

## Convair B-58

Convair's supersonic B-58 Hustler bomber is given a full rundown in a recent edition of the U. K. publication *FLIGHT*. The J-79 General Electric power plant is the most noteworthy single feature in the British publication's view. The four-podded J-79s give 11,000 lb thrust each, with a boost to 16,000 lb with afterburners. Speed is said to be Mach 1.7 to 1.8. *Flight* describes the J-79 high pressure ratio, small bulk and low weight as an "attractive combination" for use in the B-58. Variable-geometry air diffuser spikes positioned by a Minneapolis-Honeywell system on the circular intakes of the J-79s regulate air flow with about 89% of the total air flow supplying the engines while the balance is used to cool the power plant, hydraulic fluid, oil and cabin air. At Mach 2, temperature at the delivery from the compressor is almost as high as at the hot end of the engine, the article states, and this is one of the factors which led Convair and GE to eliminate nacelle firewalls and use a "hurricane of cooling air" between engine and cowlings. The B-58 is said to be a bare weapons vehicle in most missions, with design for at least three separate pods; nuclear weapons, camera and pilotless interceptor missiles. A fourth pod, carrying airborne countermeasures, will be standard on the first four of 13 machines to be built by Convair. *Flight* reports that there are tanker and transport versions of the Hustler series on the drawing boards.

## F-27 Changes

Fokker F-27 Friendship's zero-fuel weight has been upped to 32,210 lb and landing weight increased to 34,000 lb while CAR landing field length remains at 3,000 ft. Fokker also announces availability of a version with the Rolls-Royce Dart RDa7 engine giving a 1,700 shp and speed up to 311 mph. Water-methanol injection is eliminated with this version of the engine.

## Turboprop Boxcar

Armstrong Whitworth AW 650/651 boxcar project is, as the 651, designed for a capacity payload of 30,000 lb, cruise speed of 300 to 350 mph and maximum stage length of 2,000 miles. As a civil/military transport it will have maximum seating for 66 and pressurization. The freighter version will have nose and tail clamshell doors. The 651 version is powered by four Rolls-Royce Darts, the 650 version is powered by two Rolls-Royce Tynes but could be fitted with Bristol, Napier or U. S. turboprops.

## U. K. Seats to U. S.

The U. S. Navy has announced plans to install 100 of the Martin-Baker "ground level" ejection seats in 50 of the new Grumman F9F-T8s. The seat, which is in service with the RCAF's CF-100s, features automatic seat belt and parachute opening and operates effectively at altitudes below 300 ft.



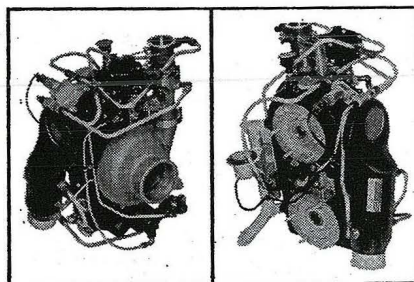
## Lockheed C-130A Hercules uses Stratos 2-Pad Bleed Air Turbine as generator, hydraulic drive

A single constant speed air turbine drive does double duty aboard Lockheed's C-130A Hercules logistics carrier. The 45 hp unit, built by Stratos, operates on air bleed from the engine compressors and drives both a 400 amp generator

and a hydraulic pump. The integral overspeed protection has been proved reliable. Compact and light, the unit can be used in many applications where two sources of mechanical power are required.

Shaft speeds other than the 6,000 and 3,500 rpm ratings of the -2A model can be provided. Likewise, the available horsepower can be divided in other proportions to meet other requirements. Since such variations would require only a minimum amount of changes in gearing, units to meet specific requirements can be developed quickly.

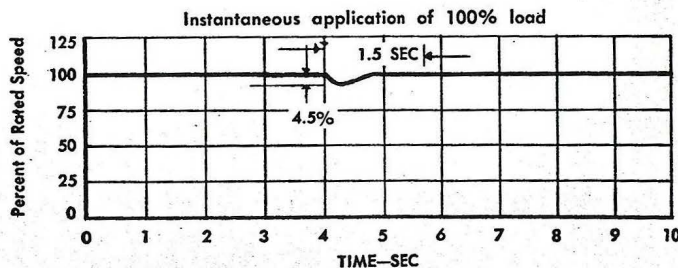
While the model TP25-2A — newest of Stratos' line of constant speed turbine drives — is used to drive a DC generator in the C-130A application, speed control accuracy makes it suitable for use with alternators. As in other models, the fast-acting governor holds output speeds within 1/4 of 1% from no load to overload conditions at all altitudes. The units are extremely rugged — models of the TP25 series have been whirl tested at 9Gs under full load to simulate aerobatics. Even under such conditions, speed variation was only 1.9 per cent.



