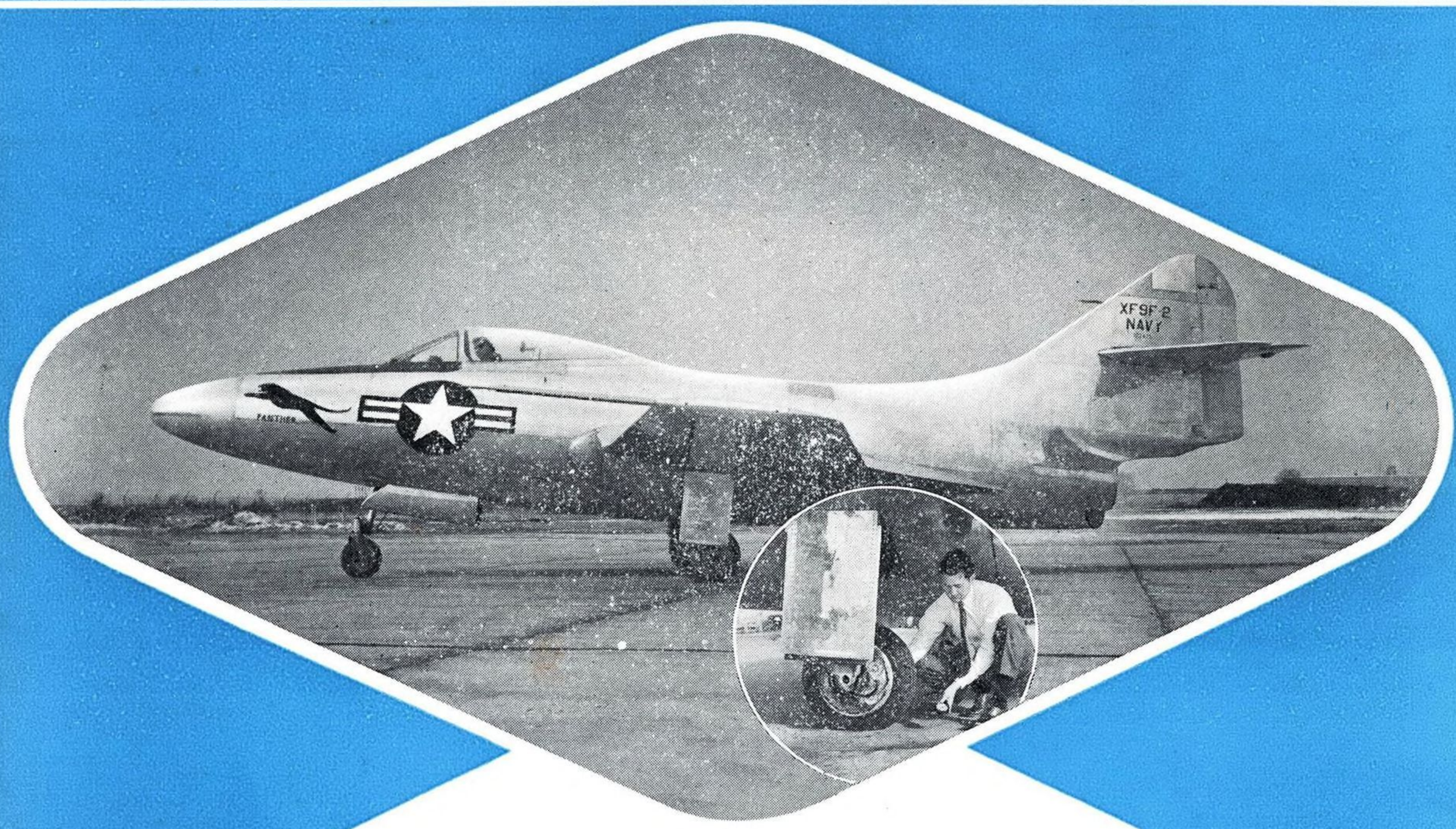
AVIATION WEEK

A McGRAW-HILL PUBLICATION

JUNE 28, 1948




# Picked for the Panther

(XF-9F)

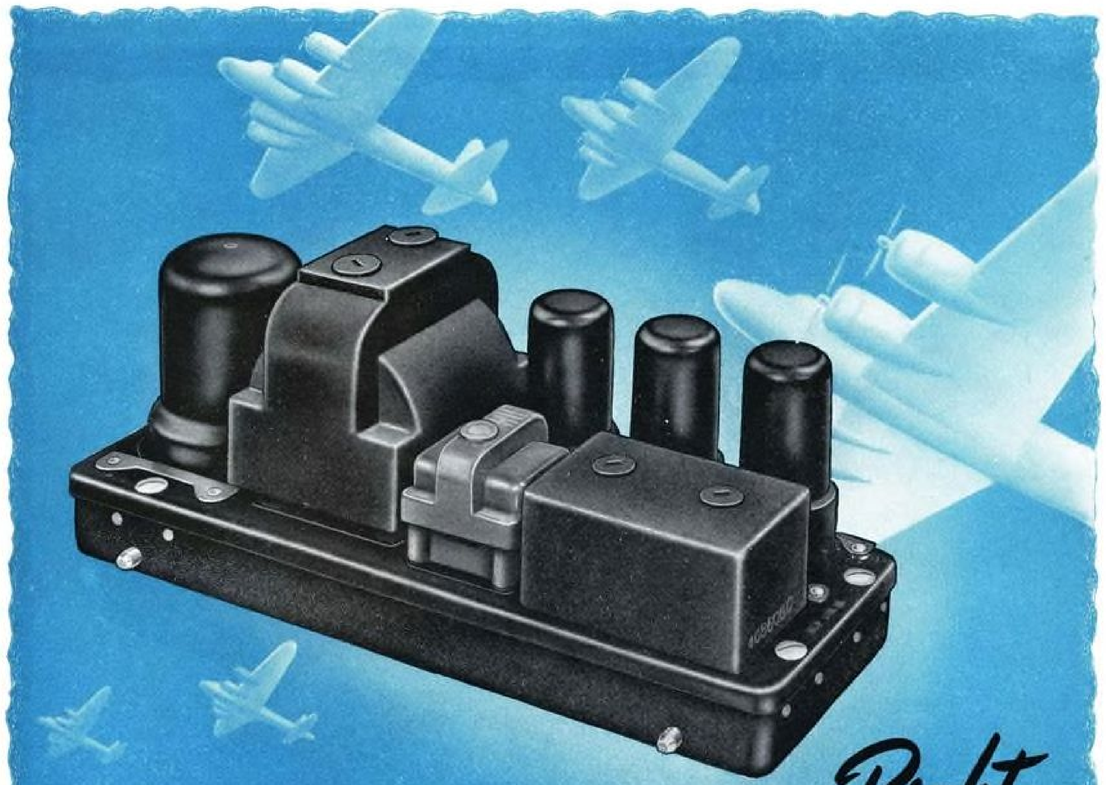
Grumman picks Goodyear landing-gear equipment to take the terrific shock of landing the Panther on a Navy carrier's crowded flight deck — *Goodyear wheels, brakes, tires and tubes,* because aircraft manufacturers and airline operators alike know that these tough Goodyear products are engineered for safety.

Goodyear wheels are made of lightweight, super-strength magnesium alloy — Goodyear Single Disc Brakes are time-tested, self-adjusting — Goodyear airplane tires and tubes are extra-rugged, longer-lasting. For the whole story, write: Goodyear, Aviation Products Division, Akron 16, Ohio or Los Angeles 54, Calif.

1898 GOODYEAR 50 ANNIVERSARY 1948

GOODYEAR AVIATION PRODUCTS

MORE AIRCRAFT LAND ON GOODYEAR TIRES



# SIMPLE, BUT ENGINEERED *Right*

THE amplifier on Honeywell's Turbo Supercharger is a typical example of how important improvements grow out of simplification that's backed by sound, practical engineering.

Focusing attention on every important detail, Honeywell Creative Engineering discarded the traditional louvered amplifier case. The transformer and Resistor-Condenser components are hermetically sealed and shielded with metal spray. These and other heat generating units are mounted in separate enclosures outside the chassis. Result: better heat dissipation, more protection from dust and dirt, less radio interference and greater resistance to humidity and temperature extremes.

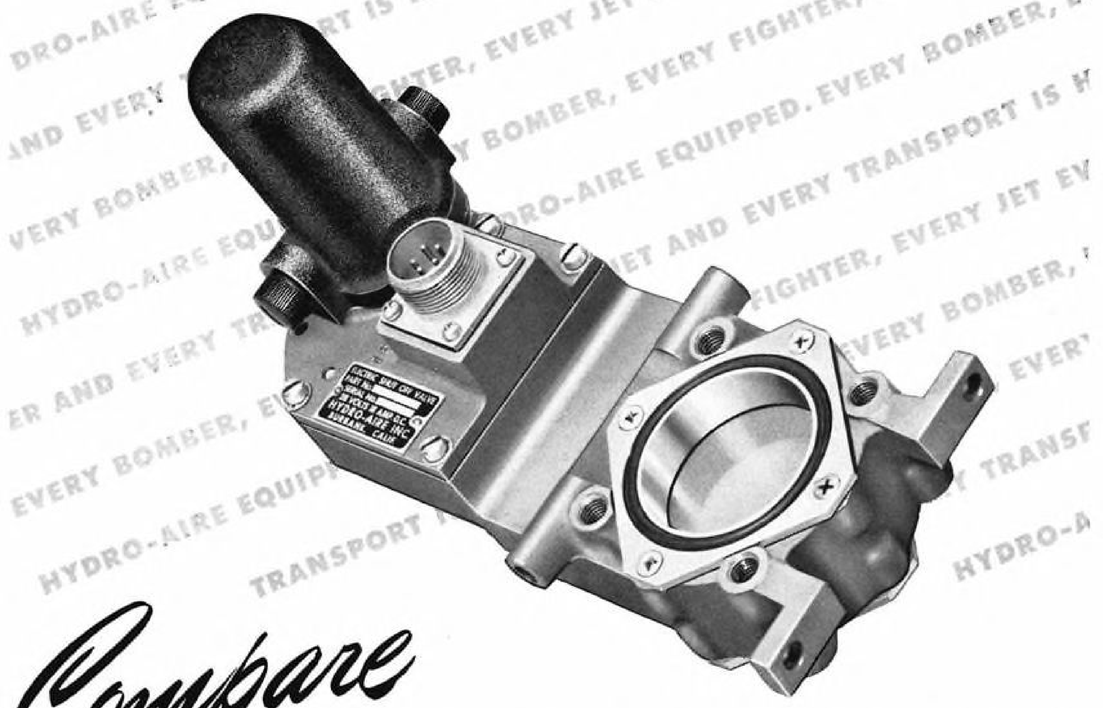
Here again, as with the Honeywell electronic Fuel Gage and Autopilot, is an instance where Creative Engineering brings benefits that can be recognized—benefits that pay out through greater dependability, lower operating costs, less maintenance. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Toronto 12, Ontario.

Simple in appearance—just as simple to service. A twist of the wrist removes tube housing. Wiring and connections underneath the chassis are completely accessible in a matter of seconds.

CREATIVE ENGINEERING

MINNEAPOLIS **Honeywell**

AERONAUTICAL CONTROLS



# *Compare*

## THIS NEW MOTOR OPERATED GATE VALVE

**ANOTHER OUTSTANDING ENGINEERING ACHIEVEMENT OF HYDRO-AIRE, LARGEST PRODUCER OF AIRCRAFT FUEL VALVES**

*Compare* the features. *Compare* the performance. You'll agree that this new Hydro-Aire Motor Operated Gate Valve, the culmination of over two years intensive research and development, is far superior on every count.

**SEALS EASILY REMOVED**

Seals are quickly and easily removed for servicing *without* the necessity of disassembling the valve—an important feature you'll find only in the Hydro-Aire Valve.

**SUPERIOR, LONGER-LASTING MOTOR**

Precision aircraft motor is designed for longer, more efficient life. Brushes are extra long, readily accessible. Ball bearing construction. Hardened and ground worm. Operates at normal voltage of from 18 to 30 volts. Meets requirements of Specification AN-M-10A.

***PLUS* THESE OTHER IMPORTANT FEATURES**

- **Approved for use in Army and Navy aircraft.**
- **Unaffected by dust, humidity or water.**
- **Explosion proof.**
- **Meets requirements of ambient temperature range from —65° F. to +165° F. and may be supplied for temperature ranges up to 550° F.**
- **Adaptable to extremely high pressures for fuel and engine oil systems.**
- **Operating time set to customer's specifications.**
- **Valve can be supplied to open fast, close slow.**
- **Two-way thermal relief valves may be incorporated if desired.**
- **Can be supplied with manual over-ride.**
- **Provision for indicating light in the pilot's compartment. (Will not operate unless gate actuates.)**
- **Long life.**
- **Easily serviced.**
- **Minimum weight.**
- **Design easily adaptable to special requirements.**

**Our development engineers will be happy to discuss specific problems with you. For full information write to Hydro-Aire, Inc., 3000 Winona Ave., Burbank, Calif.**

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BURBANK, CALIFORNIA • ANNAPOLIS, MARYLAND

ONE OF AMERICA'S FOREMOST MANUFACTURERS OF FUEL, HYDRAULIC AND PNEUMATIC EQUIPMENT

# AVIATION WEEK

Vol. 48 No. 26 — June 28, 1948







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# NEWS SIDELIGHTS

## Prototype Bill Dies

The highly - important legislation authorizing the government to finance research and developmental costs on prototype commercial cargo and transport planes missed Congressional approval by a hairsbreadth. Due to the efforts of Rep. Carl Hinshaw (R., Calif.) the House bill was unanimously approved.

Sen. Owen Brewster (R., Me.) obtained the okay of Senate leadership to bring up the Senate bill. After waiting approximately ten hours for a filibuster over metals subsidies by Sen. James Kem (R., Mo.) to wear out, Brewster finally obtained the floor at 6 a. m. on Congress' closing day to urge passage of the prototype bill.

Majority of senators were set to approve it.

Because the House had already voted to adjourn, Brewster had to obtain unanimous consent that the Senate act on the House bill, instead of the identical Senate bill. (A measure must be approved by both Houses before being forwarded to the White House.) Two senators blocked the substitution of the House bill for the Senate bill: Delaware's GOP Sen. John Williams and Florida's Democratic Sen. Claude Pepper.

## Keynote Blast

Further indications that Republicans plan to make a campaign issue out of the Truman administration's policy toward air power came in the speech of GOP convention keynoter Dwight Green, Governor of Illinois.

In his opening blast of the Philadelphia convention, Green accused the Truman administration of "surrendering supremacy in the air" despite "willing appropriations by the Congress for national defense." Green also accused the Democrats of failing to secure the necessary air and sea bases vital to defense of the United States.

## Airport Monopoly Fight

The airlines lost their bid to prevent exclusive fuel concessions at public airports when Congress adjourned this month without acting on an anti-monopoly bill backed by the Air Transport Association. But the carriers might well be happy that time ran out on the lawmakers.

Before the adjournment, Senators Saltonstall and Lodge and Rep. Heselton, all Massachusetts Republicans, were pushing bills directly counter to the legislation sought by ATA. The Massachusetts congressmen want to prevent the Civil Aeronautics Administrator from attaching strings to Federal Airport Fund grants which would interfere with the airport operators' freedom to make monopoly contracts. The battle will probably be renewed in the next session of Congress, and the airlines may then find themselves almost completely on the defensive.

### Key Advisers

When the military aircraft procurement program comes up for its first Presidential review next September, the views of Defense Secretary Forrestal will loom large in final disposition of some $300,000,000 in unallocated procurement funds already authorized by Congress.

Forrestal has quietly gathered his own group of aviation advisers on whom he relies when conflicts between the Air Force and Navy wax hot. This group includes John McCone, former member of the President's Air Policy Commission; Grover Loening, formerly consultant to both the Presidential and Congressional air policy groups; Arthur Raymond, vice president, engineering for Douglas Aircraft Co.; and Nicholas Ludington, former airline executive.

## Burnelli vs. Northrop

Lively controversy over relative merits of flying wing type aircraft featured Senate Appropriation Committee hearings on the Air Force bill. Vincent Burnelli self-styled inventor of the "flying wing" and his test pilot Clyde Pangborn made a strong attempt to sell their Cancargo Loadmaster (AVIATION WEEK, April 26) to the committee.

They were introduced by Rep. Ross Collins (D., Miss.) and presented a letter of testimonial from Gen. H. H. Arnold, former AAF commander. Burnelli told the committee that the Smithsonian Institute credited him with inventing the flying wing.

Smithsonian spokesmen denied they have so credited Burnelli. The Institute displays a 1:24 scale model of the 1922 Remington Burnelli biplane with a label stating only that it incorporates an airfoil-shaped fuselage containing passengers, cargo and engines near the center of gravity.

Maj. Gen. Franklin Otis Carroll, Air Materiel Command director of research and development, told the committee the Northrop Flying Wing had "absorbed all of the outstanding qualifications of Mr. Burnelli's airplane."

Northrop who has copyrighted the trademark Flying Wing recently received an Air Force order for 30 B-49 jet wings in addition to 2 YB-49s and 11 B-35 (piston-powered wings). Burnelli sought an Air Force development contract for his Loadmaster.

## More on Green

Behind the scenes of the recent Congressional battle which resulted in saving GI flight training on an occupational level, Gov. Dwight H. Green of Illinois, and his state aeronautics director, Bob Dewey, are credited with an assist. Republican keynoter Green has been a long-time aviation enthusiast and made a lot of new aviation friends at last year's aviation clinic at Springfield, Ill.

Green and Dewey convinced Senator C. Wayland Brooks of Illinois that he should carry the ball for veterans' flight training in the Senate, while two leading Illinois fixed base operators, John Wilson, Northbrook, and Art Curry, Galesburg, helped Brooks with ammunition for the scrap.

## State Aviation Analysis

Analysis of current state aviation legislation, made jointly by CAA legal department and Air Transport Association, shows 31 states now have aviation commissions, 10 have departments, and 12 others assign their aviation matters to existing state departments. Only two have no special department or commission to handle aviation.

Forty-six states require Federal certification of airmen, and 45 require Federal registration of airplanes. Twelve states have special aviation police, and 24 have special accident investigators. Aeronautics commissions or departments in 33 states have authority to construct, operate and maintain airports.

All but four states levy motor fuel tax. Only four states levy tax specifically on aviation fuel. In 16 states part or all of aviation fuel tax money paid is devoted to aeronautical purposes, full refunds are made in 22 states, partial refunds in 12 states, while 10 states grant full exemption from tax on aviation fuel.

# NEWS DIGEST

## DOMESTIC

**Squadron of Air Force** Boeing B-29 bombers will visit England from July 13 to July 31 at the invitation of the British Air Ministry. The bombers will visit RAF installations and engage in joint USAF-RAF exercises during the tour. DeHavilland Vampire jet fighters are scheduled to visit the U. S. this summer in an exchange flight.

**Douglas Aircraft Corp.,** El Segundo (Calif.) plant workers have declared their intention to strike unless the company can make satisfactory wage increase proposals. The 5000 members of the IAM demand a 30 cents an hour pay increase, sick leave, longevity pay and six paid holidays instead of four. The plant is producing Douglas AD-1 Skyraider dive bombers for the Navy.

**Maritime Commission** study of dirigibles for transocean commercial use was called for by Congress in a bill sent to the White House.

**Capt. Charles Yeager,** first pilot to fly faster than sound, will attempt to reach 1700 mph. in the Bell X-1, Air Force announced.

**Lockheed Aircraft Corp.** announces orders totaling $4,000,000 for four Constellations, two each for KLM and Eastern Airlines.

