► **Other Investments**—Aircraft and accessory investments were increased to 49.4 percent of total resources at Dec. 31, 1948, a gain from the 33.4 percent shown on Dec. 31, 1947. Airline commitments stood at 34.6 percent at the last year-end compared to 40.2 percent for Dec. 31, 1947. Cash and equivalent were reduced to 16 percent on Dec. 31, 1948, from 26.4 percent a year earlier.

Significant liquidations by National Aviation included a block of $385,000 of Capital Airlines debentures during the final quarter of the year. Presumably, such sales took place on a scale-up and appear to have been made prior to the sharp price appreciation in this issue following a favorable air mail rate decision by the Civil Aeronautics Board in the carrier's favor.

Proceeds from this sale were used by National Aviation to purchase 10,000 shares of American Airlines, common, 12,000 shares of Pan American Airways, 3500 shares of Braniff, 2500 shares of Delta and 7500 shares of Chicago & Southern voting trust certificates.

► **December Portfolio**—Following these and other shifts, National Aviation's portfolio as of Dec. 31, 1948, consisted of the following:

Aircraft: 21,000 Bell, 5000 Bendix, 10,000 Boeing, 10,000 Curtiss-Wright common, 5000 Curtiss-Wright "A", 7700 Douglas, 800 Greer Hydraulics, preferred, 20,000 Grumman, 15,000 Lockheed, 35,500 North American Aviation, 5000 Sperry, 7000 Thompson Products, 16,000 United Aircraft common, and 2000 United Aircraft preferred.

Airlines: 10,000 Air Express International, 10,000 American Airlines common, 10,900 American Airlines preferred, 13,500 Braniff, 5000 Chicago & Southern common, 10,000 Chicago & Southern V. T. C., 14,500 Delta, 40,000 Eastern, 10,000 Northwest preferred, 12,000 Pan American, and 5010 United preferred.

The investment portfolio of National Aviation has a total cost of $6,238,020 but a market valuation of only $5,502,703 as of Dec. 31, 1948.

► **General Trusts**—General investment trusts also reflect a number of interesting developments.

The Lehman Corp., which has done well in other industries, has yet to demonstrate consistent successful results in its aviation selections. After selling 5000 shares of American Airlines in the second quarter of 1948, the Lehman Corp. reversed its policy and purchased 10,000 shares of the same stock during the fourth quarter, bringing total holdings in this issue to 41,000 shares.

This trust's activity would appear to have anticipated the announcement of the proposed acquisition of American Overseas by Pan American.

Also acquired in the final quarter by Lehman Corp. were 3800 shares of Pan American, bringing holdings to 10,300 shares and 1300 shares of American Overseas and boosting the commitment in that issue to 20,050 shares. Holdings in United Air Lines were down to 11,000 shares as of Dec. 31, 1948, compared to holdings of 29,000 shares a year earlier.

► **Purchase and Sale**—It is not uncommon for one trust to be buying securities of one company while another fund is liquidating the same issue. This is demonstrated by the action of Selected Industries in selling 8000 shares of American during the fourth quarter, reducing its holdings to 16,000 shares. Its associate, Tri-Continental, retained holdings of 24,000 shares of American. The two trusts combined owned a total of 40,200 shares of Eastern at the year-end.

Other large holders of Eastern included U. S. and Foreign and U. S. and International Securities. These two trusts, managed by the same interests, held a total of 40,000 shares of Eastern as of Dec. 31, 1948. Such investments appear to have been retained unchanged in recent years.

Affiliated Fund, as of Oct. 31, 1948, showed holdings of 50,000 shares of American common and 6000 preferred along with 35,000 shares of Eastern. Other aviation investments of lesser amount were also reported.

► **Trusts Sponsored**—A number of professional fund managers sponsor specialized industry trusts. Aviation, of course, is prominently featured as a separate group in such cases. It is obvious, however, that such special groups merely attempt to diversify very broadly within the industry and show little evidence of discriminating selectivity.

Aviation shares of Group Securities, Inc., shows the following holdings as of Nov. 30, 1948, together with the purchases and sales of the previous quarter (indicated in parentheses):

17,000 American, 6000 Beech, 2700 (3500) Bell, 4500 (6500) Boeing, 11,000 (5500) Braniff, 4500 (—7500) Cessna, 12,000 (4500) Convair, 700 (3000) Curtiss-Wright "A", 2600 (—900) Douglas, 3500 (2700) Eastern, 800 (—1700) Eaton, 2500 (—7500) Fairchild Camera, 10,000 (5500) Fairchild Engine, 9000 (6200) Grumman, 2000 (—10,000) Irving Air, 10,000 (—3000) Lockheed, 13,000 National Airlines, 15,400 (3500) North American Aviation, 15,000 (—6600) Pan American, 10,500 (3500) Republic, 20,000 (10,000) Piper, 6500 Sperry, 6000 (—3000) Solar, 8500 United Aircraft and 9000 United Air Lines.

Also lacking any consistent pattern indicative of a trend is the portfolio of Aviation Group Securities as of Dec. 31, 1948. This specialized fund's holdings consisted of the following:

8900 American, 700 Bendix, 3200 Boeing, 900 Capital, 3100 Convair, 1400 Douglas, 5400 Eastern, 3500 Fairchild Engine, 3100 Grumman, 3600 Lockheed, 2000 Martin, 5700 North American, 3400 Northrop, 1700 Northwest, 2600 Pan American, 5300 Republic, 1600 Sperry, 1400 TWA, 3300 United Aircraft, 2700 United Air Lines Common and 100 United Air Lines preferred.

New York Stocks showed similar tendencies in its aviation fund. This group's holdings as of Nov. 30, 1948, were as follows:

8900 American, 600 Bendix, 700 Boeing, 4000 Convair, 2800 Eastern, 1800 Electric Boat, 1500 Grumman, 2700 Lockheed, 2100 Martin, 4800 North American, 3400 Northwest, 800 Sperry, 1000 Square D, 300 Thompson Products, 500 TWA, 1100 United Aircraft and 1900 United Air Lines.

► **Important Factor**—Regardless of the relative wisdom of specialized and general investment trusts, these funds are an important factor in providing support for aviation securities. This will become increasingly pronounced with the continued growth in resources of these fiduciary funds. As available cash accumulates in these investment reservoirs, the securities of industries long depressed are carefully reviewed.

The aviation industry is certainly in this category and is bound to come in for increased attention on the part of investment trusts.

—Selig Altschul

SALES & SERVICE

Piper's 1949 four-place Clipper, Family Cruiser and Voyager.

Piper Launches Its 1949 Line

Distributors get preview of ten airplanes as company kicks off new selling season; variety the keynote.

By Alexander McSurely

LOCK HAVEN—Piper Aircraft Corp. last week introduced its 1949 line of 10—count 'em—airplanes, to its distributors.

The introduction was a realistic kick-off for what promises to be the fiercest competitive selling year that the small plane industry has ever known. Price appeal and variety are the two main piper selling arguments for 1949, the lowest prices yet announced for comparable planes, and enough variety so that any customer who wants a small airplane at all should be able to find something that fits his need.

► **Six Deliveries**—The new four-place PA-16 Clipper with 115 hp. Lycoming engine, which sells for $2995, leads the line. Piper expects to get six of these planes delivered to dealers in February and to swing into larger production by March with a few customer deliveries probably in April.