**MODEL TP25-2A**  
Constant Speed 2-Pad Air-Turbine Drive

and a hydraulic pump. Nominal output at the 6,000 rpm generator pad is 25 hp while the nominal rating at the 3,500 rpm hydraulic pump pad is 18 hp. Fully qualified, the unit, Stratos Model TP25-2A, automatically maintains constant output speed regardless of input con-

Speed Control Characteristics of the TP25-2A during typical transient condition



For details on these and other Stratos auxiliary power turbines write to:  
**STRATOS — Bay Shore, Long Island, N. Y.**  
A Division of Fairchild Engine and Airplane Corporation



# Aviation News Digest

November

Canadian Aviation

1955

## CPA Buys Britannias

Canadian Pacific Airlines has become the first North American airline to order a long-range turbo-prop airliner the British-built Bristol Britannia.

On October 14 CPA President Grant McConachie signed an order with Bristol for three Britannia 300 LR's plus spares worth \$10 millions and an option on five more. Delivery will be made early in 1957.

The Britannia 300 LR will seat 100 people and has a still-air range of 4,940 miles. With a payload of 16,000 lb. it has a range of 6,220 miles. The four Bristol Proteus 755 turboprops, each of 4,120 ehp, give it a cruising speed in the 360-405 mph range.

CPA plans to use the aircraft non-stop on its polar Vancouver-Amsterdam service and on its Tokyo-Vancouver, Honolulu-Vancouver and eventually Sydney-Amsterdam services.

Using the Britannia, CPA's polar service will become a nonstop service cutting the present 18 hours flying time (using DC-6B's) to 12 hours. Honolulu-Vancouver will be cut to seven hours.

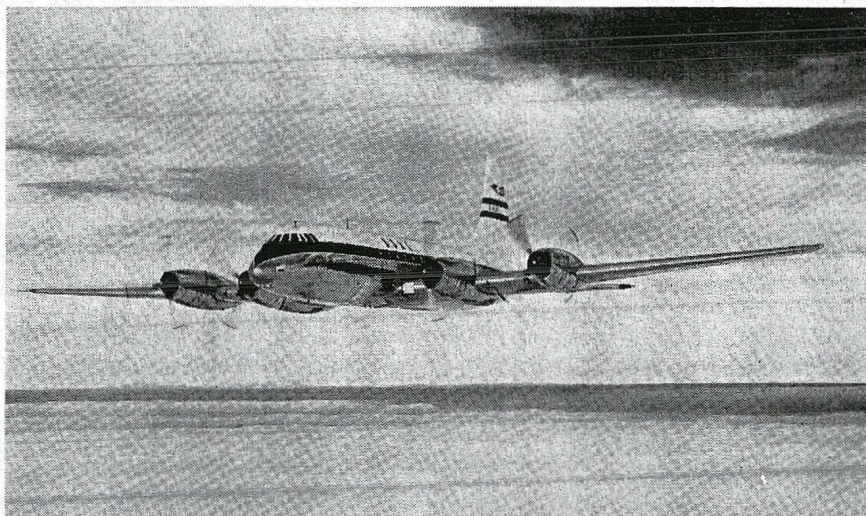
Purchase of the Britannias makes CPA the third airline to order them. BOAC has ordered 33 (15 Mark 100, 7 Mark 300, 11 Mark 300LR). El Al Israel Airlines has ordered three Mark 300LRs.

In placing the Britannia order CPA makes it clear it has not dropped its option on the Comet III (now the IV). However it's understood CPA may wait for further longer range versions of the Comet.

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**Canadair Ltd.**, a subsidiary of General Dynamics, has been awarded a contract to prepare design and a cost estimate for a swimming-pool type experimental atomic energy reactor. This type of reactor is housed in a concrete tank of water. The contract has been placed by the Crown company Atomic Energy of Canada Ltd.

The swimming-pool reactor will be a low-power machine for use in research related to Canada's power reactor program. It is expected to cost



BRISTOL BRITANNIAS 300 LR have been ordered by Canadian Pacific Airlines, 3 for \$10 millions.



PAN AMERICAN WORLD AIRWAYS has announced the purchase of 20 of these Boeing 707 jet Stratoliners for delivery starting in December, 1958. Carrying 104 passengers first class it will cruise slightly under 600 mph which means crossing the continent between breakfast and lunch.

between \$250,000 and \$300,000.