## FINANCIAL

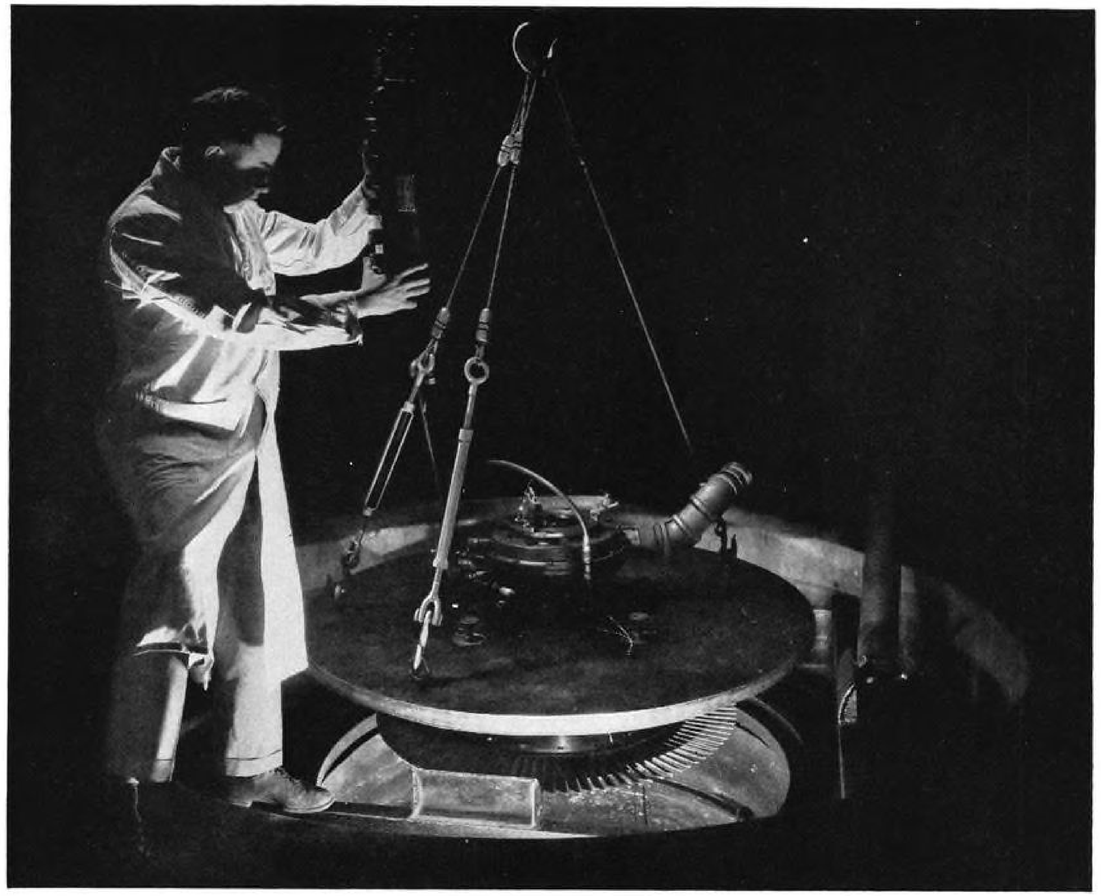
**Northrop Aircraft Inc.** reports $304,050 profit after taxes as of Apr. 30 for first three quarters of fiscal year. New contracts, including order for 30 jet Flying Wing bombers, have pushed backlog above $100,000,000.

**Consolidated Vultee Aircraft Corp.** is expected to call a stockholders meeting for first week in July. Meeting was to have been held earlier this year, was delayed to give Odlum management chance to shape policies. LaMotte T. Cohu, new Convair president, probably will give his program at July meeting.

## FOREIGN

**Aerovias Nacionales Del Sur,** Peruvian air line, has inaugurated regular service between Lima and other Peruvian cities using converted Curtiss Commando transports equipped to handle both passengers and cargo.

**British Overseas Airways Corp.** has begun flying boat service between England and Johannesburg for the first time in history. The 6350-mile route is flown by 35-ton Short Solent flying boats carrying 34 passengers and is made in five days with four overnight stops.







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# Keep GI Aviation Training, Congress Says

## Some cutbacks seen as result of required tie-in with "business or occupation."

A departing Congress left behind it last week a clear mandate to the Veterans Administration to permit veterans to elect aviation courses including flight training for use in their present or intended business or occupation.

After a long drawn-out battle in committees and joint conferences over a supplemental appropriation for readjustment benefits to veterans, the Senate and House finally settled for an amendment which said:

"Education or training for the purpose of teaching a veteran to fly or related aviation courses in connection with his present or contemplated business or occupation, shall not be considered avocational or recreational."

▶ **Purge Sport Flying**—Effect of the mandate on VA officials who have been "torpedoing" the GI flight training program consistently in Washington and in the regions may first be seen in the setting up of VA machinery to eliminate any future GI flight training not to be used in business which is "elected or commenced on or after July 1, 1948."

Simultaneous with the expected VA purge of "sport flying" on July 1, comes the letting of new aviation school contracts for the other types of aviation training which are to be used in the veteran's present or intended occupation.

Contracting has already started in some VA regional offices.

▶ **Contract Changes**—Principal change in the new contracts is expected to come from the recently adopted VA regulation, Part 36.287, which authorizes inclusion of advertising and administrative costs in a school's cost data for determining a fair and reasonable cost for a GI contract.

It is reported however that some individual school operators are already running into difficulties with regional offices which are refusing to allow cost data which includes these factors, in spite of the regulation which has been adopted.

▶ **Standard Cost Form**—In connection with the new contracts, National Aviation Trades Association announced that it was preparing, with the cooperation of Ernst and Ernst, nationally known accounting firm, a new set of standard accounting forms for use by aviation schools with GI training contracts.

Approval of the central VA Washington office on these forms has been asked but has not been received. The forms are to be circulated shortly, and may for the first time provide a standard point of reference between many schools in various sections previously hampered by regional VA office differences in interpretation.

▶ **Program Supporters**—Senator C. Wayland Brooks (R., Ill.) and Rep. William J. Miller (R., Conn.) were credited with being the two principal advocates of the amendment which saved GI flight training. Others cited as its strong supporters included Reps. Karl Stefan (R., Neb.); Robert T. Ross (R., N. Y.); Mrs. Edith Nourse Rogers (R., Mass.); Homer Ramey (R., Ohio); Joe Evins (D., Tenn.); Olin Teague (D., Tex.); Tom Pickett (D., Tex.) and Claude Bakewell (R., Mo.).

The amendment as finally passed had dropped a clause previously inserted in the Senate, which had called for the veteran to indicate his purpose of using his aviation training in his occupation. As the Senate originally passed the amendment it provided that he make such a statement, under oath. This was afterwards stricken, in the 2½ hr. House-Senate conference which led to the ultimate amendment.

A substitute amendment, which was reportedly sponsored by VA, would have required the decision to be subject to advice by VA counselors. Observers interpreted this as meaning that with the small number of VA counselors available for students who wished to elect flight training, only a small percentage of students would get through this "screening." This was defeated.

Various authorities in Washington last week estimated the number of veterans now taking aviation training from 200,000-300,000. Latest VA figures reported on enrollments, as of Nov. 1, 1947, (Webb Budget Bureau report) showed 119,400 veterans in flight courses at that time. This did not include enrollees in non-flight aviation courses, who are included in the current estimates. Washington observers were not ready to forecast how much the total number of veterans in aviation training would be curtailed after July 1, although some cutbacks were inevitable.

**WHEEL-SKI COMBINATION FOR C-82**

Retractable wheel-ski landing gear, developed by Federal Aircraft Works, Minneapolis, Minn., and the Air Materiel Command, will allow this big cargo plane to set down and take off safely and efficiently on either concrete or deep snow. Recent tests on a C-82 in Alaska have shown good performance and operational results. Gear will be valuable in event of future military activity in the Polar Regions.

# Budgets Pass

## USAF and Navy funds for fiscal 1949 almost double last year's sums.

Congress completed action on record-high peacetime Air Force and Naval Aviation budgets for fiscal 1949 before adjournment.

USAF's budget of $3,191,911,000 ($1,504,911,000 cash and $1,687,000,000 contract authorization) is almost double the service's 1948 fiscal year budget of $1,259,272,000 ($829,272,000 cash and $430,000,000 contract authorization).

►**Navy Budget**—Naval Aviation's budget of $1,488,000,000 ($900,000,000 cash and $588,000,000 contract authorization) also is almost double the 1948 fiscal year budget of $749,000,000 ($501,000,000 cash and $248,000,000 contract authorization).

Largest increases were in funds for aircraft procurement and research and development. Allocations approved for general operations of the Air Force and Naval Aviation establishment, although above current-year funds, were trimmed by Congress below Budget Bureau recommendations.

►**Research and Development**—Although Congress did not specify the USAF appropriation for research and development, sufficient funds were allowed for general expenses for the service to move ahead with its planned $225,000,000 program. This compares with USAF's 1948 fiscal year allocation of $145,000,000 for research and development. The $110,000,000 earmarked in the 1949 fiscal year Naval Aviation budget for research and development compares with $75,000,000 for the 1948 fiscal year.

►**USAF Operations**—The $896,811,000 approved for USAF general expenses—the allocation includes funds for research and development— is $21,309,000 below the budget estimate based on a 66-Group program. It is, however, substantially above the $669,272,000 provided for the same activities for the 1948 fiscal year. House recommendation of $891,736,000 and the Senate recommendation of $904,811,000 for general USAF operations were compromised. Main effect of the Congressional cut will be to reduce USAF's civilian employment.

►**Naval Operations**—The $585,000,000 provided for Naval Aviation activities, other than aircraft procurement, compares with the $411,000,000 allowed for the same activities for the 1948 fiscal year. It is a decrease of $32,268,000 from the Budget Bureau's recommendation of $617,268,000. House proposed $575,000,000; the Senate, $605,000,000. In addition to the $110,000,000 earmarked for Naval Air Research and Development, the $585,000,000 will provide $25,000,000 for aeronautical instruments (Budget Bureau recommended $27,000,000) and $450,000,000 for operations and maintenance (Budget recommended $480,268,000).

The cuts mean that Naval Aviation will not be able to re-activate shore stations and expand its fleet of operational aircraft on the scale previously planned.

### United Withdraws

United Air Lines has withdrawn its application to operate helicopter routes in the Chicago area following lengthy presentation of argument.

**FRENCH HIGH ALTITUDE PHOTO PLANE**

First photos of completed S.E.1010 reveal clean, modern lines of the 36-ton craft which is to be used in aerial survey work for the French Institute of Geography. Four 1600-hp. Gnome-Rhone engines power the plane which has a 350-mph. top speed and 280-mph. cruising speed. It has a range of 1860 miles. Seven cameras are installed and a complete darkroom for film processing is carried. Note canted ailerons to provide maximum extent of wing flap area.

# United Crash

## CAB trying to determine if pilots were blinded by smoke, or asphyxiated.

CAB Safety Bureau investigators were exploring two principal theories last week after crash of a United Air Lines DC-6 Mainliner near Mt. Carmel, Pa.

Headed by Joseph O. Fluet, CAB Region One safety chief, investigators were attempting to determine whether the United pilots were blinded by smoke or asphyxiated by carbon dioxide from fire extinguishers as they made an emergency descent.

►**Emergency Descent**—The DC-6 was enroute from San Diego to New York and had been cleared to descend from 17,000 ft. over Phillipsburg to 11,000 over Allentown, crossing Sunbury range station at 13,000. Pilot's last radio report was made one minute after leaving Phillipsburg and stated an emergency descent was under way. Fourteen minutes later he crashed approximately 58 miles from Phillipsburg after striking high tension wires and transformers. Weather was good with broken clouds.

Testimony of eye-witnesses varied as to whether the DC-6 was on fire before it struck the power lines. Chemical analysis of the wreckage will be made to determine this fact. United and CAB personnel will also fly another DC-6 over the course of the ill-fated plane to determine visibility conditions from the cockpit.

►**Previous Grounding**—The DC-6 returned to airline service last March 15 after a six month grounding for extensive modifications to reduce fire hazards. There was no indication that the planes would be grounded again.

Four cases of engine fire have been reported in the DC-6 since March 15. All of these fires were successfully controlled and emergency landings completed with only minor damage.

►**Faulty Fuel Flow**—Cause of these fires were attributed by CAB to faulty fuel flow inducing engine surging. Automatic propeller governors failed to adjust to the surging and allowed the engine to run away from the props.

Fires that grounded the DC-6 last fall were attributed by CAB to overflow of gasoline during fuel transfer in flight from a safety vent into the airscoop for cabin heating and pressurization systems. Fuel safety vents were relocated and other extensive modifications made before CAA certified the airliner as fit for service again. At that time T. P. Wright, then CAA Administrator, endorsed the DC-6 in a public letter as "the safest airliner in the world."



**AIR FORCE SUPERSONIC PILOTS: Capt. Charles E. Yeager, Major G. E. Lundquist and Capt. J. T. Fitz-Gerald (left to right) stand in front of the Bell X-1. All three have flown faster than the speed of sound, and confirmed research results brought about by NACA experimentation of several years ago.**

# X-1 Flights Proved Research Data

## NACA work in 1943-45 called turn on all effects of sonic speed. High altitude is held as key to success.

All of the effects of sonic speed predicted on the basis of NACA research in 1943-45 materialized in the transonic flights of the Bell X-1. Degree to which they were experienced remains a closely guarded secret, however, and comprise the real research value of the tests.

Even the guarded statements of Air Force Captain Charles E. Yeager and NACA research pilot Herbert H. Hoover verified the accurately predicted aerodynamic affects of flow separation over the aft portion of the wing, downwash changes in tail load resulting in buffeting and control difficulties, shock stall of all control surfaces, tremendous drag increase accompanied by substantial lift increase and heavy, erratic loads on the pilot's controls. Magnitude of these effects was generally less than predicted, and the conclusion of no "undue" difficulties was substantiated.

►**Altitude Is Key**—Dominant factor in the success of the sonic attempts is the high altitude of the flights. Air density at the altitudes of the flights varied from one-third to as little as one-twentieth of the density at sea level with corresponding reductions in the air loads experienced. Although these loads were undoubtedly high, they did not approach the 120-ton load the X-1 is structurally capable of supporting. Whatever loads were encountered, their magnitude would be increased from three to 20 times by sonic flight at low altitudes and could well exceed even the strength of the X-1.

The speed attainable by the X-1 is determined only by the altitude it can reach before it exhausts its fuel. The rocket motor is a constant-thrust source of power delivering its 6000 lb. at sea level and at 300,000 ft., for example. The drag of the X-1 is a function of the air density which decreases with altitude. Air density at 300,000 ft., for example, is only one twenty-millionths of sea level. For this reason, a maximum speed flight of the X-1 would be an attempt to attain the highest possible altitude before the fuel was exhausted.

►**Air Launching**—This is one reason the tiny plane is launched from a B-29 at high altitude, thereby saving more than one-half of the available fuel. From this altitude of 30-35,000 ft. the X-1 can attain an altitude of about 60,000 ft. before its fuel is exhausted, and at this altitude the craft has a speed of about 1000 mph., or Mach number 1.5 under these conditions. At this altitude, the air loads on the structure are small due to the low density and the small size of the airplane.

While the initial supersonic speeds were made as pure speed runs, subsequent flights will test the handling characteristics of the airplane in various maneuvers such as sideslips and sudden movement of the controls followed by the pilot freeing his hands from them. The amplitude and frequency of the resulting oscillations and the rate at which these are damped by the airplane at sonic and supersonic speed will determine the stability of the airplane, one of the objects of the project. Maneuvers at supersonic speed have already been made and data obtained on stability, structural loads and control of the airplane.

# TWA Move Hints At New Financing

TWA has taken what may be the first step in acquiring new capital funds.

A call has been issued for a special stockholders' meeting to be held on Aug. 10. Approval will be sought to modify the present basis of conversion into common stock of TWA notes held by Hughes Tool Co. of which Howard Hughes is the owner. An increase in the authorized common stock from 3,000,000 to 4,000,000 shares also will be sought.

►**Present Basis**—At present, Hughes can convert his $10 million notes into common stock at any time up to June 2, 1956, at the average closing price on the New York Stock Exchange ten days previous to the day on which exercised. The lower the market price, the more shares Hughes stands to acquire. The floor is set at $5 par at which point 2,000,000 shares would have been exchanged for the principal of the notes.

The new proposition calls for immediate conversion at $10 per share. This would mean 1,000,000 shares of stock for the notes. Such a conversion would result in a drastic dilution of the company's existing equity shares. At present, there are only 986,018 shares of common stock outstanding.

►**Approval Expected**—Stockholders and the financial institutions holding other obligations of the company must approve these modifications. Hughes owns 46 percent of the now outstanding common stock, so no difficulty is anticipated. Upon conversion, Hughes would own about 75 percent.

Main purpose of the proposal is to remove the uncertainty as to the point of conversion by Hughes of his notes. But the requested authorization for new capital stock leaves the definite implication that new financing also is contemplated. Present authorized shares total 3,000,000. With the Hughes conversion, total issue still would be less than 2,000,000. Despite this, authorization for new stock, up to 4,000,000 is being sought.

SIKORSKY pilot Harold Thompson puts an S-52 on a court inside the Pentagon Building.

# Military Gets Close-Up of S-52

**Two-place Sikorsky helicopter demonstrates improved performance resulting from 245-hp. Franklin engine.**

New experimental version of Sikorsky Aircraft's two-place S-52 helicopter, powered with a six-cylinder 245-hp. Franklin engine, landed with no apparent effort in one quarter of the shrubbery-studded grass court inside the Pentagon Building last week. Shortly thereafter it took off from the enclosed area with equal ease.

The feat climaxed a demonstration tour of the experimental craft which included stops at Army Ground Force headquarters at Fortress Monroe, Va.; at the Quantico, Va., Marine Base; and Washington National Airport, before returning to the Sikorsky plant at Bridgeport, Conn.

► **Superior Performance**—Performance which surpasses considerably that of any other helicopter in its power and weight class is credited to the S-52 with the larger power plant. Earlier S-52 models have been commercially licensed with a 178-hp. Franklin engine (6ALV-168B3F).

The experimental version uses a Franklin XP-425-1 engine loaned by the Air Force. With it, the helicopter is credited with a top speed of 121 mph.; cruising speed of 103 mph.; and rate of climb of 1560 ft./min. at 50 mph. All this is with a gross weight of 2100 lb. This weight includes 605 lb. useful load.

► **Increased Load**—By increasing useful load to 805 lb., the performance drops slightly to 119 mph. top speed; 101 mph. cruising speed, and 1400 ft./min. climb. At maximum gross of 2700 lb., which includes a useful load of 1205 lb., the experimental S-52 will cruise at 98 mph.; have a top speed of 115 mph.; and a 1100 ft./min. rate of climb. Considering the weight empty, (1495 lb.) the useful load figure maximum is high.

Rotor blades are aluminum and are expected to be good for the life of the aircraft. This is in contrast to frequent replacements which are required for composite blades. Sikorsky has tested the blades thoroughly with built-in strain gauges. Tests on life expectancy will continue.

► **Plan Range Boost**—Ralph Alex, project engineer, who accompanied Harold Thompson, pilot, on the tour in the helicopter, says it is planned to increase the endurance of the experimental craft to 5 hr. by installation of additional tankage. Present 45-gal. fuel capacity is equivalent to 2 hr. 15 min. at cruising speed.

Prospects for commercial production of the S-52, either with the 178-hp. or 245-hp. engines, depend on prior military sales. At the National Aircraft Show in November, 1946, when the prototype S-52 was first exhibited, Sikorsky engineers estimated that the helicopter could be sold commercially for around $15,000 if they could be assured of 500 sales.

The manufacturer, however, is not likely to enter any quantity production program for commercial sales which would involve considerable capital risk in tooling, without assurance of some military contracts to help cover that risk.

► **Plan CAA Tests**—It is planned to conduct CAA tests soon to get a commercial license for the 245-hp. version of the S-52 in addition to the license already obtained for the 178-hp. version.

Improved performance shown by the experimental helicopter is believed by the manufacturer's representatives to make the craft a strong competitor for military liaison and personnel transport uses.

In its 2100-lb. gross weight condition, the experimental craft has an absolute ceiling of 20,600 ft.; service ceiling of 18,700 ft.; and hovering ceiling, without ground effect, of 8900 ft.

The craft will hover with ground effect at 12,200 ft. (Ground effect, or ground cushion, is defined as additional lift received by a helicopter when it hovers close to the ground, caused by the compression of air pushed downward by the rotor blades against the ground surface.)