A new improved Family Cruiser, priced at $3995 with similar powerplant, and two Piper-Stinson four-placers—the Voyager and the Flying Station Wagon—powered with 165 hp. Franklin engines, priced at $6444 and $6484, complete the company's four-place line.

► **Two-Placers**—Then there are the two-placers, variations of the basic PA-11 tandem and PA-15 side-by-side Vagabond. Varieties of the PA-11 include 90 hp. Continental-powered, $2595; 65 hp. Continental-powered, $2395; PA-11 with Whittaker Duster factory installed, $3345; PA-11 with Whittaker Sprayer factory installed, $3345.

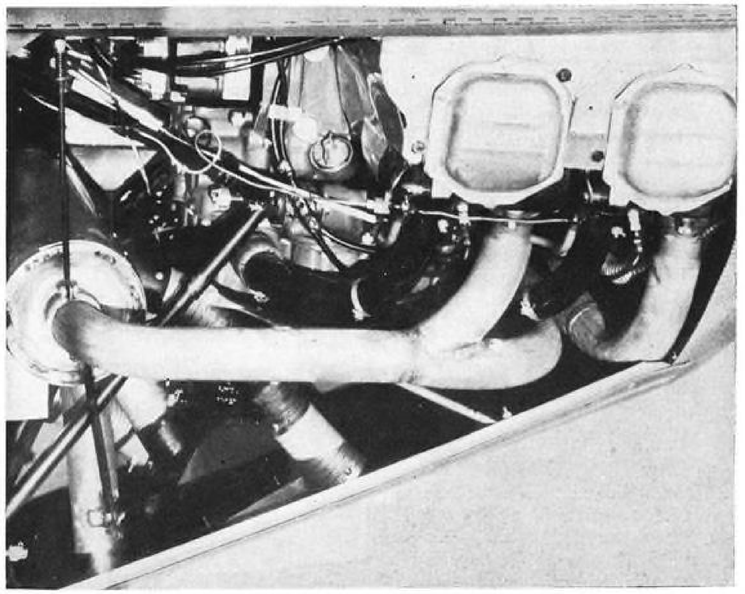
The Vagabond is offered in a choice of the basic model with 65 hp. Lycoming engine for $1995 (still the lowest pricetag of any new plane now being marketed) and as a side-by-side trainer with dual controls and Continental 65 hp. engine for $2195.

► **New Trainer**—Still in the offing is a thoroughly revised version of the PA-11 tandem trainer scheduled for production in about two months, and which will be called the PA-19.

There have been no apparent changes in the 1949 Stinsons which were the best selling four-placer last year and which held that place for the first month of 1949 according to preliminary reports received by Personal Aircraft Council.

► **More Style**—But Piper engineers have evidently adapted some of the Stinson styling to the 1949 Family Cruiser and even to the Clipper.

The Clipper looks like an overgrown Vagabond. Occupants of the two front seats slide in from a door at the right, and occupants of the two rear seats slide in from a door on the left. This is a simple means of getting rid of folding and complicated seat construction. The sitting down procedure is not difficult or uncomfortable. Front seat is 39 in. wide and rear seat is 37 in. wide.



Cross-over exhaust system.

BRIEFING FOR DEALERS & DISTRIBUTORS

FACTORY-BUILT SPRAYERS—At least two lightplane manufacturers are going after the agricultural spraying and dusting market with factory-built 1949 models. Piper Aircraft last week introduced its distributors to two versions of the 90 hp. PA-11 tandem trainer equipped as a sprayer or duster, priced at $3345 flyaway Lock Haven for either.

Art Whittaker, Piper distributor at Portland, Ore., who has been making dusting and spraying equipment for Cubs, will supply the spray tanks, spray equipment, wind generators, and dusting bins.

Competing with the Piper sprayer is an all-metal Luscombe 90 hp. Observer, priced at $3595, flyaway Dallas, equipped with spray units manufactured by Independent Crop Dusters, Campbell, Calif. The Observer sprayer is fitted with new high-lift wing flaps, a McCauley Met-L-Prop, Safe Flight stall warning indicator, chest harness and oversized (7.00 x 6.00) tires. Two 30-gal. self-agitating wing spray tanks and two wind-driven spray units are provided. Spray rate and cutoff is controlled in cockpit. Luscombe reports stalling speed is 40 mph. power on with full flaps, and spraying speed range with full flaps is 50-90 mph. At recommended gross spraying weight of 1500 lb. the Luscombe sprayer will carry over 50 gal. of spray solution. Both sprayers are designed for removal of equipment except for spray tanks, for general utility uses in off season.

Piper has a small head start on Luscombe, as to CAA approval. Luscombe however claims "a greater capacity than any other 90 hp. sprayer," and claims that new design flaps direct all spray toward the ground minimizing drift and creating a rebound effect similar to that from a helicopter sprayer, making possible "a better kill of weeds or insects with less chemical than can be obtained by any other type of fixed wing spraying equipment."

Luscombe expects to "start quantity production immediately following CAA approval expected in the very near future."

COLLISION—It does not look as if it will ever be definitely established just how the collision of the Cessna 140 and the Constellation near Mitchel Field, L. I. happened. Most press accounts seemed to take it for granted that the lightplane pilot was at fault, without any very good reason that we could see for such an assumption. Actually it is just as futile for a lightplane to argue right-of-way with a big transport plane, as for a flivver to argue right-of-way with a locomotive at a grade crossing, or for a little cruiser to argue with the Queen Elizabeth.

But the very narrow escape of the airliner's crew and passengers and the death of the two occupants of the light plane give point to two aviation needs: a radar warning device installed in large transport aircraft to indicate whereabouts of other aircraft which cannot be spotted visually, and additional emphasis on alertness by pilots of small planes who have enough visibility and maneuverability to avoid such collisions easily if they will use it.

MORE ON MIDGET MUSTANG—Up at Lock Haven last week Dave Long, builder of the Midget Mustang (AVIATION WEEK, Jan. 17) reported he had flown his little all-metal one-placer back from Miami averaging 170.5 mph. for the 1125 miles, on 41 gal. o fuel. The deal to sell the prototype plane reported in our earlier story, was not completed, but Long is just as happy because it gives him something to demonstrate, while Schweizer is tooling for the first five production planes.

Long has put a price of $4995 on the production Midget Mustangs, with a $1000 down payment for a firm order.

One hard-bitten aviation business man who has flown a lot of cross country cracked: "The plane's biggest market will be with business men who want to travel fast, light and alone. The extra people make you late starting and you have to make extra stops and fill up your airplane with their luggage. With this ship you don't have to take anybody."

BETTIS FIELD CLOSED—Bettis Airport, first commercial flying field at Pittsburgh, has been closed permanently by its purchase for use as a plant site by Westinghouse Electric Corp. Westinghouse paid $382,500 for the field. It was the scene of the 1927 National Balloon Races, and J. H. (Slim) Carmichael, now president of Capital Airlines, once flew mail and passengers from this field. —ALEXANDER McSURELY

The back seat appeared somewhat crowded. Payload for the Clipper is 800 lb., only 25 lb. less than the payload for the Cruiser. With 30 gal. of fuel the Clipper is credited with a range of 480 miles at cruising speed of 112 mph.

► **Business Utility**—Actually like all but a very few of the so-called four-placers on today's market, the Clipper will carry three persons with luggage and full fuel load, or four persons without luggage and less fuel load. But its greatest usefulness will be as a business and farm two-placer with lots of cargo and luggage space, with the added convenience of the extra back seats for passengers when it is needed. Rear seat is quickly removable, and rear door sill is flush with the cabin floor for easy cargo loading.