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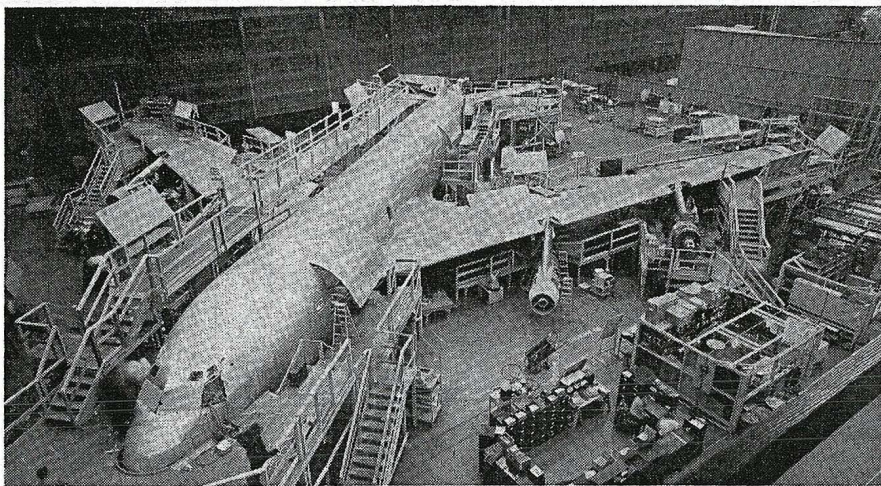
**Canadian Pacific Airlines** is looking to the change in Argentina's Government with renewed interest. CPA applied over a year ago to extend its Vancouver-Mexico City-Lima service to Buenos Aires. At the time verbal approval had been given by the Argentine Government

but the official agreement remained unsigned. Recently the airline's South American manager Peter Baronas, left for Buenos Aires.

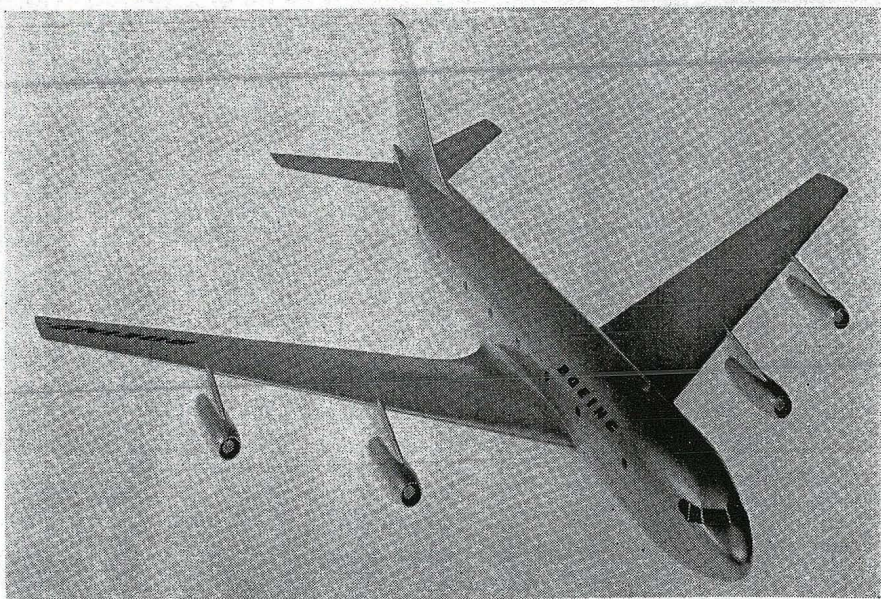
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John Lindsay, Vice-President of **Frontier Airlines**, stated in Canada recently, that his airline is seeking permission to extend its service to Regina, Sask. One service would





FIRST JET TRANSPORT TO BE BUILT IN U. S. A., the new Boeing prototype, is shown here in this first released photo as it neared completion by Boeing Airplane Company. The big, four-jet, 190,000-lb. transport will be used as a prototype model for demonstration to the military services and commercial airlines. It represents a private investment by Boeing Airplane Company of more than \$15 millions. This new "transport of the future" is 128 feet long, its wings measure 130 feet from tip to tip, and it will weigh 190,000 lb. in fully loaded condition. Cruising speed is in the 550 miles per hour class. In its military version, as a multi-purpose tanker-transport for the armed forces, the fast, high flying jet will make possible greater range, striking power and mobility for America's present and future jet air fleets. As a commercial airliner, the new Boeing will be capable of regular transcontinental nonstop flights in less than five hours; nonstop New York to London schedules of less than seven hours.



THE NEW BOEING JET TRANSPORT-TANKER PROTOTYPE in exact scale model form reveals its general external details for the first time. The big, four-engine airplane now is nearing final stages of completion by Boeing Airplane Company. As the USA's first jet transport, the new Boeing will be utilized by the company as a demonstrator for both military and commercial uses.



THE CONVAIR R3Y TRADEWIND TRANSPORT—America's first turboprop seaplane takes off on San Diego Bay for its maiden flight. The 80-ton high-speed transport took off in less than 30 seconds and remained in the air during a shakedown test program for more than two hours.