At maximum gross weight (2700 lb.) absolute ceiling is 12,800 ft.; service ceiling, 10,900 ft.; hovering ceiling without ground effect, 1000 ft.; and hovering ceiling with ground effect (wheels clear) 3200 ft. Comparable figures for 2300 lb. gross weight are 18,000 ft.; 16,100 ft.; 5900 ft.; and 9200 ft.

## Revise Munitions Board

Munitions Board has been reorganized and given complete authority on all industrial matters in the National Military Establishment.

Executive committee that formerly directed board operations has been replaced by a single staff director, Lieut. Gen. Leroy Lutes.

Three assistant directors will work under Lutes: Maj. Gen. Patrick W. Timberlake, Air Force, director of requirements and facilities; Rear Admiral Roger Paine, Navy, director of materials and foreign trade; and Maj. Gen. Sidney P. Spalding, Army, director of procurement and manpower. Thomas J. Hargrave remains as board chairman.

Under its new authority delegated by Defense Secretary James V. Forrestal, the board is responsible for coordinating all plans, policies and activities of the services on industrial matters. This includes procurement production and distribution programs of all three military services.

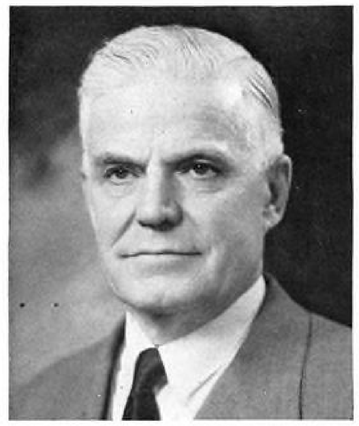
## Rentzel Acts on Dust

Administrator Delos W. Rentzel last week issued instructions prohibiting use of 24D dust from crop-dusting airplanes, following request of the Department of Agriculture to CAA. Restriction does not apply to 24D sprays or to insecticide dusts used against the boll weevil.

The request from Agriculture came after complaints of damage to cotton and other broad-leaf crops, from 24D dust which had drifted. Since crop-dusters must obtain CAA waivers in order to operate at low levels necessary, the prohibition is expected to be uniformly enforced.

Rentzel points out that injury to crops from dusting airplanes will hurt this branch of civil aviation and that he expects operators to cooperate for their own protection.





# Meet Barrows

**Undersecretary of the Air Force moved from hardware to planes.**

Two years ago Arthur S. Barrows retired at the age of 62 as president of the largest retail and mail order business in the country to "take it easy." Now as Undersecretary of the Air Force, Barrows is taking it easy by running the largest aircraft procurement program in peacetime history.

Barrows has been a specialist in hardware buying for 40 years. Last month he finished the tremendous task of buying $1,345,000,000 worth of the most complicated "hardware" he has ever encountered—new aircraft.

► **Talk Billions**—His work in the Pentagon now reminds Barrows of the Amos and Andy radio program where everybody talks about nothing less than "millions."

"Here in the Pentagon everybody talks about 'billions'," he said. "It's not quite as easy to tell how well you are doing as in the hardware business. There if I picked a poor hammer or saw for the catalogue the profit and loss statement soon showed if I had picked a lemon. Here the job is to pick aircraft now that will be the best in the world four or five years hence. I don't know how you can determine your profit and loss in this business except by who wins the war."

Barrows was born in Chicago, went to school at Oberlin, Ohio, and Yale University from which he graduated in 1906. His early ambition was to be a railroad man. Instead he had to pick between job offers from a construction firm in the Philippines and a Chicago hardware company.

He picked hardware and stayed with it for 40 years as a salesman, storekeeper, buyer and factory operator. Barrows was a rolling stone during these years traveling as a salesman through Ohio, setting up his own hardware store in Washington, Indiana and then another in Binghamton, N. Y.

► **Went to Pacific Coast**—In 1917 he went with Montgomery Ward as a division manager and later operated his own export-import business in San Francisco. He joined Sears-Roebuck in 1926 as merchandizing manager and in 1941 set up Sears new retail store system on the Pacific Coast. In this job he supervised 70 retail stores and two mail order plants.

He became president of Sears in 1942 and served in that capacity until early 1947. Sears has a regulation that all employes must retire at the age of 60. Because of the war, Barrows was permitted to stay on the job for two extra years.

But he wasn't ready to retire even at 62 so he took a job with Gen. Lucius Clay in Germany as chairman of the American section of a bi-partite economic control group. This group was supposed to regulate the economy of the British and American occupied zones of Germany.

► **Pleased With Job**—He was highly pleased when his old friend of 20 years standing, Air Secretary W. Stuart Symington, asked him to leave Germany and take on the Air Force procurement job. Barrows is skeptical of anybody's ability to become an aircraft procurement expert in six months.

"The army says it takes two years to train a GI and they are trying to make an undersecretary out of me in six months," he chuckles. "When I came to the Pentagon I didn't know the difference between a wing and a group."

Barrows sports a thick shock of white hair, alternates between cigars and a pipe and likes to peer into the future, making what he calls "guestimates." He also has some interesting ideas about the government and the aviation business.

► **Trouble With Government**—"The trouble with the government is that too many decisions are made at the top by people who don't really know what they are doing," he said. "In business most decisions are really made by men at the working level who are genuine experts in their field, and they are merely rubber-stamped at the top. Government would do better to have more of its decisions made by experts at the working level rather than sketchily informed men at the top."

The real issue in the current aircraft procurement fight was not the size of the Air Force but the rescue of the aircraft industry from oblivion, Barrows believes. If the industry had to wait until next fall for new orders, many manufacturers would have been forced to disperse their productive facilities to such an extent that an extra two years would be required to replace them.

As the situation now stands, Barrows believes, it will take about two years to build the industry up to a point where it can be readily expanded or maintained in a state of readiness for an emergency. Any cutbacks in aircraft procurement before that time merely will induce a new industry crisis, according to Barrows.

► **Buying Capacity**—Barrows points out that considerable money will be spent by the Air Force under its present procurement program to buy potential productive capacity in addition to new planes. This includes tooling and equipment needed for quantity production and encouraging subcontracting by prime contractors of major sub-assemblies to aircraft manufacturers who were unsuccessful in design competitions for planes. Barrows points out that subcontracting will boost the price of planes, but it must be charged up as a necessary cost in maintaining a broad industrial base for air power.

► **Tests Critical Stage**—His brief experience with the Air Force has convinced Barrows that the most important period in the history of a plane type is during test flying of its prototype. He is amazed by the number of "bugs" that inevitably appear in every new plane type and at the methodical methods by which most of them are eliminated during the test program.

Although serving under a Democratic Administration, Barrows is a voting Republican, and it is not inconceivable that he may stay on with the Air Force regardless of whether there is a change of administration next year. He is obviously a man who likes his job and who will never "take it easy."

## Planes for Sweden With U. S. Money

Sweden is going to get $3,330,000 from the U. S. to buy six DC-6s from the Douglas Aircraft Co.

About two-thirds of the money ($2,155,000) will come from the Export-Import Bank of Washington and the remainder ($1,175,000) from Douglas Aircraft and the National City Bank of New York.

The planes are slated for Aktiebolaget Aerotransport (ABA) and Svensk Interkontinental Lufttrafik Aktieboleg (SILA), Sweden's two international air carriers.

The $3,330,000 credit will mature semi-annually over a four-year period and bear interest at the rate of 3½ percent annually. It will be unconditionally guaranteed by the Sveriges Riksbank, Sweden's central bank.

# INDUSTRY OBSERVER

► **High cost of new type military planes is highlighted by recent Air Force estimates on replacement planes to be purchased under its modernization program. Boeing's B-50s will cost $2,200,000 each compared with a low of $500,000 for B-29s during wartime quantity production. North American's B-45 four jet medium bombers cost $1,800,000 each compared with the same company's B-25 wartime medium bomber cost of $250,000. Jet fighters are averaging around $300,000 although some models are now below a $200,000 unit cost.**

► USAF plans to buy 10 supersonic bail-out trainers to train pilots in techniques for bailing out at supersonic speeds and altitudes from 40,000 to 60,000 ft.

► **Bendix Radio Division, Western Electric and Collins Radio are competing for a slice of the joint Air Force-Navy program to convert service air-ground communications to ultra high frequencies. Planned to begin next year, the program contemplates a $23,000,000 expenditure during the next five years.**

► USAF now plans to use modified Boeing B-50s for its long-range weather, photo-reconnaissance, and mapping squadrons.

► **Pratt & Whitney R-4360 VDT engine is planned for production installation in the Boeing B-50C and is expected to bring the range of the strategic bomber closer to the magical 10,000-mile figure. By compounding the turbosupercharger with the engine, the energy formerly dumped through the waste gate is captured and fed back into the engine crankshaft. Fuel consumption is cut by 150-175 gal. per hr., thus increasing range up to 20 percent.**

► USAF is planning to create a special long-range striking force within Gen. George Kenney's Strategic Air Command. Maj. Gen. Frederic H. Smith, Jr., recently told a Senate Appropriations Subcommittee that this striking force will be equipped with six long-range bomb groups at 150 percent of normal strength and will include a tanker squadron for aerial refueling operations. Smith is an assistant to Maj. Gen. E. E. Partridge, Air Force director of training and requirements.

► **Boeing has retained its tooling on the B-29 and will make additional parts required for the B-29 modernization program. About 265 of the 2100 B-29s now in storage will be cannibalized to provide spare parts. Air Force still is debating whether to turn over additional B-29 modification to the Glenn L. Martin Co. and Bell Aircraft or attempt to do the work in Air Force depots. Both Martin and Bell made B-29s during the war.**

► Reports persist that the Northrop YB-49 eight-jet Flying Wing bomber successfully completed a 9-hr. duration flight some week prior to its destruction in a crash in California. This is about twice as long as any turbojet-powered aircraft has ever remained aloft and, at a cruising speed of 430 mph., would indicate the equivalent of a 3870-mile flight, very close to the 4000-mile range specified for the giant bomber. This range as well as the 9-hr. endurance is attained through the use of only four engines during the cruising flight.

► **Fairchild Engine and Airplane Co. has entered a bid for the helicopter assets of the Kellett Aircraft Corp., now undergoing Federal Court reorganization. Although the net worth of the Kellett assets is about $450,000, a substantial portion of this is in its present refrigerator manufacturing activity. Fairchild remains undecided about the future of its personal plane division and has been studying the helicopter field seriously for some months.**

► McDonnell Aircraft Corp. has contracted with Pacific Airmotive Corp. to furnish maintenance personnel, modification and repair facilities for the XF-85 flight test program at Muroc Air Force Base, Calif. This arrangement intrusts the job of handling the tricky XF-85 during its initial Air Force demonstrations to a separate group under contract.

## No Jets for Holland

(*McGraw-Hill World News*)

AMSTERDAM—The Committee of the Netherlands Institute for the Development of Aviation issued a negative report on the possibility of jet aircraft construction in Holland. The Committee stated that for the present there is no future for any industrial venture in the jet field in Holland.

A pessimistic outlook was also held regarding development of the Dutch aircraft industry in general. Fokker, the report disclosed, had to abandon plans for the serial construction of the P-1 "Partner" business aircraft, due to lack of marketing possibilities at the current price.

This is also true in reference to building civil aircraft for KLM, which thus far has opposed government pressure to give priority to the Dutch industry. KLM is fully satisfied with its American planes. Nevertheless negotiations with Fokker are continuing.

Fokker has obtained a definite order to construct a freight plane.

## AVIATION CALENDAR

**June 27-30**—Annual convention, National Aeronautic Association, Hotel Radison, Minneapolis, Minn.
**June 30-July 11**—National Soaring Contest, Elmira, N. Y.
**July 2-9**—Second National Air Tour Week, United Pilots and Merchants Association.
**July 4-5**—Annual National Air Show, Port Columbus, Columbus, Ohio.
**July 6-7**—National Association of State Aviation Officials, Committee and Directors, Colorado Springs, Colo.
**July 8-9**—N. Y. State Aviation Council Semi-Annual Meeting, Mark Twain Hotel, Elmira, N. Y.
**July 12**—IATA administrative subcommittee, New York.
**July 13**—ICAO North Pacific regional meeting, Honolulu or Vancouver.
**July 15-16**—Institute of Aeronautical Sciences', annual summer meeting and dinner, Hotel Ambassador, Los Angeles.
**July 16-24**—Airport construction equipment display, American Road Builders Association, Soldiers Field, Chicago.
**July 17-18**—National Trading Day and All-Dixie Air Show, Chattanooga, Tenn.
**July 19-31**—International Sailplane contest, Samaden, Switzerland, open to U. S. contestants through National Aeronautic Association.
**July 22**—AIA Personal Aircraft Council Meeting, Detroit, Mich.
**July 23, 24, 25**—Midwest Soaring Contest, Toledo, Ohio.
**July 24-Aug. 1**—Southwestern soaring contest, Grand Prairie, Tex.
**July 26-27**—California Aviation Trades Assn. annual state convention, San Diego, Calif.
**July 31-Aug. 8**—International Air Exposition, New York International Airport (Idlewild), N. Y.
**Aug. 18-20**—Society of Automotive Engineers, West Coast meeting, St. Francis Hotel, San Francisco.
**Aug. 24**—ICAO African-Indian Ocean regional air navigation meeting, Seattle.
**Aug. 26-27**—International Wakefield Trophy Model Airplane Meet, Akron, Ohio.
**Sept. 4-6**—National Air Races, Cleveland.
**Sept. 5-11**—Seventh International Congress of Applied Mechanics, Imperial College of Science and Technology, South Kensington, London, England.

# ENGINEERING & PRODUCTION

JAM-UP AT BOEING FIELD: 19 B-50s and C-97s awaiting delivery or completion.

## Hope Dim for Boeing Settlement

**Court rejects Labor Board's effort to force company to bargain. No other quick end to deadlock seen.**

Another move by the Federal Government aimed at early settlement of the Boeing Airplane Co. labor dispute has failed, and the strike last week entered its third month.

National Labor Relations Board sought a temporary injunction to compel Boeing to negotiate with the Aeronautical Mechanics Union and when it was denied by District Judge John C. Bowen in Seattle any quick end to the strike seemed out of the question.

► **Federal Intervention**—One possibility for immediate solution remains: Some sort of Federal intervention instigated by the Air Force or the National Defense Establishment. In addition to its already heavy backlog, Boeing got additional orders for B-50s, making it one of the largest military producers—when it can again get into production.

Denial of the government's petition for an injunction opened the way for one or two other possibilities for resumption of large-scale production—but not soon.

► **Back-to-Work Drive**—The most easily tabbed result of Judge Bowen's decision is expected to be an upswing in the back-to-work movement. Even before the court action, the drive had gained strength, hirings averaging well over 100 daily. Total hourly employes now is placed at 3650, including 926 returned strikers.

Judge Bowen based his ruling on the company's contention that the union lost its status as bargaining agent when it went out on strike without giving the 60-day written notice required by the Taft-Hartley Act. In effect, this leaves no union for Boeing to negotiate with, and perhaps will bring more strikers back to work.

► **Teamsters Opening**—The company position, now formalized by the court, could also give the Teamsters' Union another opening to sign up some Boeing workers (AVIATION WEEK, June 7). The Teamsters' interest in the dispute was given recognition when the court permitted intervention at the hearing by the Warehousemen's Union, chartered by the Teamsters.

The Teamsters at the hearing sided with Boeing in charging that the strike is illegal. Attorney for the Warehousemen said that since Boeing workers now are without union representation, his union felt called upon to represent workers within its jurisdiction.

The Warehousemen do not claim jurisdiction over all 2000 hourly employes in jobs formerly held by members of the Aero Mechanics. But they do claim the right to represent more than 1000 of them and intend to ask NLRB for certification as the bargaining agent of these workers.

Importance of the Warehousemen's organizational efforts lies in the fact that Boeing president William M. Allen repeatedly has said he wants to bargain with a "responsible" union.

At the hearing President Allen testified that the strike had cost the company $1,000,000 in unabsorbed overhead, maintenance, taxes and other fixed charges. He insisted that resumption of negotiations with the Aero Mechanics would not end the strike, but prolong it.

### Chance Vought Move

Preliminary production work—on parts for the F4U-5—is expected to get under way in Chance Vought's new Dallas, Texas, plant early next month, although full-scale movement from Stratford, Conn., to Dallas will not begin until fall.

The move probably will be finished by April of 1949.

Meanwhile, 2000 housing units for CV workers are under construction near the plant and are scheduled to be ready by the time the major personnel shift begins. It is estimated that CV will move about 1500 employees from Stratford and hire approximately 1400 in the Dallas area.

The plant, which was occupied during World War II by North American Aviation, Inc., now is being remodeled for Chance Vought.

### Douglas to Build Feeder?

Douglas Aircraft Co. again is exploring the feeder airplane market. A feeder plane design proposal may develop before the end of summer.

Douglas representatives made a special trip to San Francisco to talk to Southwest Airways executives on their ideas for an ideal feeder transport. Robert J. Smith, president of Pioneer Air Lines, of Texas, already has visited Douglas headquarters at Santa Monica, and other feeder presidents are expected to confer with the manufacturer shortly.

There is some indication that conversations to date favor a 20-24 passenger design.

### C-W Management Wins

Curtiss-Wright Corp. management has won out over the common stockholders' committee which sought to elect an opposition slate of directors (AVIATION WEEK, May 17, 1948).

Chancellor W. W. Harrington in Wilmington handed down a ruling making permanent an injunction restraining the committee from reconvening its adjourned meeting of Apr. 21. The committee claimed to hold a majority of the proxies. It held its meeting in the same room and simultaneously with the regular annual meeting of C-W. Opposition leader T. Roland Berner said he would appeal Harrington's ruling.



***Report to the Industry***


# Newest Transport: Convair-Liner

**World's first twin-engine, pressurized airliner to go into service highlights lessons learned about economy, comfort, and safety.**

*Nearly three years ago, World War II ended. While many postwar planes were promised, only four new airplanes have gone into airline service.*

*They do not look remarkably different from prewar planes. They are different, of course—in hundreds of ways they are more reliable, comfortable, economical, and are safer. But many of those ways do not show.*

*The most recent postwar plane to go into airline operation is the Convair-Liner, produced by Consolidated Vultee Aircraft Corp.*

*Only in general configuration does the Convair-Liner resemble the transport planes of the thirties. Aeronautical science has registered such gains that a plane such as the Convair-Liner could not have been built in the thirties. The following article tells why.*

—

What makes a modern transport?

About 75,000 man-hours of direct labor have gone into each Convair-Liner by the time it leaves the San Diego factory of Consolidated Vultee Aircraft Corp. That is just fabrication time. By the time fabrication started, the toughest job—the design and engineering—had ended.

The manufacturer's aim was to produce a plane meeting as nearly as possible the requirements of many airlines. This meant an effort to utilize all applicable aeronautical engineering knowledge accumulated during many years.

As a result, the manufacturer believes no other twin-engine passenger airplane in service today has all the features of the Convair-Liner.

Power of its two engines is roughly equal to that of the four engines of the DC-4. Its cabin is pressurized. It is faster than any other twin-engine transport. It has unique servicing and loading features.

► **How It Began**—The DC-3 was an old airplane (obsolescent to some) when the war began. Already, airline engineers slowly were amassing details on what the successors should be like. These eventually were formalized as a group project in the Air Transport Association specifications for a short-haul transport. Several manufacturers drew designs of planes to meet the specifications. Some were built, some abandoned.

Consolidated Vultee had those specifications to go on, and some ideas of its own. It had a broad general background in airplane design, engineering and production. In the old days, Consolidated Aircraft had built the flying boats that were the backbone of Pan American Airways' first services. During the war Convair was the number two producer of airplanes (a dozen different types).