► **Dollar Value**—The Clipper handles nicely with four people. It lands at around 50 mph., a little faster than most previous Pipers, but appears to have the same forgiving flight characteristics that its predecessors have shown. All-in-all it appears to be the best dollar value for utility yet announced in the personal plane field.

For a thousand dollars more, the new 1949 Family Cruiser is still the second lowest priced four-placer on the market. A flight from Washington to Lock Haven in a 1948 Cruiser, and a return flight in Bevo Howard's 1949 model, gave excellent opportunity for comparing model changes. Most noticeable is the seating arrangement in the 1949 model and the additional leg room. Instead of the "Rube Goldberg" folding front seat of the 1948 model which was roundly abused by customers, there are now provided sliding front seats which lock in three positions. The interior has been restyled into the most luxurious looking plane Piper ever built.

► **Gillies Honored**—At the distributors meeting the William Pipers, Sr. and Jr., paid tribute to Al Gillies of Billings, Mont., as the top Piper distributor of 1948.

"In previous years," said matter-of-fact Bill Piper Sr., "we used to have the high-hat distributors club for the leaders. But this year we decided few of us did a big enough sales job to brag much about it."

► **Sales Promotion**—Piper announced that George Truman, 1947 Super Cruiser round-the-world flyer, was available as a sales promotion speaker for community aviation programs and would work under sponsorship of the company.

The veteran light plane builder told AVIATION WEEK he is counting on about the same number of sales for 1949 as in 1948 (approximately 1500), but judging from advance preparations, Piper actually is setting its sights higher for 1949.

AIR TRANSPORT

En route to the Atomic Energy Commission's Los Alamos, N. Mex., scientific laboratory, three passengers are shown following Carco Air Service's chief pilot, Bill Hartshorn into a Beech Bonanza for the 60-mile hop northward from Albuquerque. Carco uses six Bonanzas and two Beech D-18s aircraft.

Lightplane Lines Seek Certificates

Two intrastate carriers using single-engine aircraft ask CAB permission to transport interstate traffic.

High cost of conventional feeder operations conducted with transport-type equipment is spotlighting proposals to use lightplanes over low-traffic, short-haul routes.

Two southwestern carriers operating scheduled intrastate flights primarily with small single-engine aircraft have asked the Civil Aeronautics Board for certificates to carry interstate traffic over their present systems. Officials of both companies assert that experience gained since 1947 shows conclusively that their services are economically feasible and meet a public need for air transportation.

► **Serves Atomic Energy Commission**—One of the applicants, Cargo Air Service, operates six single-engine, four-place Beech Bonanzas and two twin-engine, seven-place Beech D-18 aircraft over a 60-mile route between its Albuquerque, N. Mex., base and the Atomic Energy Commission's Los Alamos scientific laboratory. Organized in September, 1947 as a contract carrier for AEC, Carco, during the 13 months ended Jan. 1, 1949, flew 8712 passengers and 133,973 lb. of freight without an accident.

A second applicant, Val-Air Lines, Inc., Mercedes, Tex., operates seven single-engine, four-place Ryan Navions from the Rio Grande valley to San Antonio and Houston. From April, 1947, to Jan. 1, 1949, Val-Air carried 5475 persons 1,512,115 revenue passenger miles without an injury or fatality.

► **Equipment Poses Problems**—Some question exists as to whether the services as now conducted violate the Civil Aeronautics Act or the Civil Air Regulations, thereby inviting a federal crackdown. Val-Air admits frankly that it now carries some interstate passengers on its intrastate run, asserting that to police the operation against all such traffic virtually is an impossible task.

Civil Air Regulations now specify that single-engine equipment can be used in scheduled, interstate, common carrier, daylight contact flights if the planes were type certificated prior to June 30, 1942, and are found by the Civil Aeronautics Administrator to be safe for the operation proposed. Planes type certificated after that date and used in scheduled transportation must meet the stringent requirements of the transport category—an obvious impossibility for single-engine equipment.

► **Rule Changes Considered**—Modification of the rules covering single-engine aircraft is being considered by CAB. Further, the Civil Aeronautics Administrator has broad discretionary powers to sanction temporary feeder operations which do not comply strictly with the regulations.

Clark M. Carr, owner of Carco Air Service, plans to use his Bonanzas and D-18s until more suitable planes become available. Meanwhile, he states, "as long as authorized scheduled service is limited to daylight contact there is no technical, operational, safety or common sense justification for prohibiting the use of single-engine equipment while at the same time permitting its utilization on nonscheduled flights which can not be as closely controlled from the standpoint of supervision, maintenance, communication or route pattern."

Significantly, even certificated feeders using DC-3s are, for all practical purposes, often limited to daylight contact operations. Many of their intermediate points lack airport lighting and have, of necessity, been by-passed on some

PAN AMERICAN GETS STRATOCRUISER DELIVERY

Capt. Scott Flower (left), chief pilot-engineering for Pan American, receives from John Fornasero, chief of flight testing for Boeing, the log book of the first Stratocruiser delivered to PAA. Vernon L. Gardner, chief of the manufacturing inspection division for Civil Aeronautics Administration's seventh region, looks on.

flights, especially during the winter.

▶**Lightplanes Championed** — Val-Air also vigorously champions the use of single-engine equipment. S. H. Collier, president, points out that his Navions can provide service to airports not able to handle DC-3s. Dispersion of population in the Rio Grande valley and the large number of relatively small cities does not permit limitation of service to one of two central points with good-sized fields.

Val-Air's passenger rates average 6½ cents a mile, somewhat higher than current feeder fares.

The small group of businessmen that organized Val-Air decided at the outset that traffic would be light and would demand frequent service as well as several stops in the valley. Consequently, they procured equipment with capacity closely related to the expected passenger volume rather than the customary 21 or 24-passenger DC-3s which they felt sure would operate with most of their seats empty.

Val-Air says its experiment proves it is economically feasible to operate small equipment geared to the traffic volume in regular scheduled service. "The public does not demand DC-3 operations between all points," Val-Air asserts. "They accept and are satisfied with small plane services under such conditions as are present on the Val-Air system. The public responds not in proportion to the number of empty seats flown but in relation to need for the service and confidence in the operation."

▶**Cost Data Provided**—President Collier believes his company is providing cost data which can be used as a yardstick to test the reasonableness of costs shown by several certificated feeder operators which carry an average of two or three passengers per plane mile. "It is obvious," he told CAB, "that Navions could have handled the loads carried by Trans-Texas Airways, Wisconsin Central Airlines and Florida Airways."

He declared that Florida Airways, which has been operating since early 1947, has exceeded an average load of three passengers in only one month and then by only .07. Last September, CAB refused to extend Florida's temporary certificate beyond Mar. 28, 1949, because of the high mail pay subsidies which were necessary to support that operation.

CAB said that because of the light traffic, the government would have to pay Florida at least $58 in mail subsidy per passenger carried.

▶**New Planes Eyed**—Collier asserted that either Navions or the five or six-place equipment Val-Air expects to be available soon could handle the loads of several other feeders. Harry Bowen, Val-Air's Washington attorney, said the company is interested in several new aircraft, including the Baumann Brigadier, five-place, twin-engine executive transport which the manufacturer is hoping to be able to market for less than $25,000 (AVIATION WEEK, Nov. 22).