ICAO may be, one might at least expect that an airplane approved to the International Standards would export with a minimum of formality to any one of the 60 states which are contracted to ICAO. Like all great expectations this has proved to be a slight exaggeration — Canada's first 100% ICAO export languished in the shade of a distant hangar for some time while it was subjected to various indignities and findings too sinister to mention were hinted at.

The principal weakness in the ICAO Code is its attention to detail. Modern standards must be adaptable to keep pace with development and the more they are detailed, the greater the emphasis must be on flexibility. When a point of detail arises in a new design which does not agree with the chapter and verse of the Rule Book, it is imperative to work out a solution with the authorities as quickly as possible. One cannot, at the drop of a hat, call a meeting of experts to represent 60 different countries. Even when they are in session, international bodies are not noted for quick decisions.

This inflexibility of the international standards is a major defect. The time interval between the conception of an airplane and its appearance in useful production quantities is so great that the designer must be thinking at least five or six years in advance of the current art in order to have a product which will not be obsolete before it can come into general service.

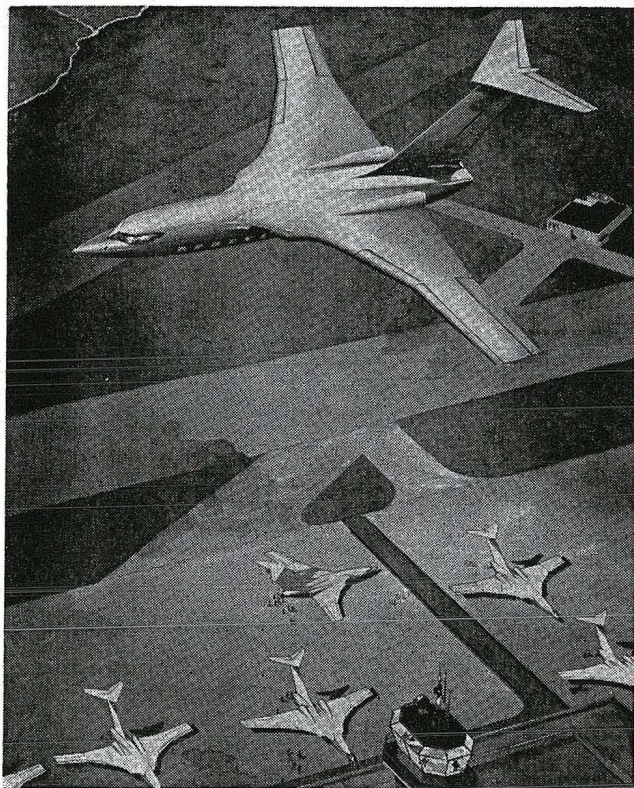
The current published codes are based on experience with the art as it was practised ten years ago with an earlier generation of airplanes. A firm which wished to design a competitive jet transport for use on the airlines six to ten years hence would be committing economic suicide if it attempted to design the airplane in close conformity with a code reflecting experience with early postwar transports. In designing Comet III's, for example, it is important to apply all the lessons which have been learned from the earlier models. The manufacturer and some of the airlines can contribute much data of this kind, but is unlikely to appear at an early date in any published code. Progress in aircraft design is so rapid that a rigid set of detailed standards can serve as little more than a record of past achievements. Such material provides a foundation essential to future development and no serious design organization would ignore it,



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## Fairchild Reveals Plans for Long-Range, High-Speed Jet:

# New Jet Transport Planned

The Fairchild Aircraft Division has unveiled plans for a completely new high-speed commercial jet transport.

Previews of the proposed Fairchild M-186 twin-engine jet liner and cargo carrier have been presented by Walter Tydon, the company's chief design engineer.

Developed under the Fairchild Engine and Airplane Corporation's new \$1,500,000 research program first announced in June, the M-186 is one of two projects now in the planning stage. Another design, currently of a classified nature, is for a turboprop military aircraft planned for operation from unimproved fields.