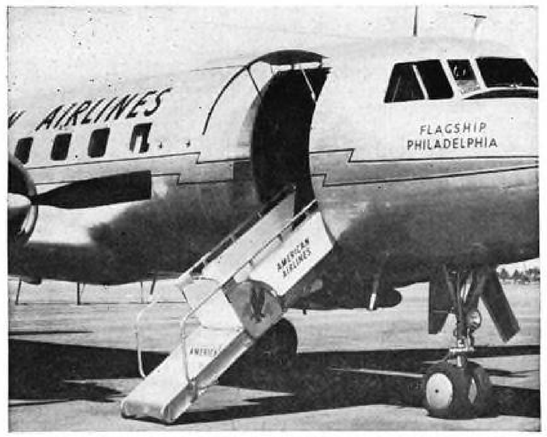
► **Prototype**—Convair put all the ideas into the Model 110. When this plane took the air on July 9, 1946, it was the first postwar twin-engine transport to fly. This was an experimental airplane; in a loose sense of the word, the prototype of what was then the Model 240 (now the Convair-Liner).

The Convair-Liner differs from the test Model 110 in several ways. The differences indicate what was learned from the 110. The Liner is pressurized. It has square windows (better visibility for the passenger) against the 110's round windows. The Liner has straight wings (better flight characteristics, easier fabrication) against the 110's gull wings. Its nacelles are more symmetrical, and it is heavier, slightly larger and 30 mph. faster.

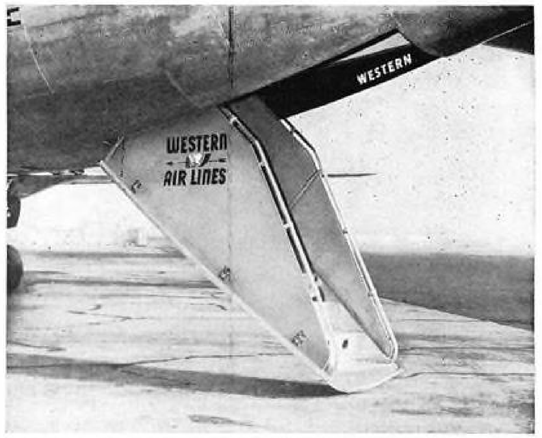
From the testing and demonstration of the Model 110 grew the finished design and production of the airline transport.

► **Purpose**—The Convair-Liner was designed for a specific usage: to carry medium-range and short-haul traffic. A tough service to make profitable in any field of transportation (because of the overhead of facilities at stops and the difficulty of obtaining economical overall speed due to frequent stops), short-haul is more worrisome in air transportation in proportion to aviation's higher overhead and operating costs.

Retaining air travel's prime benefit,




FORWARD integral stairway in American Airlines version of the Convair-Liner unfolds from within the plane as the door is opened. Door becomes a canopy, protecting passengers in bad weather.




AFT integral stairway, featured in planes of Western Air Lines, is lowered directly under the tail section. Unlike the forward stairway, door and steps constitute a single unit.

speed, even on short hauls requires faster planes—which usually means higher-powered engines. A high-speed plane with high-powered engines cruises most economically at 10,000 ft. or above. A slow climb and slow descent (for passenger comfort) can nullify the advantage.

The simple answer, for airlines to give up short-haul traffic, is no answer. Short-haul traffic is an integral part of a transportation system.

The Convair-Liner is an attempt to provide another answer. It has high speed to save the passenger enough time on a short trip to make flying worth while. It is pressurized to make possible fast climbs and descents, permitting most economical operation over the greatest part of the route.

Just how this is translated into balance sheet terms for an airline depends upon a manual full of variables. But it has been estimated by some research analysts that an operator could break even with a load of 20 to 25 passengers.

Some operators contend the break-even point can be lowered by cutting out the frills. But another purpose of the Liner was to provide economical short-haul transportation without sacrificing any of the old luxuries . . . and even adding a few. Past experience, the knowledge available in the industry, pointed to some obvious ways to do it. . .

## THE CONVAIR-LINER

| | | |
|---|---|---|
| Gross weight | | 40,500 lb. |
| Maximum payload | | 9300 lb. |
| 40 passengers and baggage @ 195 lb. each | 7800 lb. | |
| Cargo | 1500 lb. | |
| Maximum fuel capacity (two integral wing tanks) | | 1000 gal. |
| Average cruising air speed | | 291 mph. |
| (16,000 ft.; 1200 BHP/Eng.; demonstration wt. 38,000 lb.) | | |
| Maximum range (in addition to 200 mi. plus 3/4 fuel res.) | | 760 mi. |
| (1200 BHP/Eng.; 40 passengers and baggage; 10 mph. headwind) | | |
| Maximum CAR operating altitude with one engine inoperative | | 12,000 ft. |
| (1675 BHP/Eng.; demonstration weight 38,000 lb.) | | |
| Required CAR runway length for takeoff at sea level | | 4250 ft. |
| Required CAR runway length for landing at destination, sea level | | 4150 ft. |
| (maximum landing weight, 38,571 lb.) | | |
| Stalling speed at sea level | | 89 mph. |
| (Full flaps; power off; maximum landing weight, 38,571 lb.) | | |
| Weight empty | | 26,400 lb. |
| Maximum takeoff wing loading | | 49.5 lb./sq. ft. |
| Maximum takeoff power loading | | 8.4 lb./BHP |
| Wingspan | | 91 ft. 9 in. |
| Wing area | | 817 sq. ft. |
| Fuselage length | | 74 ft. 8 in. |
| Fuselage width and height | | 9 ft. 5 in. |

Engines:

| Two Pratt & Whitney R-2800 CA-18 | Torquemeter Power Per Engine (BHP) | Altitude FT. | Engine Speed RPM |
|---|---|---|---|
| Takeoff (wet) | 2400 | Sea Level | 2800 |
| Maximum continuous rating: | | | |
| Low blower | 1800 | 6000 | 2600 |
| High blower | 1675 | 13,500 | 2600 |
| Cruise power: | | | |
| High blower | 1200 | 16,000 | 2300 |

Propellers:

Hamilton Standard, 13 ft. 1 in. diameter; 3 blades; automatic full feathering and reversible; clearance to ground 12 in.; clearance to fuselage 17 in.

or

Curtiss electric, 13 ft. 1 in. diameter; 3 blades; automatic full feathering and reversible with auto-synchronization; clearance to ground, 12 in.; clearance to fuselage, 17 in.

### THROUGH WHAT HAS BEEN LEARNED. . .

**. . . About Convenience**

A delay of 15 to 45 minutes in boarding a plane, or in collecting luggage after arrival can be shrugged off as part of a five-or six-hour flight. It gets annoying on a one-or two-hour flight. Convair listened to passengers' and airlines' beefs and in the Liner tried to eliminate the causes.

The standard version (American Airlines) carries an integral passenger loading door as part of the forward section of the fuselage on the right side. The door swings up and the steps unfold down. There is no waiting for portable steps to be trundled out to the side of the plane. The raised door is a canopy over the steps. Both door and steps are hinged to the fuselage and work together. They are controlled hydraulically by a lever inside the entranceway. Solenoids (to prevent inadvertent opening of the door) installed in the latching mechanism are actuated from the flight deck. The door cannot be opened until the pilot or copilot signals "all clear."

The baggage nuisance is taken care of via large stowage racks on both sides of the aisle near the entranceway. The passenger can handle his own.

Provision for passenger loading varies in different models. Western Air Lines' planes have a passenger ramp that is lowered from the aft end of the fuselage. Those of Pan American have the door in the conventional rear location without integral steps.

► **Cabin Pressure**—Pressurization of the Convair-Liner was dictated by many considerations—principally the necessity (particularly in a short-haul transport) of climbing and descending rapidly, passenger comfort, economy of high-altitude operation, and the export market (where the planes normally would be operating over high terrain). But its use also highlights an advance in transport plane engineering.

Pressurization was used in the four-engine Boeing Stratoliner before the war, with indifferent success. During the war, development work on pressurization systems for military planes had to be intensified to keep pace with high-altitude operation. Result was the collection of a great deal of knowledge in this new field.

Since the end of the war only three U. S. pressurized commercial models have gone into service. Two are 4-engine planes. The Convair-Liner is the only twin-engine pressurized transport (one is being test flown in England, the Ambassador).

Pressurization adds weight and complexity to an airplane—weight of the equipment and the enormous job of making the pressurized parts (in the Liner the entire fuselage) air-tight.

Another complicating factor in the Liner—but which has been successfully overcome—is that the cabin air-conditioning system is linked with the cabin pressure system. The primary compressor furnishes power for both pressurization and cooling.

Result is that when the outside temperature is high a large amount of the power of the compressor must be used to cool the air going into the cabin air-conditioning system.

► **Pressure Range**—Pressurized air flows into the cabin of the Convair-Liner at about 20 cubic feet per passenger per minute. No air is re-circulated. With the airplane at 20,000 feet the cabin altitude can be maintained effectively at 9,700 feet. An effective sea-level cabin can be maintained to an airplane altitude of 7,300 feet. When the cabin is maintained at full pressure differential the refrigeration capacity may be reduced. However, the outside temperature generally drops with altitude. So this reduction of refrigeration capacity with altitude is not detrimental.

The AiResearch primary compressor is located within the trailing edge of the wing outboard of the right side of the fuselage. It is driven by two Vickers hydraulic motors operated by variable and fixed displacement Vickers pumps on the left engine and a fixed-displacement pump on the right engine. There is no mechanical connection between engine and compressor. This hydraulic system is separate from and independent of the airplane's main hydraulic system. Air is taken into the compressor through a scoop on the underside of the wing and pumped by the compressor into the cabin air ducts.

Operating the pressurization system is the copilot's job (temperature control is on the stewardess' panel). One dial controls rate of ascent and descent of cabin altitude in feet per minute; another is set for en route cabin altitude and the altitude of the airport of destination.

Operation is automatic and the copilot has a rate of climb indicator and altimeter which indicate behavior of cabin pressure.

PASSENGER CABIN, looking aft from the first row of seats. The 40 seats are of special Convair design, filled with Fiberglas. Five emergency doors, two right, three left, open inward.


"ORANGE-PEEL" COWL, a Convair innovation, provides full access to engine. Arrow points to forward end of exhaust augmentation tube. Two tubes from each engine channel exhaust.

## CONVAIR-LINER AIRLINES

(As of April 26, 1948)

| Purchaser | Routes | On Order | Type* |
|---|---|---|---|
| American Airlines | U. S., Canada, Mexico | 75 | A |
| Western Air Lines | U. S., Canada | 10 | B |
| Pan American World Airways | North and South America | 20 | C |
| Continental Air Lines | United States | 5 | A |
| KLM Royal Dutch Airlines | Holland and Europe | 12 | C |
| Trans-Australia Airlines | Australia | 5 | B |
| FAMA Airlines | Argentina and South America | 5 | A |
| Orient Airways, Ltd. | India, Afghanistan, Burma | 3 | B |
| Swissair | Switzerland and Europe | 4 | C |
| SABENA | Belgium and Europe | 6 | C |
| Central Air Transport Corp. | China, Indo-China, Siam | 6 | A |
| Northeast Airlines | U. S., Canada | 5 | A |
| Individuals | | 2 | Executive |
| Total | | 158 | |

| *Type | Loading Facilities | Baggage Compartments | Galley |
|---|---|---|---|
| A | Integral stairway; located on right side, forward of the wing | 1. Head of stairway<br>2. Beneath cabin floor<br>3. Aft of passenger cabin | Aft of passenger cabin |
| B | Integral stairway; located beneath the tail | 1. Head of stairway<br>2. Aft of flight deck<br>3. Beneath cabin floor | Between front baggage compartment and passenger cabin |
| C | Conventional door; located on left side, aft of the wing | 1. Aft of flight deck<br>2. Beneath cabin floor<br>3. Aft of passenger cabin | Between front baggage compartment and passenger cabin |

The operation works out so that the cabin altitude climbs slower than the airplane and also descends at a slower rate, but the passengers are breathing air equivalent to ground density some time before the airplane lands.

Convair tried some new tricks, (example: driving the compressor by hydraulics, rather than by a shaft from the engine) and used equipment unavailable before.

► **Sealing**—The area covered by pressurization in the Liner has a volume of 4218 cubic feet. Within that space are more than 30 openings for doors and windows, in addition to numerous passages for cables. Each of those has to be airtight. Main seals, those around doors, are hollow synthetic rubber tubes vented to cabin pressure so that the higher the pressure the tighter the seal.

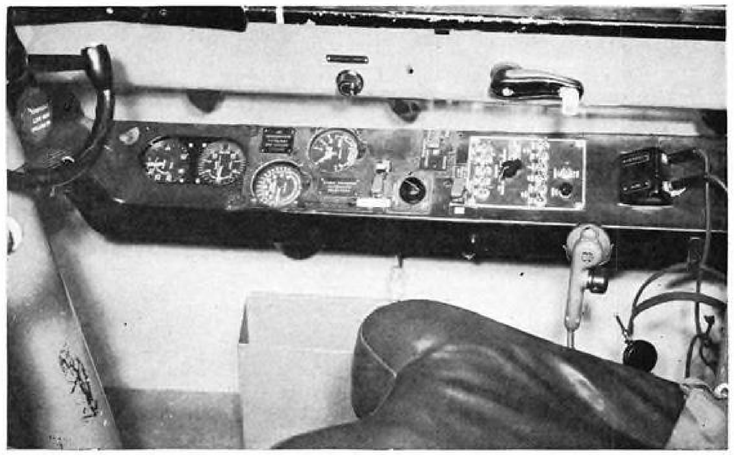
► **Fittings**—Interior appointments of the Liner use materials and processes of only recent origin—plus some ideas of Convair. Seats are springless and filled with Fiberglas. Convair developed these and tested them in its own laboratory to prove long life. Wall finishes and trim are a vinyl plastic, handsome, yet easy to clean. Curtains are flame-resistant gabardine. Individual ventilators above the seats were specially designed to be silent.

Many an experienced air traveler makes it a point in winter to use the aisle seat to avoid the chilly layer of air next to the outside wall. The Convair-Liner, like some other new transports, eliminates this with radiant wall heating. The heated air flows from under the cabin upward through ducts in the wall and enters the cabin above the luggage rack.

The heating method is tied in with another new development. Generally, all heat for a transport is supplied by auxiliary hot-air heaters operated by gasoline—in effect, miniature furnaces. The hot air flows to both cabin and wing and tail surfaces (for anti-icing).

Convair eliminates any possible trouble with these heaters by eliminating them. By using the augmentor tubes as heat exchangers, 100 percent fresh air is heated and ducted to the wing and tail surfaces for anti-icing. This same heated air provides the heat source for the cabin air-conditioning system.

► **Exhaust Augmentation, Cooling**—Primary purpose of this is to use the energy in the exhaust to increase the plane's speed and to cool the engines by pumping air across the power plant. This is a revolutionary method of cooling engines and is the first time it has been used in a transport. Convair's system eliminates conventional cowl flaps and their attendant troubles. One of the salient features of this installation is its high efficiency in ground cooling.



**CABIN PRESSURE** is selected by copilot through controls at dials seen third and fourth from left. Dials, left, give cabin "altitude" and climb rate. Rectangular switches control heat override, emergency depressurization, pressure shutoff.

Exhaust is collected first aft of the engine and hurled into bell-mouthed parallel tubes which run back to the trailing edge of the wing. Exhaust leaves the engines at about 1750 mph. A jet propulsion effect is obtained from a reaction of the mixture of high velocity exhaust gases and cooling air pumping through the tubes (two for each engine). This is estimated to increase speed up to 12 mph.

An incidental benefit from this arrangement is that exhaust does not touch the wing surface. According to American Airlines, this eliminates one cleaning worry. (Cleaning airplane skins is a delicate job; solvents strong enough to take off all grease stains sometimes are strong enough to start corrosion.)

**. . . About Servicing and Maintenance.**

Long and bitter experience has taught airlines and manufacturers the cost of keeping an airplane on the ground for servicing, maintenance, overhaul, weather, etc. The manufacturer's concern in these delays is primarily with the first three. With previous experience to go on, his aim is to design an airplane so that the things that need most frequent attention are easiest to reach.

The Convair-Liner shows that attention has been given to this particular aspect.

► **Service Doors**—There are about 300 access doors and panels in the Convair-Liner.

This large number is necessary for two reasons: an attempt to benefit by past experience; and the greater complexity of the modern airplane.

► **"Orange-Peel Cowl** — The general trend of manufacturers to make parts more accessible has been carried one step further by Convair. Usual engine cowls (from the firewall forward) are in two or four segments, one fastened to another.

To get to any point of the engine, the entire covering must be removed. One four-engine transport has improved on that by hinging top and bottom sections of the cowl at the firewall so that these two sections can be opened independently.

But one of the most striking features of the Liner is what has been dubbed the "orange-peel" cowl. All four sections are hinged to the firewall, can be swung open independently or all together.

Main advantages of this cowl are the ease with which it can be opened (four latches released by hand along each seam), and the complete access it gives to the engine (no interference from cowl or engine supports).

A small by-product of this type of cowl is protection from damage when opened. It remains attached to the firewall, in contrast to instances when sections of fully-removable cowls have been damaged when laid aside to permit work on the engine.

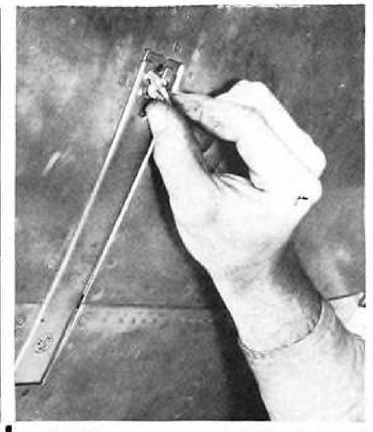
The same thinking guided Convair when it came to the small access plates scattered throughout wings and fuselage. These hang on retaining straps when open. They dangle out of the mechanic's way, but also out of the way of a foot or dropped tool. Instrument panel, which can be opened on the cabin side, also is fitted with retaining straps.

► **Wing**—About the only access point where the straps are not used is the wing leading edge from fuselage to nacelle. This is hinged at the top and when raised exposes engine cables, hydraulic lines, and engine and outer



**CLOSING COWL**, mechanic brings together two segments, and pulls out latch from recess. Next step is to fit latch . . .

. . . over centering pin in other segment of cowl. Pin prevents shearing movement between sections. As latch closes . . .



. . slot fits over wing nut. Latter is turned 90 deg. to lock two segments of cowl securely. Each seam has four latches.

wing wiring. From the nacelle to the wing tip, the leading edge can be detached by removing screws along the upper and lower edges. Wing tips, too, are easily removable.

Taking advantage, as have other manufacturers, of the large open areas in the nose and main wheel wells, Convair has placed there many of the items subject to frequent inspection or maintenance.

► **Servicing**—The orange-peel cowl, numerous access panels and other features are designed to quicken shop inspection and maintenancing. Convair has tried, also, to speed up the things that must be done while the airplane is at gate waiting for passengers.

All loading operations on a Convair-Liner can be conducted simultaneously. Entrances for passengers, passenger supplies, mail and cargo are widely separated so that activity at one does not interfer with any other.

Some versions have under wing fueling, others conventional fueling on top of the wing. Either way, refueling is calculated to take no more than five minutes.

One American Airlines representative believes servicing and landing time on the 40-passenger Liner can be cut to less than the 10 minutes his company generally allows for the 21-passenger DC-3.

**. . . About Safety**

In literally hundreds of ways—some hardly apparent—the Convair-Liner incorporates refinements dictated by the advance of aeronautical engineering, and the lessons of the past. But perhaps the most easily grasped are in the realm of safety.

Safety often is a matter of a simple thing done—or not done. An airplane fails to get off the runway at La Guardia, smashes into a culvert and burns. . . . A plane takes off from Copenhagen, climbs sharply, stalls, crashes, burns and kills a world-famed singer. . . . An airplane in smooth, level flight over Texas suddenly loops downward and is finally righted thousands of feet below.

► **Gust Locks**—All of those incidents stemmed from the fact that a plane in flight is controlled by freely-movable surfaces that, when the plane is on the ground, must be locked to prevent wind damage. In two of the instances, someone did not remove the locks. In the third, someone put the lock on in the air without informing the pilot.

A Convair-Liner cannot take off when those locks, "gust locks" are on. A long, wide bar attached to a brilliant red handle slides up over the throttle block. The throttles can be advanced far enough to develop power to taxi, but not far enough to give take-off power.