Carco agrees that suitable new light transports will be available within two years. The carrier bases its statement on current experiments with twin-engine models which are now undergoing engineering tests.

Val-Air's application for a certificate or exemption does not request authority to carry mail. The company plans to await the passage of new air star route legislation drawn up by the Post Office Department, which has indicated repeatedly that it is deeply concerned over the high cost of conventional feeder operations.

▶**Air Star Route Expansion**—Backed by Second Assistant Postmaster General Paul Aiken, the proposed legislation would permit setting up of 25 air star routes, all of which would probably be operated with small planes. At present, the Post Office is limited to five domestic air star route contracts in any given year, and these can only be let where transportation of mail by surface means is not feasible.

The new law would permit operation of air star routes where they are "preferable" to surface routes. The Post Office now has only two small domestic star airmail routes, both extending from the mainland to islands in the Great Lakes. In Alaska, the Department already has authority to award star route airmail contracts for services not covered by a CAB certificate.

▶**Carco Operation Unique**—Unlike Val-Air, Carco has asked CAB for authority to carry mail as well as passengers and cargo. Since November, 1947, Carco has been flying mail into and out of Los Alamos at no cost to the Post Office.

Currently operating under a New Mexico State Corporation Commission certificate, Carco's passenger fares average about 12 cents a mile. The 60-mile flight from Albuquerque into Los Alamos, now a city of 9000 population, takes about 30 minutes, compared to a minimum of 2½ hr. by surface transportation.

Los Alamos has no railroad and but one primary access highway. Its 3500 ft. airstrip (elevation 7130 ft.) will not accommodate large planes.

Carco now makes five roundtrips daily between Albuquerque and Los Alamos.

The manager of the Atomic Energy Laboratory is backing Carco's bid for a certificate.

NWA'S CONVERTIBLE DC-4

Nonscheduled operators on the Seattle-Alaska route ran up against some stiff new competition when Northwest Airlines introduced its combination cargo and tourist-class DC-4 last month. The plane, converted by Pacific Overseas Airlines, Ontario, Calif., is fitted with 30 standard seats and 26 fold-up seats. Each pair of folding seats swings against the wall into a compact package when not in use. This frees the forward part of the plane for cargo. Conversion of each pair of seats is accomplished without tools in a matter of seconds. When the seats are folded, their steel framework provides tie-down positions for cargo lashing. The 30 standard seats, which also can be removed, are separated from the cargo section by a curtain. Under the initial schedule of three flights weekly between Seattle and Anchorage, 14,000 lb. cargo loads were carried.

Northwest, PAA Feud Over Pacific Routes

More repercussions have developed from CAB and White House moves last year which culminated in the surprising certification of two carriers over a Pacific Northwest-Hawaii route that reputedly lacked sufficient traffic potential to support one operator.

Northwest Airlines has asked CAB to reexamine the situation and submit its findings to the President. The Board certificated NWA for the Seattle-Portland to Honolulu route last July. Early in October, President Truman directed CAB to grant a similar link to Pan American Airways in the interest of national security and the public welfare.

Both steps came in the face of a CAB examiner's finding that the route could not support even one certificated carrier without high subsidies.

▶**Real Motive Seen**—Northwest asserts that PAA is now revealing the real reason for its bitter battle to obtain a Pacific Northwest-Hawaii route. "It is obvious," Northwest declares, "that PAA is trying to secure a link across the North Pacific paralleling that awarded NWA and denied Pan American in CAB's Pacific route decision in the summer of 1946."

Only last month PAA asked CAB to amend its Pacific certificate to permit service between all Pan American coterminals on the U. S. west coast (Los Angeles, San Francisco, Portland and Seattle) and Tokyo, Japan, and beyond without any requirement of an intermediate stop en route. NWA argues that Pan American is now seeking to change its entire Pacific route structure through an unwarranted extension of the Presidential directive which gave PAA the Seattle-Portland to Hawaii route.

▶**Excessive Competition Cited**—Meanwhile NWA claims it cannot render efficient service on its Pacific Northwest-Honolulu run because of Pan American's competition. Northwest is operating three flights weekly and PAA two flights weekly over the link.

"PAA's operations have so diluted traffic as to be a serious handicap to our ability to increase flight schedules to achieve greater efficiency and economy," Northwest told CAB. "It is obvious even at this early date that the traffic available and to be developed over this route, as was clearly recognized by all, is only adequate to support one carrier."

Northwest asked CAB to eliminate Seattle and Portland from Pan American's Pacific certificate. This, NWA declared, will not result in serious injury to PAA and actually will serve only to rectify the grave injustice done Northwest through duplication of its Pacific Northwest-Hawaii route.

A sander followed by a three-jet weed burner conquered thick runway ice in recent tests at Minneapolis. The 2100-degree flame from the weed burner's nozzles fused the sand into the ice, providing good traction for plane landings and takeoffs.

Weed Burner "Sands" Runway Ice

Device lessens "no-traction" hazard by melting ice which has been pre-spread with a layer of sand.

A weed burner has been used successfully to overcome the hazards of runway ice at the Twin Cities' Wold-Chamberlain Field.

Sand spread across slick runways or taxiways by conventional means often fails to become imbedded in the ice and usually is blown off in a short time by propeller blasts. Preheated sand has been tried but has not proved entirely satisfactory because too much heat is lost in the spreading operation.

Faced by as much as two inches of glazed ice on Wold-Chamberlain Field recently, Airport Manager L. D. Hammond and Assistant Manager Roy A. Johnson decided to try a new stunt, and results were gratifying.

▶**Good Traction Provided**—Sand was impregnated into the ice with a three-jet weed burner. In two hours the 6000 ft. north-south runway provided fine braking and takeoff conditions, according to pilots.

The machine used in the tests was a Woolery Model PB-3 weed burner manufactured by the Woolery Machine Co., Minneapolis. It is a three-burner unit that covers an area 15 ft. wide. It burns either No. 1, 2, or 3 fuel oil at the rate of 50 gal. an hour. The machine was operated with burners about 18 in. above the runway, and the temperature of the flame was 2100 degrees F.

"Two methods of operation were tried," according to Johnson. "The first was to run the burner over the surface and then spread sand on the wet ice and let it freeze. The second method was to spread the sand first and follow with the burner, which literally fused the sand into the ice."

▶**Best Method Found**—Johnson considers the second process the more satisfactory since the sand itself, while in place, is heated to a high temperature so that a better impregnation results. The second method also proved better at Wold-Chamberlain because the sand spreader used operated at a much faster speed and could be kept well ahead of the burner. It is not necessary to integrate the burner and sand-spreader operations closely when the burner follows the spreader.

The burner yielded best results when moved at about three or four miles an hour. At that speed, sufficient heat was applied to the ice to create a thin film of water, which then froze again with the sand in a matter of minutes.

▶**Cost of Operation**—The burner was pulled by a field tractor, with one man on the burner and another on the tractor. The $1100 weed burner costs about $20 an hour to operate. Two men were used on the sanding truck. The 25 tons of sand put on the 6000 ft. runway, 90 ft. wide, cost about $30.

Sand remained in place until the ice on the runways disappeared through wear and evaporation. Johnson believes the heat applied to the surface of the glaze had some effect in causing it to break up sooner.