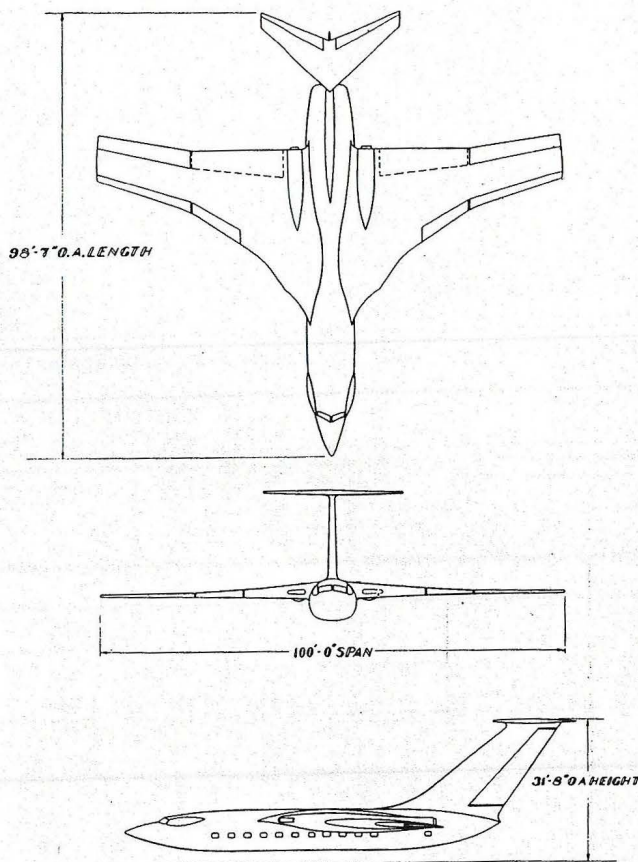
In his presentation, Tydon pointed out that a requirement for these types of planes soon will exist in both commercial and military fields if the U.S.A. is to keep abreast of world-wide aviation developments.

Designed as a high-wing transport built around what Fairchild calls a "cusp" wing, the M-186 will be powered with two Wright J-67 engines which will enable it to cruise at 570 miles per hour (495 knots). Thrust of this type of engine is estimated at 12,000 pounds minimum.

The plane will normally carry a crew of three and 44 passengers, with provisions for navigator and radio operator. High-density type of seating employed in air coach operations would permit accommodation of up to 64 passengers.

The flight deck features a side bubble canopy to afford maximum visibility for pilot and co-pilot. For increased flight safety in its operational speed range, the transport also will be equipped with APS-42 search radar as well as standard airline communication and navigational instruments.

Location of the twin J-67s in the wing slightly aft of



THREE-VIEW FAIRCHILD JET TRANSPORT

the passenger compartment is expected to minimize engine noise and contribute to greater passenger comfort.

The proposed jet-liner plans show it as a transport which could be readily converted to bulk freight operation. "Beaver-tail" doors in the rear of the fuselage would permit easy end-loading of air cargo, and its high tail and 48-inch truck-bed-level fuselage floor would eliminate the need for special cargo-handling equipment.

As presently conceived, the new Fairchild transport is normally designed to travel coast-to-coast with one stop for fuel. The plane also has provisions for nonstop trans-continental runs when fitted with external leading edge wing tanks.

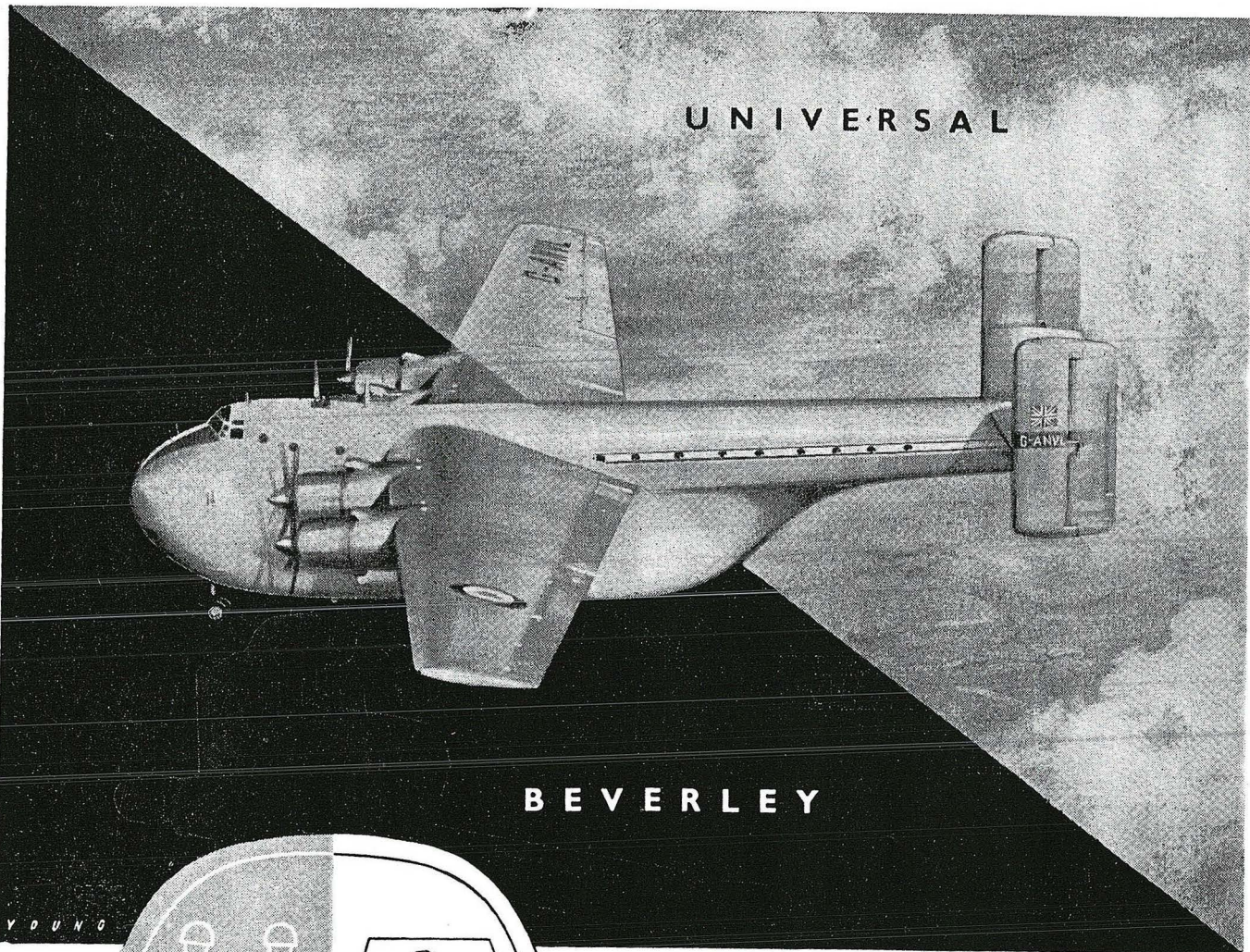
According to estimated performance characteristics, the M-186 will take off at 75,000 pounds within 2,600 feet over a 50-foot obstacle and land in 2,500 feet, using brakes alone. By employing reverse thrust in combination with standard brakes, it will land in 1,400 feet.