► **Power**—The full take-off power of the two Pratt & Whitney engines is itself a safety factor—and reflects the advance of aeronautics. The R-2800 engine before the war developed 1850 hp. at take-off. During the war the "water injection" system was perfected, and the basic engine improved until it produced 2100 hp. With a mixture of water and alcohol injected, the engine can develop 2400 hp. for regular takeoff operation.

That gives a total of 4800 hp. available for take-off—twice as much as is needed for the Liner to reach its best cruise speed in flight.

Those engines turn propellers (either Curtiss Electric or Hamilton Standard) that incorporate two other new aids to safety. The first is reverse pitch, another development which was experimental in the thirties and only proved acceptable during World War II.

Safest practice with any large, heavily-loaded airplane is to allow greater runway length for landing than for take-off. There is the possibility of misjudging speed and rate of descent, possibility of slippery runways, possibility of brake failure.

► **Reverse Pitch**—Reversible-pitch propellers reduce or eliminate the hazard of those conditions. The landing roll of a heavy transport can be reduced nearly 50 percent by reversing the propellers as well as applying the wheel brakes. On icy runways, reversing is the best control possible.

With the commercial system of reverse-pitch propellers (used in several other airplanes as well as the Liner), it is impossible to reverse the propellers in the air. The propellers are reversed by pulling the throttles back from the neutral, or idling position.

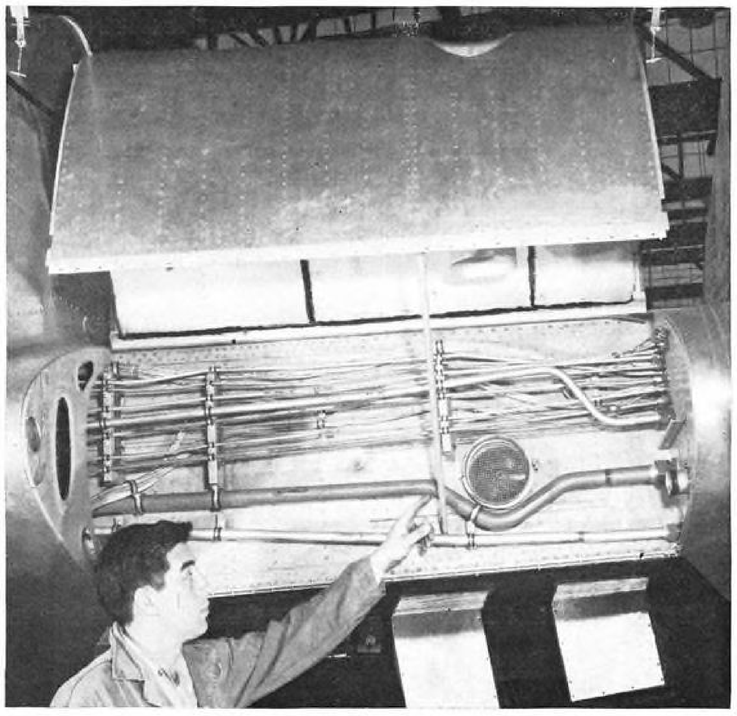
But a solenoid actuated by the landing gear will not permit the throttles to pass the neutral point unless the landing gear is down and the airplane weight rests on the gear. As long as the airplane is in the air, the pilot cannot reverse the propellers.

► **Automatic Feathering** — The second safety feature of the propellers is an automatic blade feathering mechanism. This was worked out by Convair engineers especially for the Liner, and only one other airplane has such a device. The genesis of automatic feathering is a prime example of taking advantage of previous experience.

Any multi-engine airplane is required to be able to take off and continue its climb with one engine inoperative. Failure of an engine during take-off can be critical but not necessarily dangerous.

It can be critical because of tendency

EASE OF ACCESS for servicing and inspection is afforded by some 300 plates and doors in Convair-Liner, similar to these opening in underside of wing. Strap lets plate dangle out of mechanic's way, yet keep it off floor. Another aid . . . . . is the hinged leading edge of the wing between nacelle and fuselage. Through this area pass engine cables, hydraulic lines and engine and outer wing wiring. Fasteners along lower edge are pried out, easily replaced when too worn to hold.



of the plane to "yaw" or swing toward the side of the dead engine or engines. The propeller of the dead engine, unless its blades are feathered (turned thin edge forward) will windmill and thus set up additional drag on that side and increase the yaw.

When an engine goes out, the pilot immediately feathers its propeller. But in the case of a heavy, powerful plane, the pilot's reaction to engine failure at take-off might be too slow to keep the plane in proper flight. While Convair-Liner yaw with one engine inoperative is imperceptible (virtually no displacement) increased performance gained by quickly and positively feathering the dead propeller is an undeniable safety factor. Thus the use of automatic feathering.

The "brain" of the automatic feathering arrangement is a small piston-like switch attached to the engine torquemeter, (which measures the horsepower being delivered). As power of the engine is increased, the piston moves forward. If power drops to zero thrust and the throttle has not been retarded the piston moves back and closes the switch. This automatically depresses the propeller feathering button. There is a timed delay of one and one-half seconds between power loss and feathering operation, to take care of momentary power losses and backfires.

▶ **Fire Protection** — There have been relatively few instances of fire breaking out in an airplane in flight. But a study of the cases that have been reported has taught engineers what parts of a plane should be protected. The Convair-Liner has a fire extinguishing system that can direct fire-smothering carbon dioxide at those vital parts: engine section, accessory section, nacelle, wheel wells, forward and aft cargo compartments, compressor section.

Flame detectors in the nacelles, accessory and compressor sections, and smoke detectors in the other places, warn the pilot and he can release carbon dioxide into the trouble spot. Four $CO_2$ bottles are located in underside of the fuselage forward of the wing. Each bottle holds 12.6 lb.

A Convair development is an ingenious switch which will show a light on the instrument panel if any of the bottles has lost pressure through accidental discharge or otherwise.

Throughout the passenger compartment flame-resistant fabrics and materials are used.

▶ **Ice**—One of the greatest hazards in the early days of air transportation seldom attracts attention any more. It is ice on the wings, propellers, windshield, tail section, and in the carburetor. It is still one of the most dangerous conditions in flying—when it occurs. Icing is becoming a rare occurrence on transport planes in late years for two reasons: more careful flight planning to avoid icing conditions; better equipment to combat ice.

Older transport planes have rubber de-icing "boots" along the leading edges of wings and tail surfaces. Inflated by air periodically when icing is encountered, these boots break the ice and the airstream carries it away.

That was a good practice in its day. But engineers now know better ways to combat ice. The cardinal principle is to prevent ice formation. This is achieved by heating the spots where icing might take place. Commonest practice is to heat propellers electrically, and to supply warm air to wing and tail surfaces by means of gasoline-burning heaters generally located in the nacelles.

The Convair-Liner uses hot air for anti-icing, but eliminates the gasoline heaters. The thrust augmentation tubes furnish all the hot air necessary.

They act as heat exchangers from which heated 100 percent fresh air is fed via ducts to wing and tail surfaces for anti-icing. The pilot can control the flow of this heated air so the surfaces will always have the proper amount of heat. The ducts from each engine join, so the system can work satisfactorily even though one engine fails.

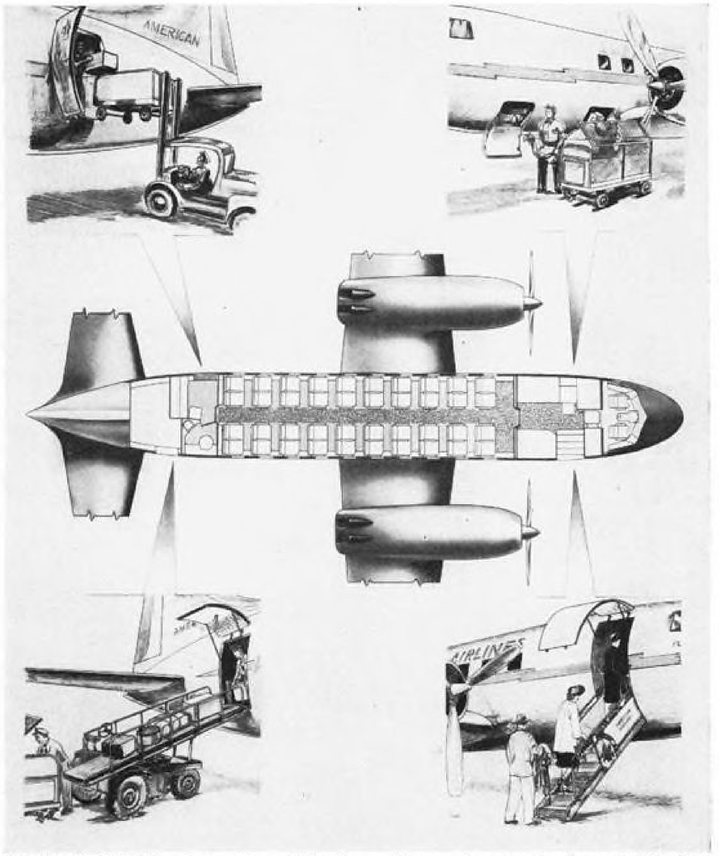
The Liner's propellers are heated electrically, as are those of most other transport planes, but the manner of preventing ice on the pilot's windshield is new and will be found only in the latest planes as this, too, is a recent development. The glass used in the windshield is of a special type known as "Nesa" and manufactured by Pittsburgh Plate Glass Co. A transparent electrical conductive film between glass laminations is heated by passing current through it.

▶ **Smallest Details** — Those main features of Convair's attempt to achieve the ultimate in safety in the Liner are backed up by numerous smaller items that indicate an effort to take advantage of all safety knowledge:

Dual wheels to minimize results of blowouts; Convair-designed-and-built integral fuel tanks (Consolidated built the first true integral tank in 1933 and has been improving on it since); emergency windows that open inward so they can't be forced out in flight; flares located under the tail section (rather than under the wings); and adequate safety valves, checks and switches for the various components and system.

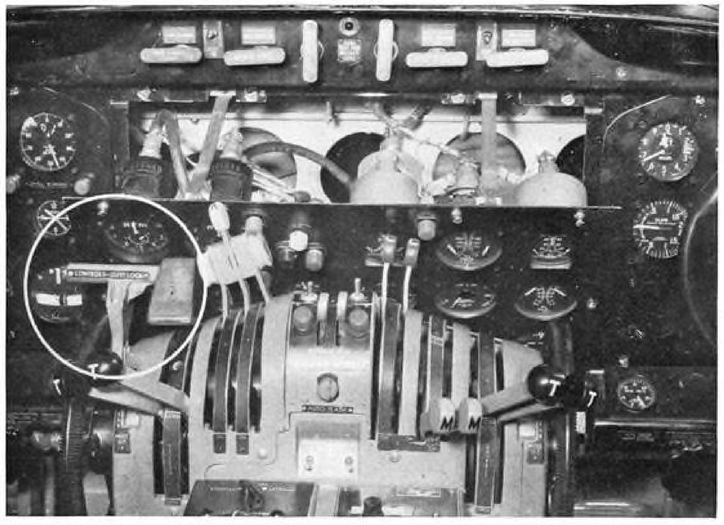
**. . . About Comfort**

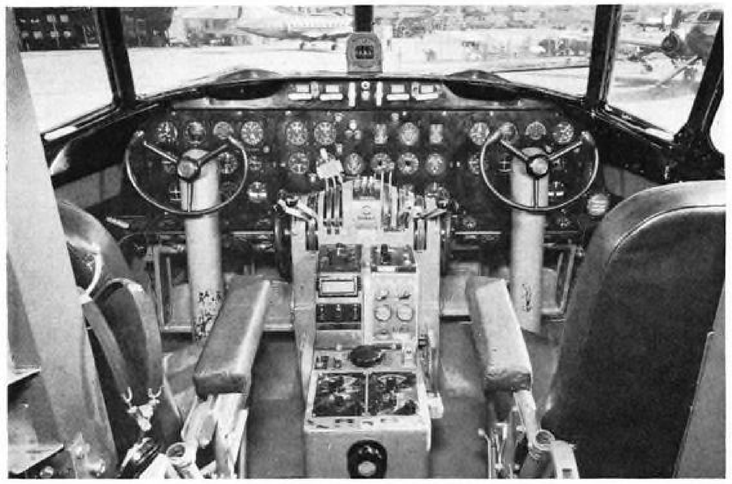
During the average life of an airplane passenger seat, an estimated 100,000 people sit down and get up from it. These impacts are sustained over a five-year period. Convair wanted to give




RAPID LOADING of American Airlines' Convair-Liners: simultaneously, buffet is serviced through left rear door while mail and cargo is going in forward left doors, passengers through forward right door, and more cargo moves into right rear door.

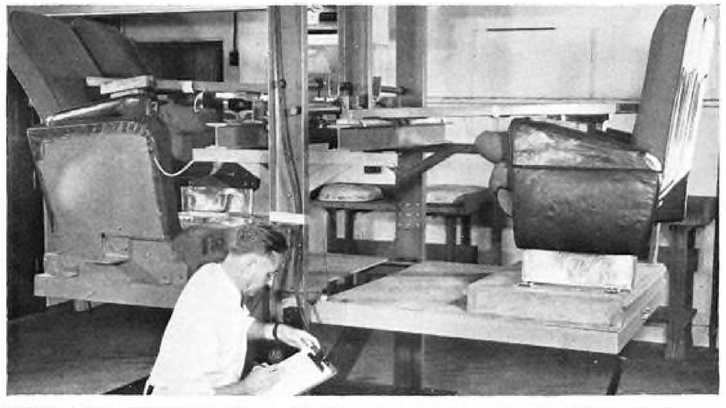
GUST LOCK (circled) is a prime safety feature of Convair-Liner. When on, it slides down over throttle block, makes it impossible to advance throttles far enough to take off. Instrument panel, open for inspection, hangs on retaining straps.





PILOTS' COMPARTMENT of Western Air Lines' model of Convair-Liner. Gust lock (lower photo, preceding page) is out of sight in takeoff position. Right and left sections of panel are flight instruments, center section engine instruments.

LEADING EDGE of wing outboard of nacelle is removable for inspection of wiring. Mechanic points to disconnect panel for landing light circuit. Numerous access doors in wing again are apparent, large ones hinged, small ones hung on belting.



"DYNAMIC CYCLER" is a Convair device to test Fiberglas seat cushions. Seat raises up to contact the mold, and this causes the cushion to deflect. Seats move up and down in see-saw fashion—26 impressions a minute.

the Liner's passengers greater comfort. The company believed this called for a new-type seat—springless and filled with Fiberglas (page 22). Obviously Convair could not wait five years to evaluate the worth of the seats.

How Convair got around this problem illustrates the care and research that went into designing the Liner. According to material prepared especially for AVIATION WEEK by Charles J. Krieger, research engineer of the company's Engineering Test Laboratories, the normal five-year wear-and-tear time is telescoped into a week's project.

► **New Device**—To determine what type of seat cushions airlines need for passenger comfort, long life and ease of maintenance, Krieger says, Convair rigged up a test machine named "Dynamic Cycler." It uses two dual-passenger Convair-Liner production seats and plaster molds of a human buttock. The molds can be weighted to 125 or 160 lb. These forms are pressed against each cushion 100,000 times.

With the Dynamic Cycler, Convair tested not only its Fiberglas cushion, but other new-type seats as well as some already in general use.

Krieger says, "Test data indicate that Fiberglas seat cushions tend to flatten about half an inch during the first 10,000 cycles (impressions), and little if any during the remainder of the test. One spring-type cushion showed a gradual decrease of half an inch thickness during the entire test.

"Dynamic Cycler tests to date indicate that Fiberglas seat cushions are standing up satisfactorily from a serviceability angle. They also are noninflammable and lighter in weight than other types of seat cushions."

► **Measurements**—Cushions are measured for thickness before being placed in the machine, at multiples of 10,000 cycles, and at the end of the 100,000th cycle. To measure thickness, Convair uses another of its own developments, the "Multiple Indentor." This consists of 23 upright wooden rods that rest on the cushion with a distributed weight of 125 lb. Each rod has a 12-in. scale graduated in .02 in. Scale readings indicate cushion deflection.

Convair also tested the Fiberglas cushions for serviceability under vibration. A cushion bearing a 125 lb. form was put on a vibration table and continuously vibrated day and night through a double amplitude of .025 in. at 2800 cycles a minute. No observable breakdown occurred.

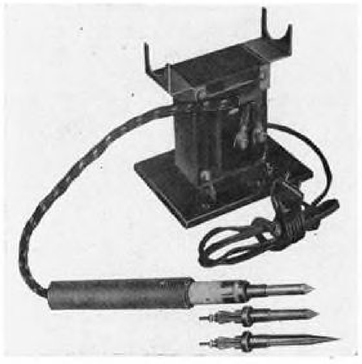
Other tests were made in Convair's "riding comfort laboratory," all indicating acceptability of its new-type seats. In addition to this laboratory work, the company conferred with seat experts in railroad and automotive fields to obtain the results of their experience.



# NEW AVIATION PRODUCTS


### Powered Screwdriver, Nut-Setter

Assemblers and maintenance men will be interested in new air-powered reversible screwdriver and nut setter, Model 7091, announced by **Aro Equipment Corp.**, Bryan, Ohio. Tool is stated to be particularly suitable for driving No. 1 to 10 screws and ¼-in. nuts. Free speed is 1000 rpm. and working speed 750 rpm. Unit has adjustable friction clutch attachment and is furnished with ¼-in. hex bits and adapters. Device weighs 2¾ lb., is 9⅛ in. long.

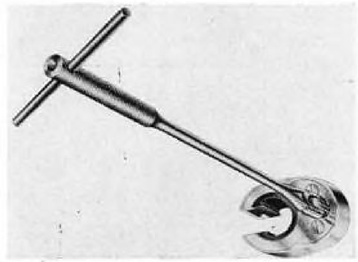


### Lightweight Soldering Iron

**Transvision, Inc.**, New Rochelle, N. Y., is offering new soldering iron "Soldetron," weighing 3 oz., and measuring 9¼ × ⅜ in. Features claimed include interchangeable tip-heads; long, thin tip for soldering in inaccessible places; low current drain; and heating within 20 sec., and cooling upon release of button. Unit operates on 110v. a.c. 50-60c. through transformer supplied with iron or on 6-8v. a.c. or d.c. without transformer.

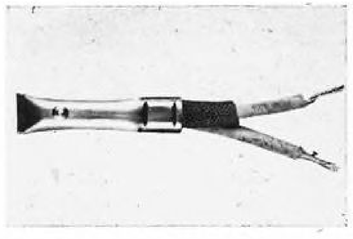
### Pre-Lube Graphite Film

Intended for pre-lubrication of engine and machine parts prior to assembly is dry graphite film, dgf-123, made by **AP Parts Corp.**, Toledo, Ohio. Chemical inertness of material is stated to render it acid resistant. Claimed is that run-in periods for new and rebuilt engines are cut to less than two-thirds, and that stand-by lubrication protects vital parts from first turn of engine until complete oil film is established. Material is also stated to be lubricating base for electrical instruments, oxygen equipment, and drawing dies.



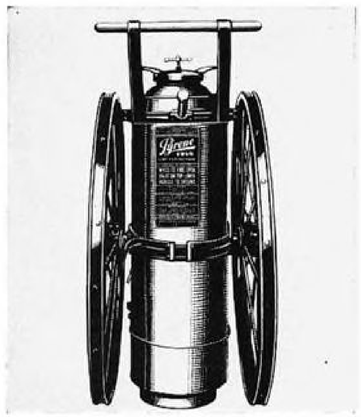
### Open-End Wrench

Designed for use on pipe, tube, conduit, cable, and rod fittings, T.A.C. open end ratchet wrench is being marketed by **C. J. Hendry Co.**, 27 Main St., San Francisco, Calif. Claimed to reach hard-to-get-at fittings, ratchet heads operate in 7½-deg. arc, larger sizes with 5 deg. turn. Built to withstand extreme leverage pressure, smallest wrench is stated to be tested to 2000 lb.-in. Ratchet heads, sockets, and accessories are available in various sizes. Adapter converts unit into standard ratchet using standard sockets.