Flying Boat Sale

World Airways, Inc., New York, plans to sell its fleet of seven Boeing 314 flying boats plus maintenance equipment. Price reportedly is around $500,000. The irregular carrier, which was active on the New York-Baltimore-Puerto Rico run last year, used some of its veteran four-engine, 42-ton ships to handle upwards of 80 passengers per flight. Pan American Airways and BOAC originally operated the flying boats.

"Go-Show" Fare Cut Asked by Northeast

Northeast Airlines has asked CAB permission to sell unreserved seats at one-third reduction from the regular one-way fare between consecutive stops on its system. The innovation would make it possible for "go-show" passengers to travel by air at nearly ground transportation rates.

Under the plan presented for CAB approval, unreserved Portland-Augusta, Me., fare would be only $2.60 compared to $3.90 for reserved space; Boston-Concord, Mass., $3.06 compared to $4.60; and New Bedford-Martha's Vineyard, Mass., $4.06 compared to $6.10.

Unreserved tickets would be sold from the passenger's point of origin to the next scheduled stop of the flight on which he is traveling. The unreserved seats would be allocated at airport ticket counters on a first-come, first-served basis.

Financial Aid to PIA

Government of Peru has announced that it will extend financial support to Peruvian International Airways, which it describes as "the only nonsubsidized international scheduled air carrier in the world."

Details of the financial assistance have not yet been settled but are being worked out between government officials and PIA representatives. Extension of Peruvian government support will, according to PIA, partially offset the "heavy U. S. government subsidies which have been enjoyed by our two principal competitors—Panagra and Braniff Airways."

Tariff Extended

Capital Airlines' skycoach tariff for the New York-Pittsburgh-Chicago route has been extended to July 31.

First 90 days test for the low fare "Nighthawk" flights, which began Nov. 4, found Capital's skycoach load factors staying far above the 50 percent break-even point. Aided by holiday traffic, load factors soared to an average of 77 percent in December. In January, normally one of the worst months of the year for Capital, average load factor for Nighthawk trips was 75 percent, a mark which exceeded company expectations.

Pay Hike at AA

American Airlines has reached an agreement with the Transport Workers Union (CIO) providing for an 8 cents an hour wage hike for maintenance and stores personnel throughout the U. S. The union had threatened to strike for a 16 cents an hour increase after originally demanding 28 cents (AVIATION WEEK, Jan. 31). The new agreement affects 4500 workers and is retroactive to the first of the year. Union officials said the hourly rate for the AA employes concerned now averages $1.72 and is the highest in the airline industry for such workers.

Southern Aircraft Declared Bankrupt

Southern Aircraft Co., Garland, Tex., which during the war produced an estimated $55 million in parts for bombers and fighters, has been declared bankrupt. Company had turned to peacetime manufacture of gas heaters and school bus bodies, and in April, 1948, had signed a contract to sublet part of its large plant on a 27-acre layout to a tractor manufacturer.

A meeting of creditors was set by a referee in bankruptcy for Feb. 15 at Dallas. A trustee then will be elected to conduct a sale of assets of Southern Aircraft at auction. Sale will take place Feb. 18.

Southern Aircraft began operation in March, 1941, and produced gun turrets, bomb bay doors, fins, stabilizers, wing sections and engine and auxiliary flight controls. It had a peak employment of 3200 persons.

Skycoach to S. A.

Pan American Airways plans to extend its New York-Puerto Rico air coach service down the east coast of South America Mar. 1.

The move will result in 20 percent fare reductions to all points served by PAA between New York and Buenos Aires. Fifty-two passenger DC-4s will be used for the coach service. No hot meals will be served. Coffee, fruit juices and rolls will be provided in the morning and box lunches with coffee and soup will be available at other meal times.

First-class passengers on the New York-Buenos Aires run fly 30-passenger DC-4s equipped with sleeperette seats. Air coach fare from New York to Buenos Aires will be $465 one way, compared with a new first-class rate of $560.

New Fare Pacts

Through fares from all points in United Air Lines coast-to-coast system to major cities around the world served by KLM Royal Dutch Airlines and Philippine Air Lines will become effective this month, subject to approval of the Civil Aeronautics Board.

Passengers will transfer from United

to KLM in New York, and to Philippine Air Lines in San Francisco and Honolulu. Major points served by the overseas carriers include Manila, Hong Kong, Shanghai, Amsterdam, Cairo, London, Prague, Rome and Paris.

New rates will provide passengers with joint fares slightly lower than regular fares.

United already has through fare arrangements with Air France, Scandinavian Airlines Systems, Swedish Airlines, Danish Airlines, Norwegian Airlines, Sabena and Pan American Airways.

Airlines Offering Low Fare Tours

Low fare round-trip and circle tours between eastern cities and the Carribean Islands at fare reductions of more than $100 are being offered by Pan American Airways in conjunction with two domestic airlines.

New excursion fares apply between cities served by Eastern and National Airlines—from Miami to New York—and the capitals of Puerto Rico, the Dominican Republic, Haiti, Jamaica and Cuba.

Passengers from any of the U. S. cities included in the excursion pattern can fly to Miami or New York—PAA's leading gateways to Latin America—by National or Eastern and to and from the islands by PAA clipper.

Islanders also can take advantage of the new fares to fly to and from the United States.

► **Round-trip Fare**—Fare is $180 for a round-trip or circle trip between the United States and San Juan, Puerto Rico, and $198 for a more circuitous route through the islands.

Both the $180 and $198 tickets are good for 90 days permitting stop-overs of varying length at any point en route.

Under the new plan, for example, a New York businessman can fly to San Juan, transact his business there, take another Clipper to Miami, and return later by Eastern or National to New York—all for $180; compared with a former price of $285.90 for the same circle tour.

The new round-trip fares are applicable to these cities served by National Airlines: New York, Newark, Philadelphia, Baltimore, Washington, Richmond, Norfolk, and New Bern and Wilmington, N. C.

Cities on Eastern Air Lines routes benefitting by the excursion fares: New York, Newark, Philadelphia, Atlantic City, Trenton, Wilmington, Del., Baltimore, Washington, Richmond and Danville, Va., Charlotte, Durham, Greensboro, High Point and Raleigh, N. C., Anderson, Columbia, Florence, Greenville and Spartanburg, S. C., and Atlanta.

► **KLM Excursion**—One European excursion bargain—a 16-day all expense ski tour to Switzerland—is being offered by KLM Royal Dutch Airlines in conjunction with Embassy Tours, New York City.

Group tours are scheduled to leave New York every Saturday beginning Feb. 19 with a choice of stay at St. Anton, Zuers, Lech, Kitzbuehel and Obergurgl. Tour offers the same arrangements to individuals leaving on weekdays.

Cost of the tour, which includes first class hotel accommodations, three meals per day, use of ski tows, ski instruction and round trip fare, is $775.

Suggest Rate Plan

A new system of passenger rates aimed at reducing ticket cancellations has been suggested to the airlines.

Carriers were urged to set-up two or more classes of air travel having rates scaled to the chances of arriving on time at the desired destination.

Plan was recommended by C. Earl Morrow at the annual meeting in New York of the American Society of Civil Engineers.

In a speech before ASCE's Air Transport division, Morrow reminded airlines that cancellations were estimated to have cost them $2 million in 1947. He offered the proposed rate system as a "partial answer" to this problem.

Morrow, who is chief planning engineer and field director of the Regional Plan Assn., Inc., New York, warned that unless carriers give more reliable service, people will lose the habit of flying—or won't acquire it.