In its specifications, the M-186 has a wingspan of 100 feet, a length of 98 feet 7 inches, and a height of 31 feet 8 inches. Its normal gross weight is listed as 75,000, and the cargo version will have a payload of 35,000 pounds.

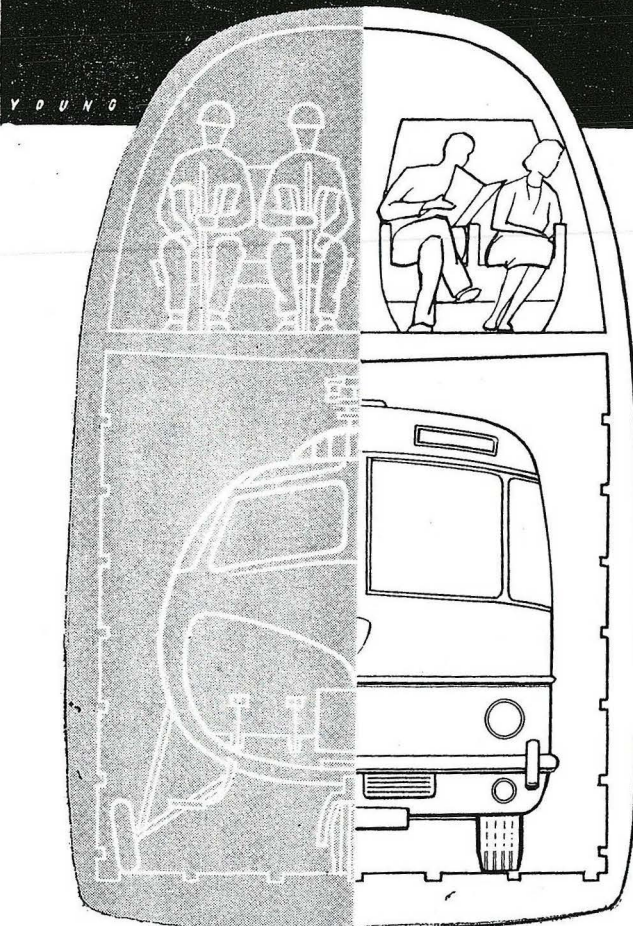
One of the most unusual design features is incorporation of the "cusp" wing, a hybrid developed from the delta and a conventional straight wing. Its designers point out that it is not to be confused with the crescent wing which grew out of a combination of the swept-back and straight wings.

The "cusp" retains the advantages of the delta wing, having the thickness of the wing at the root for maximum structural strength as well as maximum space for the power plant, gear, and fuel. From the straight wing characteristics it offers an extended wingtip of higher aspect ratio for increased range, more trailing edge for flaps and ailerons, and the straight wing's stability at low speeds.





BEVERLEY



## FOR *Every* SERVICE

For Air Forces and Commercial Operators this freight transport is the ideal vehicle for the future.