### Small Thermostat

Thermal and safety control, "Mighty-Mite," for production line installations, is offered by **Mechanical Industries Production Co.**, 217 Ash St., Akron 3, Ohio. Features claimed include triple insulation barriers of compressed silicone Fibreglas sleeving, faster thermal reaction, and higher temperature ratings. Device has sealed construction, and is half size of cigarette. Listing for unit is 2 amp. at 115v. a.c.




### Fire-Fighter

Wheeled, foam-type fire extinguisher for airport use is marketed by **Pyrene Mfg. Co.**, 560 Belmont Ave., Newark, N. J. Unit is designed to quickly deliver from 375-400 gal. of foam, and stream has range of 40-55 ft. Unit is equipped with 50-in. steel wheels, 50 ft. of 1½-in. chemical hose, and 50 ft. of drag rope and reel.

## Information Tips

**Rust Inhibitors**

Manufacturers and packaging engineers of ferrous and non-ferrous metallic products will be interested in new, 14-page booklet covering 23 rust preventive compounds. Discussed are methods of application, removal, also thicknesses and permanency of coatings. Booklet is offered by **Freedom-Valvoline Oil Co.**, Dept. 91, Freedom, Pa.

**For Heat Applications**

New 12-page bulletin is available from **Allis-Chalmers Mfg. Co.**, Milwaukee 1, Wis., describing various examples of brazing, soldering, hardening, and annealing with company's induction heaters. Also included is information on engineering service for installation supervision, application engineering, work coil design, and special work handling equipment.

**Test Chamber Simulators**

Illustrated 32-page catalog is offered by **Bowser, Inc., Refrigeration Div.**, Terryville, Conn., describing temperature-, altitude-, and humidity-simulating units. Included are altitude-pressure-temperature curve graphs; thermal property tables for various materials; Fahrenheit table of relative humidity or percent of saturation; and other charts. Development, history, and advancement of test cabinets and industrial processing units are also outlined.

**Bar Steel**

Heat treated carbon-manganese, hot-rolled bar steel (RY-AX) is described in bulletin offered by **Joseph T. Ryerson & Son, Inc.**, Box 8000-A, Chicago 80, Ill. Said to represent improvement over former steel bearing same name, bulletin gives mechanical properties, hardness readings, machinability rating, and lists typical shafting, axle and other applications.

**Drafting Templates**

New 4-page catalog has been published for engineers and draftsmen, by **Rapidesign, Inc.**, P. O. Box 592, Glendale, Calif., covering company's "Time-Saver" templates. Each type of template is pictured, designated by number, and briefly described.

*Panama Letter:*

# No Dull Moments in Latin America

**Lapsa may become Panama's 'chosen instrument'; U. S. treaty to hit snags; new lines sprout; attaches named.**

PANAMA CITY, PANAMA—There is much activity in commercial airline circles here, all centered around plans to move operations from the Albrook Army airbase in the Canal Zone to Tocumen airport, which the Government of Panama built 17 miles from the city.

Tocumen doesn't have all the facilities for adequate operations yet, but its new tower is ready, its runway is one of the largest in the hemisphere and teletypes have been installed to hook up with Maj. Gen. Willis H. Hale's Caribbean Air Command headquarters at Albrook, which will keep a weather eye on all air operations for reasons of the canal's defenses.

The present Canal Zone air terminal at Albrook is only five minutes from the Hotel Tivoli where most of the transient air travelers stay in the zone.

▶ **July 1 Goal**—Marcos A. Gelabert, Director General of Aviation for Panama, is shooting for a July 1 goal for the transfer of all commercial operations from Balboa to Tocumen, but that looks doubtful. PAA has been needling the Government of Panama to get the exclusive management concession for Tocumen, but the government is going to operate the airport itself. Peruvian International Airways has been using Tocumen since it started operations a year ago. TACA also operates exclusively from Tocumen and so does Lapsa (Lineas Aereas de Panama, Sociedad Anonima) Panama Air Lines, Inc.

Braniff, which is just starting operations through Panama, has a provisional operating permit to fly over this country and is now negotiating a permanent one. PAA, of course, has always had the inside track, and its local subsidiary, COPA (Compañia Panameña de Aviacion), which flies the Panamanian flag, has been based at Tocumen for six months.

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▶ **Treaty Needed**—Meanwhile, there must be negotiated an air navigation treaty between Panama and the U. S. which will regulate flight, customs and immigration operations here.

This air navigation treaty is going to hit a snag, a very big one. The Panamanians will insist on sovereignty of the air space over the ten-mile strip of the Canal Zone. The U. S. will hold a different theory, which will require a top political decision by the White House before a compromise can be reached.

The Panamanians are considering David airport as the alternate for Tocumen. Rio Hato, which used to be the alternate for Albrook, now is closed. USAF troops were withdrawn from there last February after Panama repudiated a defense sites treaty.

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▶ **New Airlines**—Many new domestic airlines are sprouting up in Central and South American republics, some of them on shoestrings and some soundly financed. Aerovias Guest, S. A., is doing a land office business operating from Mexico to Madrid via Havana with Constellations. Lapsa plans to fly from Panama to Rome via the South Atlantic route and the Azores with Constellations flying the Panamanian flag. Lapsa will be made the chosen instrument of the Panamanians if it proves to be soundly financed and operated. Reports have been published in Panama newspapers that the FBI is probing Lapsa's operations in Europe.

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▶ **Attachés Assigned**—Because of the importance of aviation in Latin America, the State Department is assigning civil air attachés to the embassies in the Western Hemisphere. Some of them have already taken up their tasks.

Pedro P. Diaz, the Arequipa leather goods tycoon, has just plunked down a good number of Soles in the founding of the Los Andes airline which has begun domestic operations in Peru to compete with Slim Faucett's money making operation. Faucett is adding more DC-4s to his service (Compania de Aviacion "Faucett" S. A., Lima) but makes no international flights at all.

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▶ **Peruvian Stymie**—In Peru, Tom Braniff has been pitched a stymie by the Peruvian government, and having been unable to hole out, he's tossed

the ball into the lap of the State Department. Two weeks before his inauguration of the Houston-Lima service of Braniff International Airways, the Peruvian government issued an order suspending his operating permit. The State Department has laid down the line to the Peruvians in strong terms and conversations between Braniff and President Jose Luis Bustamante brought sweet platitudes but no favorable action.

If the Peruvians fail to yield, the State Department is going to find itself in a box. CAB has twice rejected petitions by U. S. airlines to operate a route from Washington to Havana because the State Department was preserving that choice course for the exclusive use of PIA, which, ironically enough, is owned mainly by Canadian capital.

▶ **Stumbling Block**—Although the Peruvians won't admit it publicly, Foreign Minister Armando Revoredo, former military air attaché in Washington, is the big stumbling block. He inspired the founding of PIA, persuaded certain Peruvians to buy stock in it, and got Gen. Harold George to organize it. Revoredo says PIA lost $800,000 in the first month of operations but claims the red ink now is running only $20,000 per month. He's afraid Braniff will eat into that figure by flying from Houston to Havana to Panama. PIA wanted Braniff to guarantee it ten passengers per trip from Havana to Panama. Being a smart operator, Braniff said no.

Also in the backdrop is some reported machinations by PAA and Panagra interests, whose business also will be cut by Braniff.

Panagra is in the driver's seat in some of the countries. For example, Braniff won't be able to fly DC-6s into Bolivia until the 13,404 ft. high airport at La Paz is lengthened. Its two miles of altiplano runway are inadequate for that ship. But it can't be lengthened without Panagra approval because it has an exclusive maintenance right to that airport. Panagra's chief in La Paz says there are no plans to improve the field. Meanwhile, Braniff's southern terminal is to be Guayaquil, Ecuador, until such time as Peru reopens the door to him.

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▶ Plans for FAMA—President Juan Domingo Peron of Argentina has ambitious plans for his FAMA airline. He hopes to encircle the hemisphere with it soon, but these plans will fizzle unless he opens up to other airlines. He's been dilatory in signing route agreements, which is the reason PIA and Braniff can't get into Buenos Aires. But he's building for the future and the new airport not very far from the present Moron field is to be as good as

Idlewild. He's also building up his military aviation and the plants at Cordoba, besides experimenting on jets, are assembling, as well as building, combat and transport planes. Most of the frames are being brought over intact from England for assembling there. Just about $40,000,000 worth.

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►**TACA Expansion** — Waterman is scheduled soon to begin reorganization of the TACA line. There's an economy drive on now, which presages replacement of equipment and expansion. TACA was lucky the rebels won in Costa Rica, else it would have been out of business there. The government was unhappy because TACA planes and pilots flew for the rebels. Its biggest and most profitable operation now is in Venezuela.

KLM also does well on the Caracas-Miami run, many oil people preferring it because they're tired of PAA's take-it-or-leave-it attitude.—**Observer**

## French Air Industry Faces Another Slash

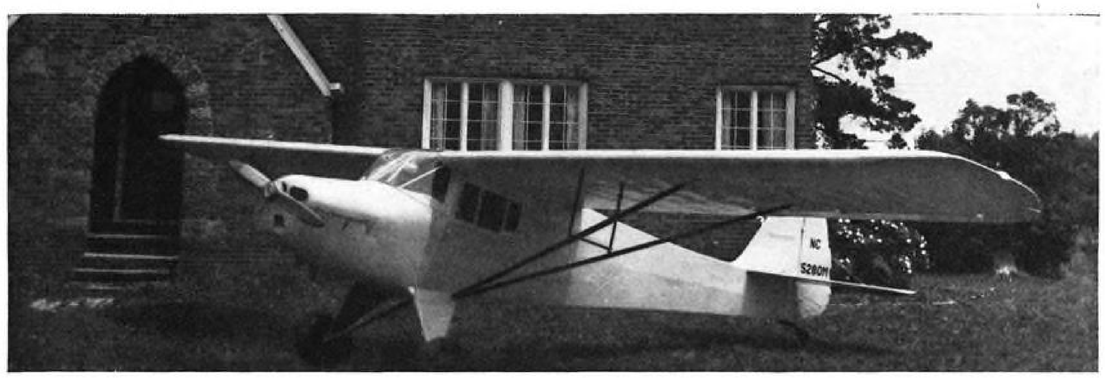
PARIS — SNECMA, French Government's airplane engine firm, ran out of money recently, and the 16,000 workers who got I.O.U.s instead of pay checks threatened to strike.

This gave Rene Mayer, French Finance Minister, the chance he's been waiting for to take another deep slash at the nationalized air industry budget. He asked the cabinet to suggest two new laws to the National Assembly. One would give SNECMA a new boss with power to fire about one-third of its personnel. The second would extend a grant of $3 million to the firm to keep it breathing during reorganization.

►**The Paying Basis**—The shakedown as proposed for SNECMA is part of a long-range government drive to put the whole nationalized air industry on a paying basis by shaving personnel to the bone and standardizing production. Earlier this year the government decided to cut the number of workers in the state aircraft factories to 30,000 from a postwar high of 100,000. This unpopular job was left to the government by the Communists who were in charge of the nationalized air industry nearly 2 yr. after liberation. They kept on all wartime personnel.

The Communist press here flayed Mayer's proposals for SNECMA, accusing the Minister of seeking to scrap the French aircraft industry on orders from Washington. Communist propagandists insisted Mayer planned to shut down the SNECMA factories. Mayer denied this and calmly went on with his house cleaning.

# AVIATION SALES & SERVICE



New Taylorcraft Traveler

## Taylorcraft Presents 1949 Line

**Three new models, all two-placers, are company's bid for market. Low prices, short landings are attractions.**

A new 1949 line of three Taylorcraft two-placers has been announced by C. G. Taylor, president of Taylorcraft, Inc., Alliance, Ohio.

The airplanes are basically the same familiar, fabric-and-steel-tube, side-by-side aircraft on which Taylor built his reputation as a pioneer lightplane designer, and which his new company has been making since it was formed last year.

▶ **Vagabond Competition**—A skyblue Taylorcraft Traveler, pricetagged at $1995 flyaway, is obviously scheduled as a competitor to the only other lightplane on the market at that price, the Piper Vagabond. Taylor describes the 65-hp. Continental-Powered plane as a utility plane, lacking the frills of the other two models.

A deluxe 65-hp. two-placer is priced at $2365 flyaway, while the third model, recently certificated by CAA, is an 85-hp. de luxe model, priced at $2585.

▶ **Attractions**—The 85-hp. airplane will take off at full gross weight of 1280 lb. in 342 ft. and has a landing roll of only 190 ft., the manufacturer reports. Wind and altitude conditions for this performance are not given. Plane is credited with a cruising speed of more than 100 mph. and a 750 ft./min. rate of climb. The deluxe 85 is painted in cream, trimmed in red, harmonizing with two-tone upholstery. A new instrument panel, dual controls, new windows, new grills, steerable full-swiveling tailwheel, airfoam seat cushions and glove compartments are some of the items listed as part of its equipment.

Price quoted is about the lowest for an 85-hp. two-placer on today's market and the Taylorcraft 85 may be expected to attract quite a few buyers on this basis, and on the basis of its good short field landing and takeoff performance.

▶ **65-Hp. Model**—The 65-hp. deluxe model apparently is a "dressed-up" version of the Traveler, with yellow and blue color scheme, new panel, new carpeting and upholstery, new windows, and so on. Cruising speed of 95 mph. is quoted for it with no other performance figures cited.

The Traveler probably will be the best seller of the three at its $1995 price and may be expected to attract some flight school trainer business to Taylorcraft, using an optional dual control installation offered at additional cost. Plane has a right-hand door only, and red leatherette upholstery. It is described as the "greatest value ever offered in aviation history" by the manufacturer.

▶ **Four-Placers?**—Taylor has been doing some design studies on a four-placer for some time, but apparently is not yet ready to enter this field, particularly in view of the rugged competition already offered. It is not unlikely however that a Taylorcraft four-placer may be added to the three two-placers in the 1949 model line a little later.

Orders already received for the new 1948 models have resulted in a "definite stepup in production at the Taylorcraft plant at Alliance," the manufacturer states.

### Cruising Score

Interesting comparison of cruising speeds on postwar personal and business type planes in actual competition in poor flying weather over a 195-mile cross-country course is provided in the box score on speeds in the Memorial Day Regatta held by the Philadelphia Aviation Country Club at Wings Field, Ambler, Pa. Winners were selected on the basis of both fuel economy and speed.

The speeds in mph.:

| Type | No. Finishing | Winning | High | Average |
|---|---|---|---|---|
| Beech 18 | 3 | 159.8 | 169.8 | 164.6 |
| Bonanza | 7 | 154.7 | 162 | 151.2 |
| Bellanca | 5 | 133 | 134.5 | 128.5 |
| Stinson Voyager | 5 | 110.1 | 110.1 | 105.9 |
| Cessna 14-120 | 7 | 100 | 108.2 | 99.5 |
| TEMCO Swift | 1 | (Disqualified) | | 124 |

**SIAMESE ERCOUPES**

Flight and ground views of the unique Siamese Ercoupes, two planes bolted together into one aircraft (Aviation Week, June 21), show a freak configuration which makes a four-place twin engine airplane out of two single-engine two-placers. The ground view pictures Millard Davis, Atlanta Ercoupe dealer who thought up the idea, at right, showing off his new twins to Clay Swaim of Salisbury Aircraft, Salisbury, N. C. The triple-tailed oddity may be seen at some air shows soon.

## Personal Plane Totals Show Continued Rise

Further upturn of personal aircraft shipments in May over preceding months involved 772 planes valued at $2,912,000, Personal Aircraft Council of Aircraft Industry Association reported.

Four-placers accounted for 345 of the planes, the remainder being two and three-place aircraft.

Total for the first five months amounted to 2985 civilian personal-type planes shipped plus 101 military liaison planes of essentially civilian lightplane type. Total value of the five months shipments amounted to $11,836,000.

Total number of shipments by companies.

**Aeronca**—Sedan, 59; Super Chief (85 hp.) 6; Champion (65 hp.) 2; Champion (85 hp.) 20; Model 7 CCM, 4.

**Beech**—Bonanza, 58.

**Bellanca**—Cruisair, 5.

**Cessna**—Model 120, 10; Model 140, 64; Model 170, 50; Model 190, 7; Model 195, 9.

**Engineering & Research Corp.**—Ercoupe Model E, 18.

**Fairchild**—F-24, 7.

**Luscombe**—Model 8A (65 hp.) 8; Model 8E, (85 hp.) 25; Model 8F (90 hp.) 33; Silvaire Sedan, 2.

**Piper**—Cub Special, 39; Supercruiser, 101; Vagabond, 73; Family Cruiser, 5.

**Republic**—Seabee, 1.

**Ryan**—Navion, 54.

**Stinson**—Voyager, 88.

**Taylorcraft**—Taylorcraft, 3.

**Texas Engineering & Manufacturing Co.**—Swift 125, 21.

Tabulation shows Piper leads the manufacturers with 218 planes shipped, as against 140 by Cessna, 91 by Aeronca, 88 by Stinson, 68 by Luscombe, 58 by Beech and 54 by Ryan, the other leaders.

## Navions Get Workout In Recent Flood

Two Ryan Navions in the Portland-Vancouver area have been given a thorough workout recently in emergency flights as a result of the recent Columbia River flood.

Colly Reed, manager of Rankin Aviation Industries, Vancouver, Ryan distributor for Oregon and Southern Washington, reports:

"The only means of transportation this past week between Portland and Vancouver is by air. We have been using the Navion for spotting people who must be evacuated from flooded areas, for hauling serum and for miscellaneous other emergencies between Portland and Vancouver.

▶ **Varied Uses**—"The Navion has been useful in a hundred different ways because of its ability to get in and out of short fields. We are now operating off of what is approximately a 1,000 ft. runway with obstructions of over 50 ft. at both ends."

**NAVION AMBULANCE**

Airplane stretcher worked out by Lightfoot and Clouser, Marshall (Mo.) Navion dealer, makes possible 10-minute conversion of plane to ambulance use. Litter slides into baggage space when back rest is removed. Unlike most ambulance conversions of four-placers, both front seats are kept intact. By putting a backrest on left side of the back seat, plane can be as a four-placer, even with one passenger on a stretcher.

Arthur Sparks, assistant to Reed, gives a first-hand description of operations at Pearson Air Park in Vancouver.

"The water covers the field all the way up to a small taxi strip which we are presently (June 5) using as our only runway. Regular runways are inundated beyond use. From the very start of the flood disaster—when normal communication between Vancouver and Portland was disrupted, we put our two Navions to work on emergency flights.

►**Aid to the Stranded**—"We transported people who had legitimate missions between Vancouver and Portland; rushed emergency serum; delivered telegrams (all wires were down); hauled motion picture film, and in general helped maintain contact between the two sides of the river.

"In one case we located from the air a young fellow who had been left marooned on a stock platform at the Swift packing plant on high ground between the river and the inundated community of Vanport. Spotting the boy, we got word to the Coast Guard, who in turn sent a rescue boat to bring him to safety.

"It is interesting to note that 90 percent of the people we've transported by air have never flown before."

## New Vet Regulation

A regulation (Part 36.287) recently adopted by the Veterans Administration, applicable to flight and other private schools, permits inclusion of actual advertising expenses in determining fair and reasonable costs for GI contracts where advertising costs do not exceed 8 percent of gross income from resident instruction.

Advertising costs in excess of the 8 percent limitation must have special approval. Such costs are limited to operating an advertising department by the school, and use of advertising media such as newspapers, magazines, radios, pamphlets and catalogues. Promotional activities such as gifts, prizes and contests are not allowable as advertising expenses. Advertising costs previously had not been allowed.

## Continental Shipments

Continental Motors Corp., Muskegon, Mich., reports shipments of airplane engines were larger in May than any month since May, 1947, presumably due to upturn in personal plane sales. May engine sales exceeded average shipment for the preceding 11 months by 82 percent. June schedules call for a further increase of 15 percent over May aircraft engine shipments, C. J. Reese, Continental president, says.