In describing the proposed plan, he explained that class A schedules would be based on instrument landings and would be comparable with extra fare trains "which have the right of way on the tracks and which guarantee, more or less, an arrival on time at the desired port."

UMCA Cost High

The nation's smallest flag carrier—Uraba, Medellin and Central Airways—faces possible suspension of its certificate because of the high cost of the company's comparatively limited service. CAB's power to order inactivation again may be challenged in the case.

UMCA operates between Balboa, Canal Zone, and Medellin, Colombia. Pan American Airways, which owns all of UMCA's stock, early last year asked CAB authority to acquire the smaller carrier's certificate and property. Action on the PAA petition will be deferred pending a decision in the suspension case.

SHORTLINES

► **Air France**—Carried 7939 revenue passengers across the Atlantic during 1948 against 4813 in 1947 and 2390 in 1946. Freight carried on the route increased to 404,738 lb. last year, more than double the 1947 total. . . . Carrier has signed a contract with Lockheed Aircraft Service for the 8000 hr. overhaul of two DC-4s at LAS' Burbank, Calif., base and for special inspection of three other DC-4s at LAS' MacArthur Field, N. Y., base. All five planes were purchased recently from American Airlines.

► **Capital**—Plans to install a new-type General Electric flight recorder on one of its DC-3s under a test program directed by the Air Transport Assn. . . . Carrier may show a small net profit in 1948 as a result of recent mail pay increases.

► **Challenger**—Planned to start service to Casper, Wyo., early this month.

► **Colonial**—Has installed an integral passenger ramp on one of its DC-3s and plans to make the same door modification on its entire fleet shortly.

► **Panagra**—Has won an Inter-American Safety Council award for the fifth consecutive year. Company has flown 465,653,951 passenger miles during the past five years without a fatality.

► **Pan American**—Has been authorized to suspend service at Monrovia, Liberia, for two years.

► **Scandinavian Airlines System**—Is carrying 500 Estonian refugees from Gothenburg, Sweden, to Montreal, in ten special flight under arrangements with the Canadian Department of Labor.

► **Southwest Airways**—Has asked CAB permission to omit landings at intermediate points which have no traffic to be enplaned or deplaned by the time the plane is due. Empire Air Lines made the same request recently (AVIATION WEEK, Jan. 10). SWA said its planes would be available if last-minute traffic appears. The feeder declared its passengers become irritated when their plane apparently lands needlessly. Elimination of unnecessary stops would save both time and expense.

► **Strato-Freight, Inc.**—Has applied to CAB for a certificate to carry passengers and cargo between Newark and San Juan, P. R.; Newark and San Francisco; and New York and Los Angeles. Harry L. Francis, president of the irregular carrier, which is based at Bradley Field, Windsor Locks, Conn., said his company would provide air coach service on these routes at below prevailing fares. Strato-Freight now owns one C-46 and leases another, both of which are equipped for air coach operations.

► **TWA**—Planned to file a registration statement with SEC early this month covering an offer to stockholders of 404,112 shares of common stock. Funds realized would be used for such corporate purposes as the management may determine. . . . Machinery and parts, destined mainly for European reconstruction, constituted nearly a fourth of TWA's international cargo shipments during the past year.

► **United**—Estimates it will save almost $250,000 annually as a result of employe suggestions made during 1948. Approximately one-fourth of the 5740 suggestions offered were adopted. Cash awards totaled $23,500.

► **Wisconsin Central**—Has been authorized by CAB to suspend service at Baraboo-Portage, Wisc., pending airport improvements.

MCA Report

Mid-Continent Airlines, on the basis of unaudited figures, had a net loss of $32,026 in 1948, compared to a net profit of $48,099 for the preceding year. J. W. Miller, president, pointed out that the results for the two years do not include amounts to which the company is entitled for transportation of mail on its Tulsa-Houston route from the time service was started on Feb. 1, 1947.

MCA believes it also is entitled to additional mail pay on its entire system during 1948 and that a net profit for the year will be shown when final rates are set. The carrier flew 313,901 revenue passengers 93,516,512 passenger miles in 1948 with a 58.42 percent load factor, compared with 269,189 passengers 81,983,036 passenger miles and a 61.87 percent load factor in 1947.

CAB SCHEDULE

Feb. 14—Hearing on Board's enforcement action against Nats Air Transportation Service. (Docket 3456.)

Feb. 14—Hearing on Board's investigation of National Airlines route transfer. (Docket 3500.)

Feb. 15—Oral argument on Board's proposed revision of nonscheduled exemption.

Feb. 21—Prehearing conference on Chicago & Southern Air Lines' application to abandon service at Bloomington, Peoria and Springfield, Ill. (Docket 3571.)

Feb. 21—Hearing on TWA's complaint against Pan American Airways' Saudi Arabian service. (Docket 3264.)

Mar. 1—Hearing on Florida trunkline service. (Docket 2215 et al.)

Mar. 9—Hearing on Board's enforcement action against Transocean Air Lines. (Docket 3244.)

Apr. 11—Hearing in reopened Hawaiian case. (Docket 851 et al.)

May 2—Hearing on additional southern transcontinental service. (Docket 1102 et al.)

SEARCHLIGHT SECTION

(CLASSIFIED ADVERTISING)

Continued on next page

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STRICTLY PERSONAL

IT'S GOOD FOR NAUSEA—We're not going to get introspective about it but the conductor of this column has just been placed on the mailing list to receive all the propaganda for Trip-eze, "a medicated chewing gum for motion sickness." Mr. **J. Sidney Wolf** is the PRO, and his multigraphed letter starts out "Dear Columnist . . ." He encloses a free sample of Trip-eze too, which we will keep in our desk, very handy at all times. Mr. Wolf has an answer for everything. It's Trip-eze. His form letter even suggests that you carry a handy packet with you and hand it out to everyone who uses that current expression of the bobby-soxers, "O, that's nauseating!"

* * *

JUST WORKING HER WAY . . . —**Larry E. Keil**, Chicago & Southern's supervisor of public relations, is just back from South America.

"At one airport I was approached by a very smooth-appearing young lady, fastidiously groomed, and capable of reeling off Spanish at machine-gun speed. With my best public relations foot well out, paralleled by my neck, I bowed and rolled out 'Si,si,' at every indication of a Spanish oral comma. This occurred near the customs desk, so when I was asked for 10 bolivares, or about $6.75, I assumed it was an entry fee again and dutifully shelled out.

"I now find I am the proud possessor of one year's subscription to Caracas' leading newspaper. All in Spanish. I can't read Spanish."

* * *

AN AIRLINE OF PILOTS—Can any other airline boast as many pilots among its executive force as Chicago & Southern? **Larry E. Keil**, public relations supervisor, emphasizes that **Carleton Putnam**, board chairman, owns and flies his own Bonanza and has an instrument ticket as well; **Sidney A. Stewart**, president, is a pilot with a record all the way back to World War I; **Junius H. Cooper**, v.p.-treasurer, is a licensed pilot, owning and flying his own Stinson Voyager, and **Keil** himself has held a certificate since 1928, and has about 7000 hours to his credit.

* * *

BRIGHT SAYINGS, BY HIRAM—We didn't know this column had any feminine readers at all till the other day one of our favorite lady publishing associates blurted out that **Hiram Wilson Sheridan's** contributions here embarrassed her. We had thought this was strictly a man's department, like Esquire, so this comment gives us deep pause. While we are pausing here is Hi's latest:

"On a recent trip on a Family Plan Day, the passengers—at least those within ear range—thought they were in on a record case of precocity. On my DC-6 there are two stewardesses and it is the custom for one to take care of the somewhat human cargo in the rear of the plane while the other looks after those toward the front.