As the "Beverley", it carries troops and equipment such as armoured vehicles and guns, which can be dropped into action by parachute or landed on small advanced airfields.

As the commercial "Universal", it can carry 42 passengers, tractors, motor cars and other bulky loads up to 22 tons in weight.

The basic aircraft is readily convertible to either role. There is no need for concrete runways—the freighter operates equally well from grass, hard desert tracks or jungle airstrips.

For Bulk transport problems consult

# ***Blackburn***

***Blackburn and General Aircraft Limited, Brough, E. Yorks, England***

Agents in Canada: Messrs. Field Aviation Company Limited, Municipal Airport, Oshawa, Ontario, Canada





Shown on a test flight three days after coming out of the shop, the Hiller "360" displays the simple pattern of its design. The pilot and two passengers sit abreast in the wide cabin quite comfortably. Production models will have a fairing over the tail rotor drive shaft.

## Claim Hiller Helicopter Is Unusually Stable

Before a large gathering of aviation and press representatives at the company's new production plant site in Palo Alto, Calif., United Helicopters recently unveiled its three-place production helicopter, the Hiller "360." According to company officials, the demonstration displayed for the first time in helicopter history complete inherent stability. This newest entry into the commercial field was impressive, not only for its unique control system which achieves the long-sought stability, but equally for its simplicity of design and resulting weight savings.

The 178-hp craft, although designed as a three-place ship, easily lifted five people. In a stripped-down condition for field work in agriculture, the "360" achieves a useful load upward of 1,000 lb.

Before the "360" went through its paces the onlookers witnessed a stability demonstration during which a helicopter was rocked by an assistant standing on the ground and quickly righted itself without the pilot's touching the controls. Then, appropriately enough, this helicopter flew over to a screen set up nearby and unveiled the "360" by pulling off the canvas, following which Frank Peterson, chief test pilot for the company, gave a complete aerial demonstration illustrating the various novel control charac-

teristics embodied in this new helicopter.

Stanley Hiller, Jr., president of the company, stated in a short address that the "360" was slated for the agricultural, and industrial markets. He pointed out that this new helicopter was built around several radically new design features which he said "sets a new standard for the helicopter industry in simplicity, stability, and safety."

Mr. Hiller further stated that the company anticipates completion of CAA test and certification of the "360" in a few months with the outlook for production and deliveries in 1948.

### Lancasters for RCAF Air-Sea Rescue

Three Lancasters, complete with radar, latest devices for air-sea rescue work and airborne lifeboats will bolster the strength of Eastern Air Command's Search and Rescue Unit, S/L Ray Miller, officer commanding the section, announced recently.

The Lancs, which flew scores of operational trips overseas, will arrive early next spring, it was stated.

With this addition, the search unit will have seven aircraft. At the present time, an Anson V, a Sikorsky helicopter and two Cansos are assigned for search and rescue work.

### British Jet Wing Performs in Public

Claimed as the most advanced type of research aircraft in the world, the British Armstrong-Whitworth jet-propelled flying wing made its first flight in public recently.

The highly-polished plane is powered by two Rolls Royce "Nene" engines, has a wing span of 90 ft. and a fully laden take-off weight of 33,000 lb. It cost about \$800,000 to produce.

To make the air flow smoothly over its surfaces, the wing has a superfine grooveless skin with not a single rivet marring the even flow of air. On take-off, it was air-borne in a remarkably short distance.

Except when it was directly overhead, the wing was practically noiseless as it circled the field.

● The deHavilland Beaver prototype seaplane acceptance trials have been completed by the Dept. of Transport and the recommendation for a Certificate of Airworthiness has been made.

### Airport Post Office For Calgary

A new branch postoffice has been opened at the Calgary Municipal Airport, providing on-the-spot mailing facilities for air mail.

Known as the Air Mail Field Post Office it will be staffed by two postal employees who will be on duty sorting and bagging outgoing and incoming air mail.

● British Overseas Airways Corp has announced the opening of a new office in Toronto. The opening of this office marks a further step in the long-term BOAC policy for the improvement of booking and planning facilities for trans-Atlantic passengers.

In addition, this new office will enable local passenger agents to make a check on flight bookings and schedules on Speedbird routes in any part of the world.

### Cochrane Establishes Closed Course Record

● Jacqueline Cochrane, famous woman pilot, recently established a new 100-kilometer closed course speed record of 469 miles per hour for planes powered with reciprocating engines while at the same time setting a new international women's record for this particular distance.

The 62.136-mile course was flown by Miss Cochrane in an old model P-51 "Mustang" which she bought from the government's stockpile of surplus and obsolete planes. The course was over the Coachella desert where Miss Cochrane has a ranch home.