# BRIEFING FOR DEALERS & DISTRIBUTORS

**HOW TO GET MORE BUSINESS**—A sales promotion manual for seaplane base operators, prepared by Edo Corp., College Point, N. Y., emphasizes the time-worn but still basic fact that too many aviation people overlook: "Flying must be sold just as thoroughly as any other product, or service. The mere fact that you have seaplanes, a base of operations and willing instructors is not sufficient to assure profitable operations. You've got to sell yourself, your operations and above all, flying."

The manual discusses: How to Get More Business from Current Students; Getting New Business; Your Base, Clean Up, Paint Up, other subjects. A final admonition is given to have all personnel read the manual, participate actively in sales promotion, and meet in weekly sales meetings to plan merchandising programs.

While much of the material isn't new, the manual still is worth reading by all fixed base operators except those completely satisfied with their present volume of business.

**SLOW FLYER**—The Wichita-built Boeing L-15 scout liaison plane now being tested by the Air Force has a slow-flying performance almost "out of this world" according to early reports.

Air Materiel Command says the plane has been stalled out with full flaps and full power at speeds of only 9 to 11 knots, which is somewhere below 13 mph. in civilian talk. It is also reported that the plane has been landed at speeds of less than 25 mph., that it will hover at speeds below 40 mph. at a constant altitude, and that it will takeoff and clear a 50-ft. obstacle in less than 600 ft. Rate of climb is 628 ft./min.; it cruises at 95 mph. (75 percent power), all with a 125-hp. Lycoming engine, and a gross weight of 2090 lb.

The slow flying comes from the scout's full-span fully extended flaps of external airfoil type. Spoiler type ailerons linked to them provide the lateral control required at low speeds.

It would be interesting to see how a civilian personal plane would sell that was equipped with the L-15 scout's wing, flap and aileron arrangement. Maybe it is what Prof. Lynn Bollinger says the public is waiting for.

**CHANGE CHRISLEA CONTROL**—Plans to change the simplified wheel control of the new British four-place Chrislea Super Ace (Aviation Week, May 3) for a standard stick and rudder setup have been announced by the Chrislea company. The decision was made reluctantly and only after demands from the majority of purchasers for standard controls.

The two prototype planes used a wheel control which was turned for bank, pushed or pulled for dive or climb, and swung left or right for rudder control. Despite test pilot demonstrations of the practicality of the wheel control, purchasers preferred the conventional system. Chrislea now is engaged in converting controls of its first production planes.

**NARCO DISTRIBUTORS**—National Aeronautical Corp., Wings Field, Ambler, Pa., has announced appointment of Qualitorn, Inc., Metropolitan Airport, Van Nuys, Calif., and Aircraft Radio Service Co., Phoenix, Ariz., as new distributors for Narco VHF aircraft radio equipment, including the forth-coming Narco omni-directional VHF range receiver equipment being developed under CAA contract (Aviation Week, June 14).

**VAN DUSEN EXPORT OFFICE**—George Gallipeau, Van Dusen Aircraft Supplies sales manager, has announced appointment of John S. Lucas, previously with Jacobs Aircraft Engine Co., TACA and Curtiss-Wright Flying Service, as manager of a new Van Dusen export sales office at 51 Madison Ave., New York.

**HANGAR FIRE REPORT**—Importance of segregating aircraft maintenance activities from storage operations is pointed up in an analysis by the National Fire Protection Association of a recent hangar fire at Glasgow (Mont.) Airport. The fire, which occurred Mar. 8, destroyed 17 personal aircraft, the main airport hangar (120 by 160 ft.) and the adjoining control tower. Direct property loss is estimated at $300,000.

The fire began in the hangar dope shop where mechanics were doping the wing of a plane. It spread so rapidly that the personnel barely escaped with their lives. City fire equipment arrived too late. A government-owned pumper was at the field, but the operator was not on hand. ALEXANDER McSURELY

# FINANCIAL

## Outlook Good for Stock Dividends

### Improvement in conditions of manufacturers seen as indication of participation by holders in earnings.

The improving outlook for the aircraft industry is bringing increasing dividends to stockholders.

Most recent noteworthy action was taken by Grumman Aircraft Engineering Corp. when it declared a 100 percent stock dividend. This in itself creates no additional value, as the equity remains the same. In other words, two new shares of the company have the same value as was possessed by one old share. Stock dividend action, however, is usually a forerunner of increased cash distributions to stockholders.

►**Exchange Frowns**—It is known that the New York Stock Exchange frowns upon stock dividends unless increased earnings are present which will subsequently permit higher cash payments to stockholders. For this reason, stock dividends are an indication of better things to come for the company taking such action.

Grumman is increasing its outstanding capital stock to 1,000,000 shares from 500,000. Further, through transfers from capital and earned surplus the new stock is given a par value of $5 per share, making for a total capital stock valuation of $5 million.

The previous par value on the old stock was $1 per share. Largely through accumulation of previous years' earnings, Grumman's earned surplus account as of Dec. 31, 1947, amounted to $24,031,604.

Capital surplus aggregated $942,340 as of the same date. The net equity of the new stock is estimated in excess of $26 per share.

►**Unusual History**—Grumman has an unusual corporate history in respect to earnings and dividends. The company has the distinction of earning a profit in every year of its existence covering a period of 18 years. Further, a dividend has been paid every year. This is a unique record in the aircraft industry.

It is interesting to observe that once a dividend rate has been increased, it has never been cut in any subsequent year. A total of $3 per share on the old stock was paid during 1947. On this premise, it is logical to assume that cash dividends will exceed this rate during 1948. Thus far, the company has not acted on 1948 cash disbursements to stockholders.

►**Lockheed to Pay**—Lockheed, after omitting dividend payments during 1947, will pay 50 cents per share July 2. The last previous payment was made in June, 1946, when the same disbursement was declared. The company's earnings are known to have been very good thus far this year. In a large measure, this can be attributed to the considerable write-offs taken in 1947.

Further, as the Constellations are delivered to TWA, Lockheed's sales and profits are boosted. However, as part of this transaction, Lockheed has endorsed TWA's notes accepted in payment of this equipment. In other words, the banks which hold such paper have ultimate recourse to Lockheed.

►**C-W Payment**—Curtiss-Wright Corp. paid 50 cents per share June 21 on its Class A stock. A total of $2.00 per share was paid on this issue during last year. Considerable surprise was expressed by observers in that the company did not also make a cash disbursement to common shareholders at the same time. It is probable, however, that the existing management does not wish to reflect any action that may be attributed to a group of minority common shareholders who are pressing for an immediate $7 per share cash distribution to their class of stock.

Probably for the first time in its history, Curtiss-Wright issued a statement of its quarterly results. The company disclosed a consolidated net profit of $1,340,068 for the first quarter of 1948.

Wright Aeronautical Corp., which is 97.32 percent owned by Curtiss-Wright, contributed net earnings of $824,637 during this same period. It is known that Curtiss-Wright's propeller division is far more active than the airplane division and presumably is responsible for whatever earnings the parent itself developed.

►**Earning Indication**—It is believed that the Curtiss-Wright management released current earnings reports as an indication of current profitability to refute claims being made by minority stockholders in their struggle for control of the enterprise.

In a recent action in the Delaware Chancery Court the present management was upheld and the election of its slate of directors held valid. The opposing group is now contesting this decision in the higher courts.

►**Boeing Dividend**—Boeing declared and paid a dividend of $1.00 per share earlier this year. Total payments last year came to the same amount. With the increasing tempo of activity, there is reason to believe that Boeing will make another dividend disbursement before the year is over.

United Aircraft Corp. paid $1.00 per common share on June 15. During 1947, a total of $1.25 was paid on this class of stock. Here too, the indications are that increased cash disbursements will be made to stockholders this year.

United Aircraft also has a $100 par preferred stock on which dividends of $5 per share annually have consistently been made.

Ryan Aeronautical Corp. remains in the dividend lists by virtue of the 10 cent per share distribution it made in March of this year. This same amount represented its total 1947 disbursement, indicating further payments this year.

While the number of aircraft companies taking positive dividend action thus far this year is limited, the indications are very encouraging for many others to follow before the year is over.

►**Excuses Gone**—The recent award of aircraft procurement awards, as announced by the Air Force and Navy, assures most of the units in the industry a high volume of activity well beyond this year. With this uncertainty removed, there no longer exist the some conditions and the attendant excuses for withholding cash disbursements to stockholders.

It is probable, however, that in certain instances, the representation will be made that working capital must be husbanded to permit the increased volume of activity engendered by these new orders. While this may be a mitigating influence, it will not preclude "nominal" payments.

Moreover, many aircraft companies are very much concerned with deteriorating stockholder relations. One of the most satisfactory means of placating this group is a regular flow of dividends, when earnings so permit.

Many of the old-line industrial corporations deliberately pursue a course of making regular quarterly dividends.

Unfortunately, the aircraft industry has had too many peaks and valleys to follow the same pattern in making disbursements to stockholders.

In any event, with the current improvement in the fortunes of the aircraft builders, it is a natural expectation of the industry's stockholders that they will participate in the available earnings. This may continue to be in the form of special, irregular year-end disbursements as results are more clearly established.

—Selig Altschul

# Air Parcel Post On The Way

**Congress passes bill setting up domestic system to start Sept. 1. Certificated lines slated to get all business.**

Legislation authorizing a domestic air parcel post system starting Sept. 1 was at the White House last week awaiting Presidential signature.

Congress completed action on the measure after a sizeable show of opposition, led by Rep. John Kennedy (D., Mass.), was whipped down in the House. Kennedy and his followers protested the bill's provision restricting government parcel post business to scheduled carriers which already monopolized the government's air mail business. Kennedy argued the proposal advanced by independent air freight operators: that parcel post contracts should be awarded by the Post Office Department on a competitive bid basis.

▶ **Explanation Given**—Chairman Edward Rees (R., Kans.) of the House Post Office and Civil Service Committee, a consistent sympathizer with independent competition for the scheduled airlines, explained that the bill's prime objective is to place the Post Office Department's air service on a self-supporting basis. By utilizing scheduled carriers for parcel post service, Rees pointed out, the Department will be able to use "in excess of 19,000,000 ton miles" of airplane space now being paid for but not being utilized for mail carriage (AVIATION WEEK, June 14).

He estimated this will reduce the Department's deficit for air services—now running at approximately $15,000,000 annually—by approximately $10,000,000 annually.

To revive railroad opposition, as well as to assure a remunerative air parcel post operation, the legislation sets high rates. This indicates that at the outset, at least, air parcel post will be competitive with surface parcel post only for business in which the time element is of major importance.

▶ **Discretionary Proviso**—A significant provision in the bill, however, gives the Postmaster General discretion to adjust rates as he deems desirable.

A postal rate increase bill, which zipped through Congress in its closing hours before adjournment, boosted surface parcel post rates and slightly narrowed the differential with rates laid down for air parcel post.

Following are representative rates for air parcel post and the new rates for surface parcel post in the legislation approved by Congress:

- **First and second zones**—55 cents for the first pound; 4 cents for each additional pound. New surface parcel post rate is 12 cents for the first pound, 2.1 cents for each additional pound.
- **Third zone**—60 cents for the first pound; 8 cents for each additional pound. New surface rate is 13 cents for the first pound; 3 cents for each cents for each additional pound.
- **Seventh zone**—75 cents for the first pound; 8 cents for each additional pound. New surface rate is 17 cents for the first zone, 9.5 cents for each additional pound.
- **Eighth zone**—80 cents for the first pound; 65 cents for each additional pound. New surface rate is 18 cents for the first pound; 11.5 cents for each additional pound.

**AIRLINE TECHNICAL OFFICIALS MEET**

Shown just before opening the 1948 technical conference of the International Air Transport Association at Ste. Agathe, Quebec, are: (left to right) Gordon R. McGregor, president, Trans-Canada Air Lines; Paul Goldsborough, TWA director of communications; J. T. Dyment, TCA director of engineering and chairman of the conference; C. H. Jackson, chief projects engineer, British Overseas Airways; Capt. E. Brook-Williams, BOAC superintendent of navigation; Capt. Emil Damm, vice president-operations, Danish Airlines; K. R. Ferguson, vice president-engineering, Northwest Airlines; Stanislaw Krzyczkowski, secretary of IATA's technical committee.

## Airmail Rates Start Up Again

Airmail postage rates, which were fixed at their current low level in the fall of 1946, are headed upward again.

Legislation boosting charges from five to six cents an ounce starting next year has been approved by Congress and sent to the White House. The Senate changed the date set by the House, Aug. 1 to Jan. 1, 1949.

▶ **More Revenue**—The House Post Office and Civil Service Committee reported that if the current airmail volume is maintained the rate boost will increase postal revenues by about $10,000,000. The Post Office Department estimates that the current volume—set at 1,000,000,000 pieces for the 1948 fiscal year—will not only be maintained but increased slightly under the 6-cent rate to 1,013,000,000 pieces in fiscal 1949 and 1,200,000,000 pieces in fiscal 1950.

Were the 5-cent rate continued in effect, the Department estimates airmail volume would mount to 1,250,000,000 pieces in fiscal 1949 and 1,563,000,000 pieces in fiscal 1950.

▶ **Committee Reasoning**—The airmail rate was reduced from 8 to 5 cents in 1946, the House Post Office and Civil Service Committee reported, on two premises—that volume would increase 100 percent and the ton-mile payments to carriers would decrease. In recommending the boost to 6 cents, the committee said: "Neither of these has come to pass. Volume has increased by only about half of the anticipated figure, while ton-mile costs are going up instead of down."

# CAL Paces Slight Financial Gain

**After first-quarter loss, Continental resumes profitable operation and is joined by Capital, possibly NWA.**

A few bright spots are appearing in the certificated airlines' generally poor financial prospects for 1948. But the improved outlook in several cases results from additional government mail pay assistance rather than a healthy gain in traffic.

Most optimistic report this spring has come from Continental Air Lines which foresees the greatest year in its history both from a traffic and revenue standpoint. Since CAL made money in both 1946 and 1947—when most other operators were far in the red—the prediction indicated no sharp reversal in the carrier's position.

▶ **Larger Earnings**—After a first quarter operating loss of $84,115, Continental moved into the black with a $15,000 operating profit in April. President Robert F. Six forecast larger earnings in May and June and an overall second quarter operating profit of about $78,000.

"If the present upward trend continues," Six declared, "total 1948 earnings by CAL should easily top the previous peak of $344,000 in the 1944-1945 period." He added that strict operating economies, continued consolidations, and mergings of airport, maintenance, reservations and general facilities with other carriers made it possible for Continental to operate well within its planned budget during the first quarter.

▶ **Stock Sale**—Last month, CAL completed an underwriting agreement with Lehman Brothers, New York investment bankers, whereby 37,500 shares of common stock were placed on the market. They netted total proceeds of $300,000.

At the same time, the company's line of credit with Chase National Bank was rearranged to permit maximum borrowings of $1,500,000 and a five-year plan of payoff rather than the three-year liquidation that had been in effect up to that time.

These two steps in financing provided Continental with net working capital of about $1,300,000 and ready access to a credit line with a $1,125,000 balance. This will enable the carrier to pay cash for five new Convair-Liners ordered two years ago at $305,000 each, compared to the current factory price of $495,000.

All five Convair-Liners are to be delivered by the first week in August. President Six believes CAL can break even with a 34 percent Convair load factor compared to the 54 percent load factor required for the company's DC-3s. Continental hopes to realize $50,000 each for the DC-3s which will be replaced by Convairs.

▶ **Capital Airlines in Black**—Meanwhile, Capital Airlines announced it had pushed into the black for the first time in 1948 with a $95,674 net profit in May. Operating profit was $136,141. The company had shown a net loss of $230,251 in April.

While passenger revenues increased from $1,369,500 in April to $1,584,700 in May, the total was only slightly above the $1,571,275 reported for May, 1947, when fares were lower. Capital's revenue passenger mileage in both April and May of this year was considerably under 1947 levels.

Adjustments in Capital's mail pay formula proposed by CAB this month should yield the carrier more than $800,000 in additional revenue in 1948. Under the mail rate schedule in effect at the start of this year, the carrier had anticipated a net loss of more than $1,000,000 for the 12-month period.

Other financial developments:

• **Northwest**—Officials have indicated that the company may be in the black during May. A profit for June was regarded almost as a certainty.

• **Los Angeles Airways**—CAB has amended the helicopter operator's temporary mail rates to give the company $1.50 a plane mile between Oct. 1, 1947, (when service began) and Apr. 30, 1948; and $1.25 a plane mile on and after May 1, 1948. Former rate was $1.00 a plane mile. LAA had set $1.65 cents a plane mile as the rate needed to break even.

• **West Coast Airlines**—The feederline has been granted a new temporary mail rate which increases compensation about $14,000 in 1947 and $90,000 in 1948.

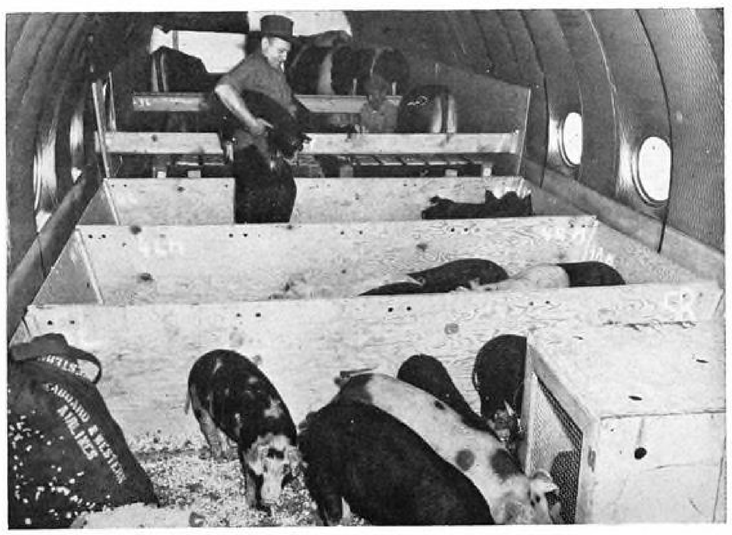
## Big Month for American

Availability of Convair-Liners and of its entire fleet of DC-6s will make June one of the biggest months in history for American Airlines.

About 225,000,000 passenger seat miles are scheduled for the month, compared with 206,000,000 last October, the highest previous figure on record. In June, 1947, American scheduled 178,000,000 seat miles.

Cargo capacity scheduled in all-cargo aircraft this month was slated to reach a new high of 4,200,000 ton miles. AA now has a fleet of 16 airfreighters which will be augmented this summer with additional DC-4s retired from passenger operations.

Of the record 225,000,000 seat miles scheduled this month, 140,000,000, or 62.5 percent, are being flown in DC-6s. AA DC-6s now are flying nine transcontinental flights daily.



**$33,000 FARM LOAD TO EUROPE**

Partially loaded interior of the DC-4 in which Seaboard & Western Airlines recently carried an 11,000-lb. shipment of 80 farm animals valued at $33,000 to Milan, Italy, for Carnation Milk Farms. Prefabricated stalls and pens held bulls, heifers and pigs. Dogs and chickens were placed in the tail of the plane. Assemblers termed the load "biggest and most diversified" in trans-Atlantic airfreight history.

Austin J. Tobin (left), executive director of the Port of New York Authority, watches as Henri J. Lesieur (right), general manager of the North American division of Air France, signs the first airline agreement for use of New York International Airport. Standing left to right: William M. Schwarz, chief of scheduled air transport bureau of the Port Authority; Jean Ponsot, assistant to the general manager, Air France; Sidney Goldstein, assistant general counsel; and James C. Buckley, director of airport development for the Port of New York Authority, operator of the airport.

# Three Lines Sign to Use Idlewild

## Handful of foreign carriers will rattle around in big field as most others reject Port Authority's terms.

What once was 4900 acres of marshy tideland and now is an airport nine times larger than LaGuardia Field may appear bare when it opens for business next Thursday.

Only three buildings are on New York International Airport (Idlewild), and only three foreign flag carriers have signed agreements for space—Air France, Linea Aeropostal Venozolana and Peruvian International Airways—and none is scheduled to start operations until mid-July.

Last week, it was possible that those three would be the sole tenants for some time to come.

The other airlines—both domestic and foreign—maintain that the Port of New York Authority should abide by original leases signed in 1945.