"One of the stewardesses handed a little boy a drink of milk. 'Isn't the stewardess nice?' his mother asked him, while the stewardess picked up some of the papers from the floor.

In his piping voice he answered, 'I like the stewardess behind!' "

* * *

STORIES ABOUT LITTLE OLD LADIES—Two stories about little old ladies. **Roger Fleming**, Allison's public relations director, says the one he heard about asked the stewardess how much speed they were making. After giving the answer, the stewardess added, "If we had a tail wind we would be going even faster," so the little old lady said, "Gracious, why don't you have them installed on all your planes, then?"

And **Jack Kemp**, public relations chief of progressive Pioneer Air Lines, tells the one about the PAL pilot who was in the habit of leaving the cockpit after the plane was on course and got greeted by an elderly, nervous lady who pointed a bony finger at him and demanded, "Young man, you get back up in that engine room."

* * *

WHO CAN ANSWER THIS ONE?—**Boone Hartsinck** of Alvin P. Adams & Associates in Los Angeles asks if any reader of this column can tell us whether a certain story is true about one of Western's pioneer pilots, a Kelly.

"I have been told many times that the old time mail pilot once made a forced landing somewhere in the mountains way back when. He parked next to a canyon to be ready for a takeoff. Then he took a snooze. Waking up suddenly, he heard no engine, saw no airspeed, and only mountains outside, so he bailed out, breaking a bone. If true, it might make good reading." (We think it already has.)

R.H.W.

WHAT'S NEW

New Books

"Trade-Marks," by H. Bennett, technical director, Glyco Products Co., Inc., outlining principles of trade-mark selection, listings of trade-marks, and legal aspects. Published by Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. 510 pages, $10.

"Bibliography on X-Ray Stress Analysis," with subject index, by Herbert R. Dannburger. Published by St. John X-Ray Laboratory, Califon, N. J. 240 references, price $3.

"Rocket Propulsion Elements," by George P. Sutton, supervisor of rocket development, North American Aviation. Published by John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y.

New Films

"The Story of Airfreight," depicting progress of recent developments in air shipping, available through sponsorship of Slick Airways, Inc., San Antonio, Tex.

"Human Factors in Safety," six in a series, released by the National Safety Council to aid managements foreman training program. Further information available from National Safety Council, 20 North Wacker Drive, Chicago 6, Ill.

Trade Literature

"Metco News," volume 4, number 16, describes how metallizing saves money by rebuilding worn rolls. Available from Metallizing Engineering Co., 38-14 30 St., Long Island City 1, N. Y.

"Fansteel Selenium Rectifiers," a booklet designed to aid users of rectifiers to select, buy and use them properly. Available upon request to Fansteel Metallurgical Corp., North Chicago, Ill.

"Catalog No. 46-A," pocket size catalog on Guth fluorescent and incandescent lighting equipment, available upon request to The Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.

"Tenite Specifications," containing tables of physical properties of Tenite, Eastman cellulose ester plastics, in the various formulas and flows. Available upon request to Tennessee Eastman Corp., 10 East 40 St., N. Y. 16, N. Y.

"Resistance Welding At Work," a four-page folder, available from Sciaky Bros., Inc., 4915 West 67 St., Chicago 38, Ill.

"Bulletin RT-48," describing complete line of improved Dual-Ram surface broaching machines, available upon request to Colonial Broach Co., Box 31, Harper Station, Detroit 13, Mich.

ADVERTISERS IN THIS ISSUE

AVIATION WEEK—FEBRUARY 14, 1949

■

SEARCHLIGHT SECTION

(Classified Advertising)

EDITORIAL

Nonskeds and the News

(Just before resigning as American Airlines' president, Ralph Damon wrote the editor of Aviation Week about its news policy relating to nonsked carriers. The letter and our reply are presented below).

Dear Bob—I have read, "1948: Biggest Year for Nonskeds," appearing Jan. 3. I find myself somewhat confused and alarmed at the policy of your magazine; proposing by inference and quotation that the nonskeds are doing a good job from a safety standpoint. Actually, according to what records we have been able to accumulate, their record is worse than any period in the history of the scheduled airline operators and is about 15 times worse than the current scheduled record.

At one point, the article is in complete contradiction to itself. Under the heading, "Safety Record Improves," you state that "barring a mishap during the last week of December, the transcontinental nonskeds can point to their second successive year without a fatal accident." In the very next paragraph you refer to the DC-3 crash of Airline Transport Carriers, Inc. (a carrier which you identify in the opening paragraphs . . . as one of the largest transcontinental carriers) in which 32 people were killed.

The CAB investigated this accident . . . and on Aug. 12, 1948, released a report on its findings. If you have not done so, I think you will be very much interested in reading this report . . . (It) indicates, I believe, part of the problem about which we are speaking. We believe a 100-hour inspection requirement as presently enforced for nonscheduled operations is greatly inadequate for aircraft of airline transport type and yet you will note the operator involved did not observe even these limited regulations . . .

In another paragraph you state the transcontinental nonskeds conducted passenger operations equal to "only 10 percent" of that reported for American whereas these carriers' total personnel numbered "less than 3 percent of the American personnel." American Airlines well realizes that it can improve its efficiency in doing business and it is constantly endeavoring to do so by what it considers safe and reasonable methods. It has absolutely no intentions of adopting certain practices demonstrated by the nonskeds wherein tremendous savings can be accomplished at the direct sacrifice of operating safety.

You probably know that through Jan. 10, American Airlines had flown approximately 4 billion passenger-miles since its last airplane accident involving a passenger fatality. Let's admit we have been fortunate and also admit we have had some close calls not resulting in fatalities.

But so have the others in addition to their passenger-fatality accidents. Had American Airlines the same record as the nonskeds, it would have had 89 fatal accidents, resulting in fatalities to 1358 passengers and 196 crew members.

The American Airlines organization and personnel have worked hard for the safety record they have established. It has been accomplished by many expensive procedures. American Airlines is committed to a program of reducing the costs of air transportation to the public in every possible safe manner.

We shall endeavor to reduce these costs and pass the savings along to our customers as expeditiously as we know how, consistent with reasonable safety standards and the continuation of sound corporate practice. I know of no other course to follow, do you? R. S. Damon

American has always been a leader in the industry, and readers of this page know we have praised them and other scheduled lines when we felt they deserved plaudits.

Aviation Week is dedicated to reporting the news without fear or favor, and taking editorial stands for what it believes is in the public interest. Our policy is that simple. We have never by inference or quotation stated the nonskeds have been doing an excellent safety job. Editorially, we have criticized the overall nonsked safety record.

Mr. Damon's contention that the nonskeds' safety record as a whole is about 15 times worse than the current record of the scheduled operators is impossible to prove but we don't challenge it. As early as Jan. 27, 1947, we reported:

"Statistics covering only the largest uncertificated operators (in 1946) show that Sen. Brewster probably was conservative in estimating the fatality rate at eight times that of the scheduled lines."

This was based on Aviation Week's own studies. The story reviewed all the nonsked accidents in 1946. One sentence, based on our research, states: "With 67 known deaths as listed above the (nonsked) fatality rate would be 23.3 per 100 million passenger miles or 14 times the rate of the certificated airlines." Is Mr. Damon quoting Aviation Week's own research?

The story Mr. Damon refers to concerned accidents of nonscheduled carriers operating on a transcontinental basis.

The DC-3 crash of Airline Transport Carriers occurred on neither a transcontinental nor a nonsked flight for the public, but during a short, west coast trip made under a long-term contract with the U. S. Immigration and Naturalization Service. For the same reason, our story of Jan. 17, 1949, excluded from the certificated airlines' safety record for 1948 the crash of a chartered Northwest Airlines DC-4 at Mt. Sanford, Alaska, last Mar. 12, when 32 passengers and crewmen were killed. If we had considered this accident we could not have written our Jan. 17 headline, "Scheduled Lines Top Safety Record."

Since Mr. Damon's letter was written Jan. 18, he may not then have seen our Jan. 17 story, stating: "Safety record of the uncertificated operators (nonsked and contract) continued to lag behind that of the scheduled airlines last year," and the story listed crashes of ATC, Costal, Airborne Transport, and Seattle Air Charter. These were not transcontinental operators, and it is this category that has drawn the most fire from the scheduled carriers.

Further, on Jan. 17, we reported that the nonsked accidents "are causing considerable concern in industry and CAB quarters and may hasten the crackdown on nonscheduled flying activities." (The next paragraph praised American's record).

Mr. Damon suggests that we read the CAB report on the ATC accident, but Aviation Week published a story more than a column long on it Aug. 23, with the findings in full. Another air magazine frequently quoted by the scheduled airlines devoted about half a column to this report.

Mr. Damon does not challenge our accuracy, but he does not like the point made about the nonskeds operating with so few employes. We do feel that many of the scheduled lines are overstaffed, from their smallest stations to the headquarters offices. We do not hold any brief, however, for the opposite extreme in payroll size of the nonskeds. Somewhere there is a median for proper safety and public service. The efficiency and output per man and woman employed by the nonskeds, however, is remarkable.

Since the transcontinental nonskeds did not have a single fatality all through 1948 in their transcontinental operations, however, Mr. Damon's implication that any cuts in personnel cut safety cannot be proved.

We are sorry space prohibits listing here a batch of headlines of stories reporting in brutally candid fashion the safety problems of the nonskeds, appearing throughout 1948 in Aviation Week. Any reader who requests it may have the list.

We have praised the nonskeds too, as we have the scheduled carriers. But anyone seeking ammunition to fire at the irregular carriers, safety-wise, could have found it in the unprejudiced, factual reporting of Aviation Week.

We don't know how any impartial business magazine can please everybody. But it is a dead certainty that a partial magazine doesn't please everybody either. We do know, however, that generally speaking management of the scheduled lines are so sensitive that they want to read only good things about themselves and only bad things about the other fellow. Strangely enough, we cannot recall having received one complaint from an executive of a nonsked about a single story reporting the cruel, hard facts of safety in the irregular industry. We have found them far more realistic in facing facts, good or bad, and ready to stand or fall on their merits, and their public service, without government aid.

—ROBERT H. WOOD

the inside story of a MIGHTY ENGINE

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Here's the engine that powered the giant B-36 in its non-stop flight from Fort Worth, Texas, to Hawaii and back—a matter of 8,200 miles in 36 hours.

The Pratt & Whitney Wasp Major is a miracle of modern engineering. Packed in a space you can easily span with your arms is the power of 3,500 horses. So compact, so efficient is this mighty engine that it actually weighs less than one pound per horsepower.

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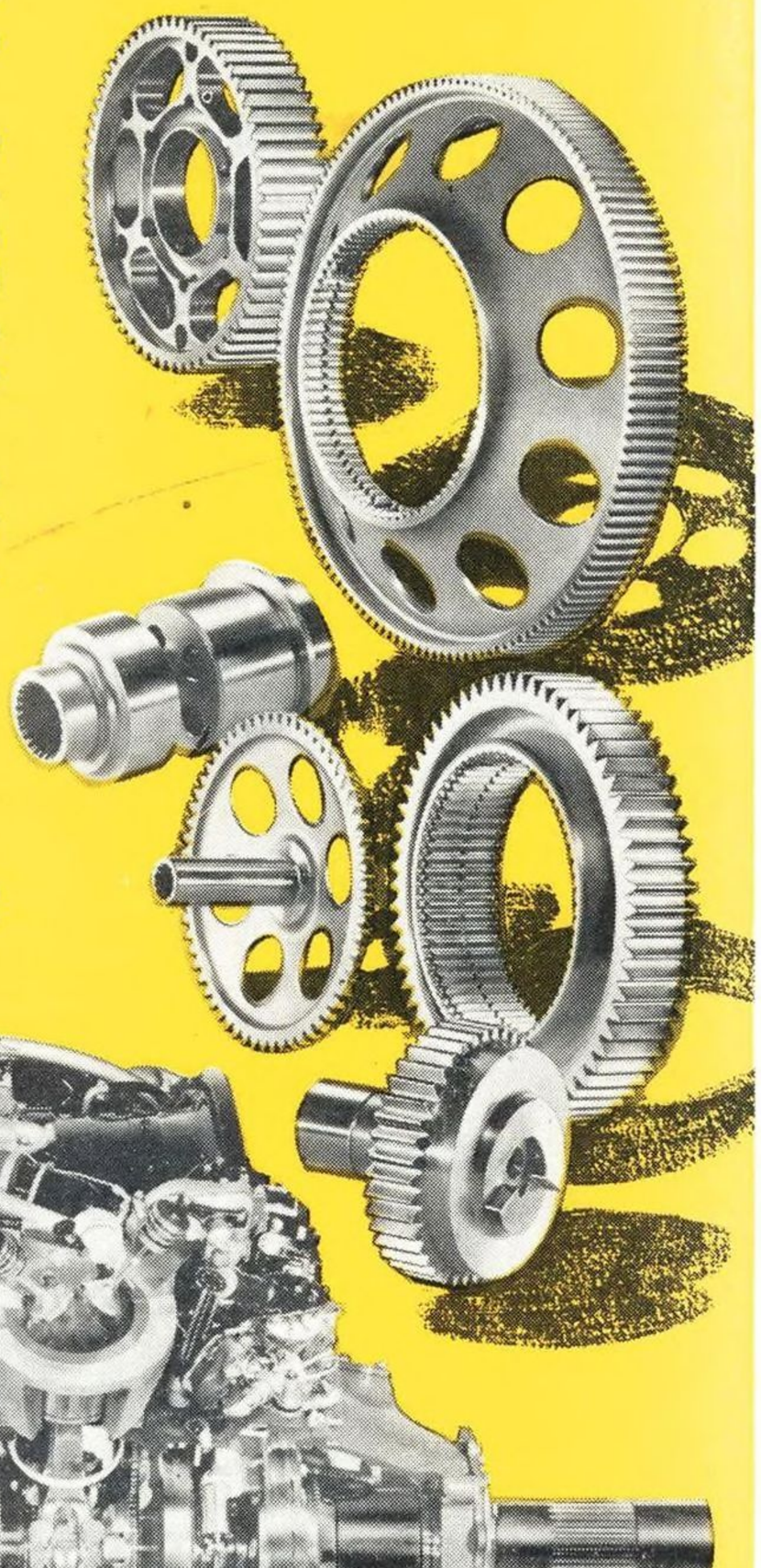

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