The Port Authority declares those leases are "outmoded" and that the airlines agreed to sign new ones and now have backed out.

▶ **Ramifications**—Whichever side wins in the end, the ramifications of the outcome will have significance spreading far beyond the New York area:

• The Port Authority sponsored and is a member of the Airport Operators Council, a tight-knit organization which accepts as a member any airport handling at least 1 percent of all scheduled air traffic in the U. S. Any effort on the part of these airports to raise rates may depend in large measure on the results of the Idlewild dispute.

• Should the airlines accede to the Port Authority service charges, they also may try to reduce expenses by shifting some traffic from the New York City area to nearby cities where airport charges are lower.

• The airlines have suddenly discovered that only the City of New York has the right to sue the Port Authority to make it perform according to contract. There is already a demand that this be corrected in the next session of the New Jersey and New York state legislatures. Since the Port Authority has been the model for other quasi-public authorities controlling major airports throughout the country, this may lead to similar legislation elsewhere.

▶ **Controversy Open**—First open developments in the controversy between the airlines and the Port of New York Authority, operator of Idlewild:

• Eleven major airlines, in a letter to New York City Mayor William O'Dwyer, had asked the City to sue the Port of New York Authority to compel it to live up to the terms of the original Idlewild leases.

Carriers signing the letter to the mayor were American, AOA, BOAC, Capital, Eastern, National, Northwest, Pan American, SAS, TWA, and United.

• O'Dwyer's answer said it was the opinion of John P. McGrath, corporation counsel, that the city could not compel the Authority to abide by the terms of the 1945 Idlewild leases. He added that when the city entered into agreement with the Port Authority on Idlewild, the various airlines released the city from all obligations.

▶ **Airlines Organized**—Now formally banded together as the "New York Airlines Committee," the 11 airlines directly involved claim no basis exists for the Authority's attempt to brand current leases at Idlewild as "outmoded or "unworkable." The airlines are "willing to carry out the commitments which they have undertaken in these agreements. The Authority has an equal obligation to carry out its commitments."

A spokesman for the Airlines Committee stated that the airlines do not approve of the Port Authority's proposed leases and charges (AVIATION WEEK, June 7) since they can be changed at any time at the discretion of the Authority.

He also claimed that the airlines "never agreed to re-negotiate in such words."

▶ **Foreign Balk**—Meanwhile, foreign flag carriers, which have been told by the Port Authority to discontinue operations at LaGuardia and move to Idlewild by July 1, are balking.

Two carriers, KLM (Dutch) and SAS (representing Denmark, Norway and Sweden) have already filed protests with their embassies in Washington to present their views to the Department of State.

▶ **Arbitration**—At this time, it does not appear likely that either side will yield. A third party to arbitrate, not connected with either the airlines or the Port Authority, may be the only answer in the sometimes-bitter battle.

Meanwhile, New York International Airport, set up to handle 1000 flights a day, can count on only 23 flights a week—and these, not until mid-July.

The $160,000,000 expenditure to build the "world's largest airport," may be a long time returning.

## Willis at Idlewild

Willis Air Service, Inc., has leased the remaining space available in Hangar No. 1 at New York International Airport. The north half of Hangar No. 1 has been leased to Sailors Aircraft Service, Inc., for aircraft maintenance and repair.

Willis will engage only in maintenance and repair, and in the sale of tools, instruments and aircraft parts and accessories at New York International.

In addition to an aircraft maintenance base at Teterboro Air Terminal, Willis operates cargo flights.

# Peru Fields

**Braniff's permit to land at Lima is restored under U. S. pressure.**

Heat from Congress and the State Department has thawed the Peruvian government's frigid attitude toward granting Braniff Airways landing rights at Lima.

Shortly before Braniff inaugurated South American service on June 4, Peru suspended the carrier's permit. As a result, the U. S. carrier's new operations southward from Houston terminated at Guayaquil, Ecuador, for two weeks.

▶ **Peru Reconsiders**—But the suspension has been withdrawn, at least temporarily, and on June 18 Braniff started operating its DC-6 and DC-4 flights through to Lima. Meanwhile, the State Department opened negotiations with Peru to put Braniff's landing rights on a firm basis.

Peru's backdown followed a barrage of protests by members of the Texas Congressional delegation against the South American nation's refusal to permit the Braniff operation, which was provided for in a 1946 bilateral air transport agreement. Under the pact, Peruvian International Airways was given authority to serve Washington and New York.

▶ **Loan Becomes Factor**—Sen. Tom Connally (D., Tex.), former chairman of the Senate Foreign Relations Committee, asked Secretary of State George Marshall to re-open the negotiations with Peru. Other members of the delegation from Texas—Braniff's home state—have recommended that when, as expected, Peru seeks an Export-Import Bank loan it be withheld until the country gives Braniff full operating rights into Lima.

Pan American Airways and Panagra early this spring made unsuccessful last-ditch appeals to Congress and CAB to block Braniff's Latin American service. Despite these setbacks, both PAA and Panagra reportedly are still making their opposition to Braniff's new operations felt.

▶ **PIA Situation**—On the surface, the Peruvian government's move against Braniff was entirely in the interest of Peruvian International Airways, its own flag carrier. Peru fears PIA may lose considerable traffic on its Havana-Panama-Lima segment through Braniff's competition.



# Youth Hostel Group Takes to the Air

Transocean Air Lines will carry 700 American youths to Europe this summer in the largest youth air travel program ever undertaken.

First flight, to Geneva, Switzerland, left June 20 from Bradley Field, near Hartford, Conn.

▶ **Sponsor**—The travel program is sponsored by Youth Argosy, Inc., of Northfield, Mass., a non-profit organization. It is a member of the International Youth Hostel Federation, which conducts activities in 24 countries throughout the world.

Each flight will carry approximately 46 passengers. Flights will be on a three-a-week basis from June 20 into July. The travelers will return approximately 60 days later. Airports of call are Shannon, Ireland; Bovington, England; Brussels, Belgium; Paris, France; Geneva, Switzerland and Oslo, Norway.

▶ **Bicycles Aboard**—Transocean's DC-4s will also carry the light aluminum bicycles for youths who will travel through Europe.

The air travel program was arranged with Transocean when 6000 applications were received for youth hostel travel this summer, with only 2600 accommodations available aboard steamers.

Otis F. Bryan

## Bryan Leaves TWA For Position at PAL

Otis F. Bryan, one of the last remaining top executives of the Jack Frye administration, has resigned from TWA to become vice president and assistant to the president of Philippine Air Lines.

A veteran of 19 years service with TWA, Bryan joined the organization as a pilot in 1929. In 1943 he was elected a vice president in charge of TWA's war projects. After the war he was placed in charge of operations on the company's new international routes, later taking over the duties of general manager of the international division.

▶ **Position Shift**—Following the departure of the Frye administration and consolidation of domestic and international division operations under John A. Collings, Bryan late last year was placed on special assignment in connection with TWA's contracts with associated airlines. Bryan's headquarters with PAL (in which TWA has a small stock interest) will be in Manila.

TWA also announced the resignation of Robert H. Biron, vice president of industrial relations. He will become a vice president of Consolidated Vultee Aircraft Corp., which is now headed by Lamotte T. Cohu, who left the TWA presidency last month. D. W. Harris has been named TWA system director of industrial relations to replace Biron.

▶ **Heads Public Relations**—Meanwhile, Gordon Gilmore was appointed director of public relations for TWA's domestic and international operations.

• Other personal developments:

**American**—Theodore P. Gould, who has resigned as vice president of Scandinavian Airlines System, will become AA's director of passenger sales on July 15.

**Northwest**—Larry Kinports has been named director of sales.

**Pan American**—A. S. Galbraith has been appointed supply manager for Latin American operations.

## American Wants "All" From Freight Carriers

American Airlines has filed a petition with CAB asking that applicants in the Air Freight Case, Docket No. 810, be required to make "a complete disclosure of all pertinent operating and financial aspects of their operations."

Petition states that special reports recently required from the applicants under Section 292.5 of the Economic Regulations will not reveal "expenditures borne by others but made for the sole benefit of the applicants' freight operations."

The airline alleges that one applicant has an executive officer who is being compensated partially from private sources to reduce the executive salary item on the company's books. It asserts, further, that substantial private resources support one applicant, with possibility "very real" that this company is securing services without reflecting the cost thereof on its books.

The petition also states that one applicant has transported from West Coast to East Coast produce purchased by applicant or an affiliate of the applicant in order to build up eastbound payload figures.

Petition asks the Board to amend reporting requirements for non-certificated cargo carriers to require full disclosure of all expenses, direct or indirect, a full disclosure of all circumstances under which revenue cargo owned by an applicant or an affiliate has been transported, and to require a sworn statement that the report reflects all expenditures.

## CAB SCHEDULE

**June 30**—Oral argument in Chicago helicopter service case. (Docket 2384, et al.)
**June 30**—Hearing on Board's investigation of Pan American Airways' Miami-St. Thomas tariffs. (Docket 3274.)
**July 6**—Hearing on Pan American Airways' Pacific certificate amendment case. (Docket 2953, et al.)
**July 7**—Oral argument in Boston-Bermuda route case. (Docket 1650, et al.)
**July 12**—Hearing on PCA-National equipment interchange agreement, postponed from June 22. (Docket 3291.)
**July 12**—Oral argument in safety action brought by CAA against former American Airlines pilot Charles R. Sisto. (Docket SR-1987.)
**July 13**—Oral argument in Pan American Airways' domestic route case. (Docket 1803.)
**July 26**—Hearing on Capital Airlines mail rate case. (Docket 484.)
**July 27**—Hearing on National Airlines route consolidation case. (Docket 2967.)
**Aug. 2**—Hearing on Board's investigation of free and reduced rate transportation. (Docket 2737, et al.)

PICTURE CREDITS

McGraw-Hill World News—12; USAF—13, 14, 15.



## SHORTLINES

▶ **Braniff**—Marked the 20th anniversary of its first flight last week.
▶ **Eastern** — Will inaugurate regular service to Bowling Green, Ky., on Aug. 1 and to Lafayette-New Iberia, La., on Aug. 3.
▶ **Lamsa**—The United Air Lines affiliate has inaugurated the first night flights in Mexico to points other than Mexico City. New night operations are designed to double the frequency of service on the Juarez-Mexico City route and provide complete international connections with U. S. airlines at El Paso, Tex. In addition to Mexico City, airports now equipped for lighting include Juarez, Chihuahua City, Torreon, La Colorada and San Luis Potosi.
▶ **Northeast**—Has inaugurated its summer schedule with additional service to Maine and the Cape Cod area.
▶ **Northwest** — Has inaugurated DC-3 all-cargo service between the Twin Cities and Chicago on a five-days-a-week basis.
▶ **Robinson**—Is staffing 10 stations in preparation for certificated feeder operations in New York State.
▶ **Slick**—Flew total of 3,000,946 revenue ton miles in May, a record in the history of the airfreight industry. The May volume brought the company's overall total in 26 months of operation to 45,083,513 ton miles.
▶ **Southwest**—Carried 20,396 passengers on its West Coast feeder system during the first four months of 1948 compared with 14,213 in the same 1947 period.
▶ **Transocean**—Has asked CAB for an exemption to operate regular daily flights between Guam, Tinian and Saipan islands. No commercial air transportation is now available on this run.
▶ **TWA** — Has added an all-daylight scenic Constellation flight from New York to San Francisco to its daily schedules in a bid for summer tourist traffic. . . . Company has instituted direct service from Chicago to Spain and Portugal.
▶ **United**—May revenue passenger mileage gained 22 percent over April's total but lagged more than three percent behind May, 1947.
▶ **Western**—Offers its 1400 employees in 40 cities an opportunity to get acquainted with each other through the medium of motion pictures written, directed and produced by company personnel. Called the "Newsreel of the Month," the film will highlight a city a month, and will record the daily routine of WAL employes as well as some of the scenic and industrial areas in the region.

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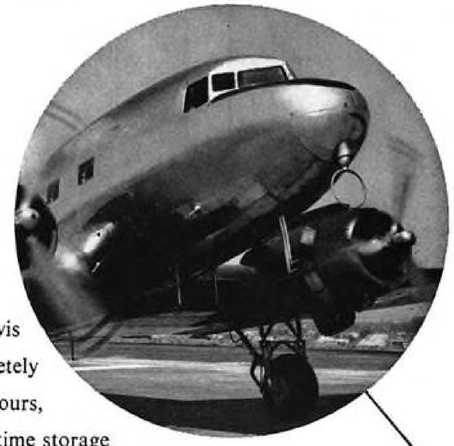

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# EDITORIAL

## Helicopter Laboratory—A Success Story

While rocket planes that can fly five minutes capture the nation's headlines, out in Los Angeles the hard-working helicopter is quietly taking its place as an accepted public servant. It attracts hardly more attention than a street car, and is much less trouble to the citizenry.

For a year or so, the helicopter's future was cursed by publicity as flamboyant as it was premature. Then John Public discovered it was not soon to be private flying's answer to the Ford in his garage, and it dropped out of the press and magazines.

Ever since, the helicopter's very realistic commercial versatility has been undersold. Its military advantages are still mainly unrecognized by the two air services. The ground Army is learning much more rapidly.

Both military and commercial operations stand to harvest benefits from Los Angeles Airways, the world's first scheduled helicopter mail service, which is completing the ninth month of flying its system of 356 airway miles, connecting over 30 suburbs with the metropolitan airport and the terminal post office.

Concerned at this time with mail only, LAA has no need for costly downtown sales rooms or facilities for passenger comfort. Uncle Sam gets value received for his mail dollar and there are no debatable hidden costs. LAA is a compact corporation of 20 local stockholders and 29 personnel, including 8 pilots, 12 mechanics, "and one vice president who does nothing and receives no pay."

LAA's President Clarence Belinn feels, quite justifiably, that his enthusiastic, pioneering group is producing significant data on the workhorse utility and dependability of the helicopter. The prospect of economic self-sufficiency seems much improved since this time last year.

Public acceptance? Belinn has not received a single complaint about noise, yet his five craft are commuting busily two and three times a day over densely populated areas at never more than 1300 feet altitude.

Costly mufflers bought months ago still lie in a storeroom, unneeded. The copters are teaching a lesson that is becoming embarrassing to the airlines and the military services. Several Los Angeles citizens have called up the sheriff's office to protest about noisy planes and ask why it is that those air mail helicopters can be so quiet when planes aren't?

LAA has received only two minor complaints from the public—about dust.

Dependable operation? Averaging 200 landings a day, a few minutes apart, Los Angeles Airways has had only one mechanical delay. It has had one forced landing—due to weather. Minor mechanical problems requiring pre-flight repairs have been the prime headache. These must be expected in any machine so revolutionary and complex, however.

Fortunately, CAA has cooperated with LAA and Belinn praises the agency's recognition of the experimental nature and special problems of helicopter operation. While Belinn makes clear he does not always agree with CAA's Sixth Region office, he concedes its staff has been tolerant in applying regulations for fixed wing aircraft, and says CAA demands have been "fair and sound."

It is also fair to give similar credit to the Helicopter Council of the Aircraft Industries Association for many time-consuming conferences with CAA and uniform and sane recommendations in the interest of public safety but guarding against a stifling overregulation.

"We are a natural helicopter laboratory, already a going concern," LAA's president says. "Economic self-sufficiency largely will depend on rapidity of advanced helicopter research, especially in improving payload and design of presently non-existent ground reference instruments with which the pilot can maintain level flight under vision zero weather.

"As a step in this direction, we already have one copter equipped for night flight, and CAA-approved. Also, with new metal blades of higher load and expansion of baggage compartment area, we expect to increase payload of the Sikorsky S-51 from 750-lb. current to 1100-lb. by spring."

Call the helicopter too youthful for dependability if you insist, but look at the record. The LAA organization has met and exceeded all performance dates and conditions.

"What we said we would do, we did, to the day and hour—or much earlier," Belinn says. Service started Oct. 1 as planned. Route B, scheduled to open March 1, was started Oct. 15 instead. Route C opened Jan. 10, although not promised the Post Office Dept. until June 1. On May 1—five months ahead of time—a third daily flight was added to segments A and B, and to the airport-post office shuttle. This month LAA is starting third flights on segment C, originally set for Jan. 10, 1949.

Belinn is confident that when adequate instruments become available for "blind" flight, LAA can maintain 98 percent performance year in and out. Mail loads have been increasing so rapidly that LAA has not even begun to estimate passenger and express potentials on such routes, all over congested street and highway traffic.

Experience now exceeds 2000 helicopter hours. This far exceeds all other commercial operations, Belinn believes, and may well exceed even the flight time piled up in test operations at the Sikorsky factory.

After less than a year's toil, Los Angeles Airways' 30 men are proving that the helicopter justifies the faith that Post Office, CAA and CAB have placed in it. Unfortunately, its potential in commerce and military aviation is still largely unappreciated.

—ROBERT H. WOOD

# POWER

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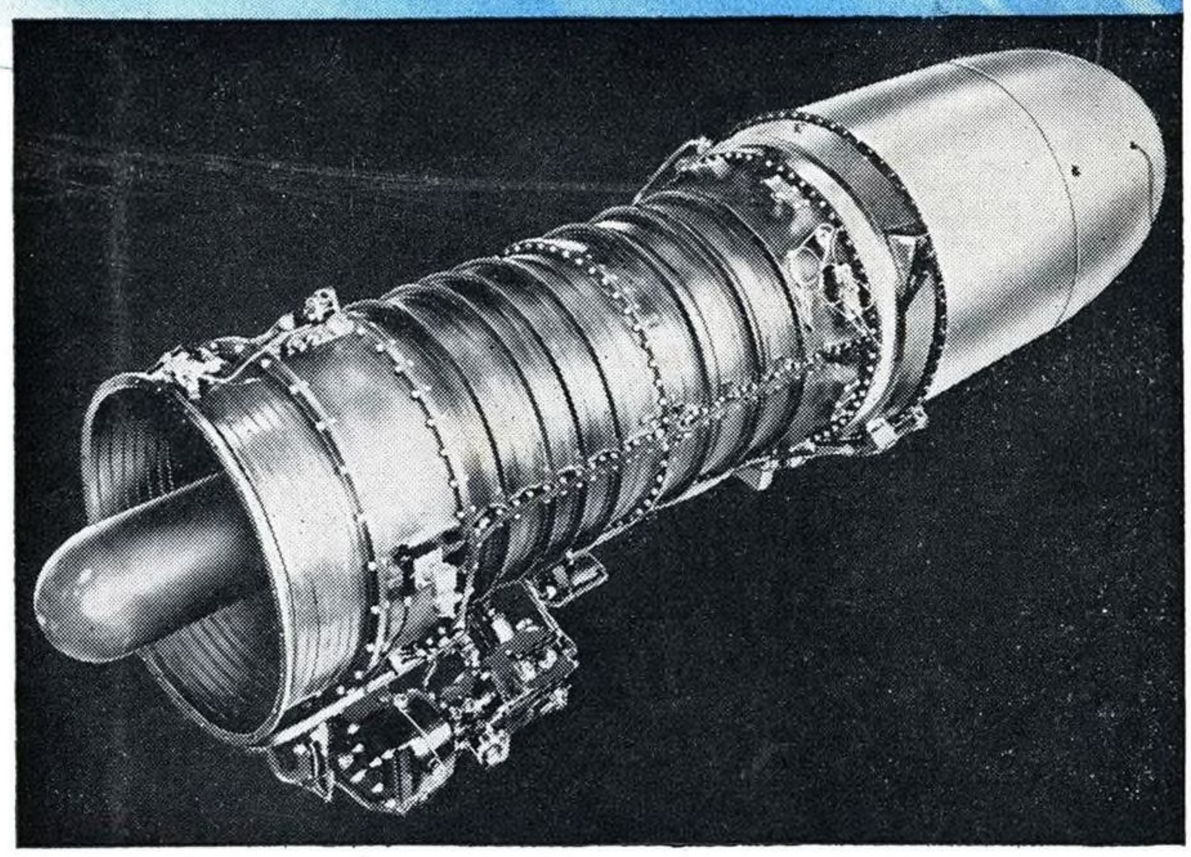

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