The flight was under the supervision of the National Aeronautic Association with Charles S. Logsdon of that organization present as chief observer, and, subject to later calibration of all instruments, will be certified in due course to the Federation Aeronautique Internationale in Paris.



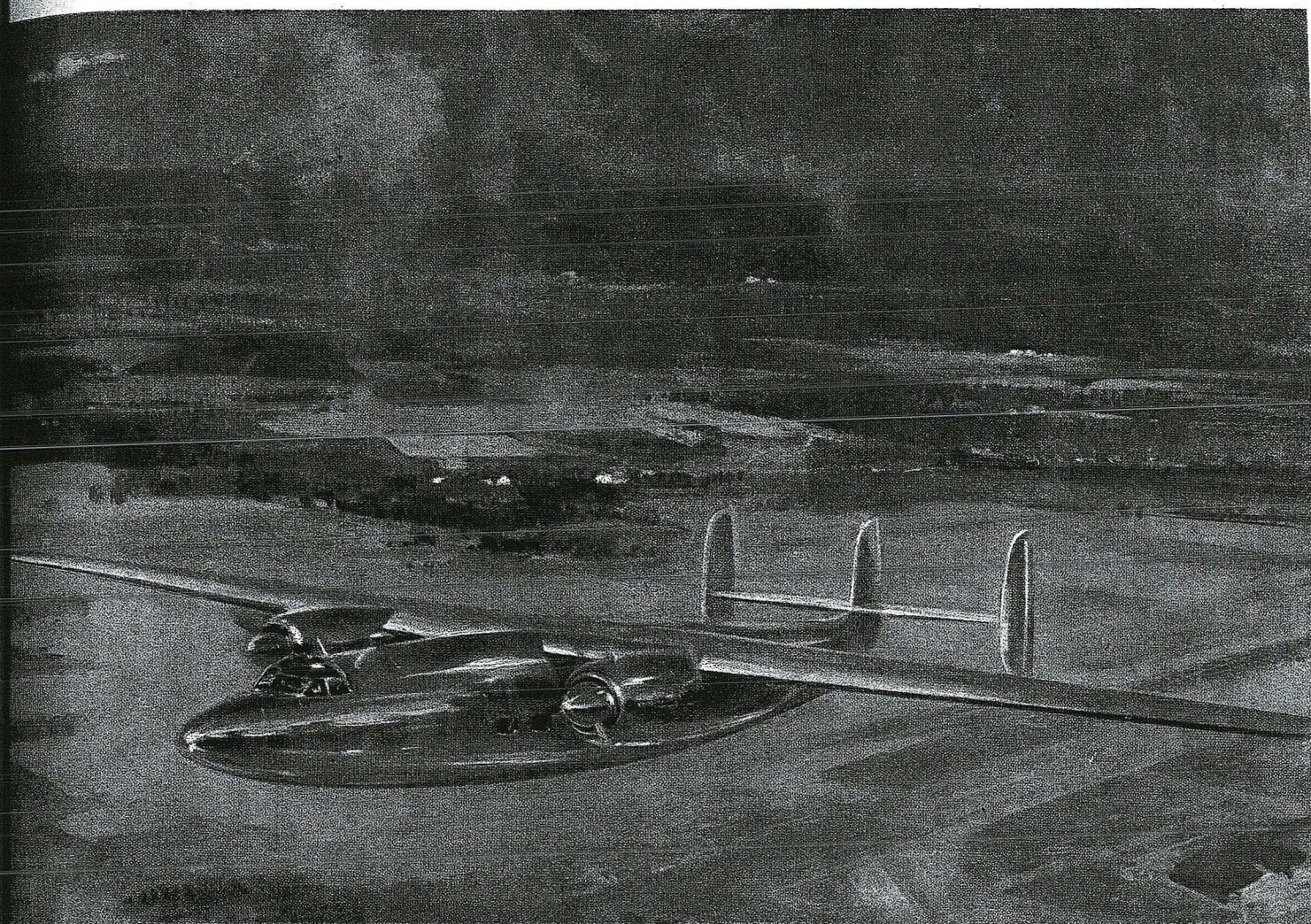
### LARGEST TROOP TRANSPORT FLIES

Five stories high and a block long, Consolidated Vultee's \$15,000,000 experimental XC-99, is shown on the approach after its first successful one-hour test flight recently. The new giant landplane, designed to carry 400 fully outfitted troops, is equipped with six 3,000-hp engines and has a range of 8,100 miles at 300 mph.

Four years were required to build the huge craft.



# Design for to-day—and to-morrow



Britain's latest passenger transport has all the qualities needed for many years of safe and comfortable operation over busy medium-length stages. Exceptionally efficient by present-day standards, the Ambassador's layout and structure have been designed so that full advantage can be taken of future power-plant developments.

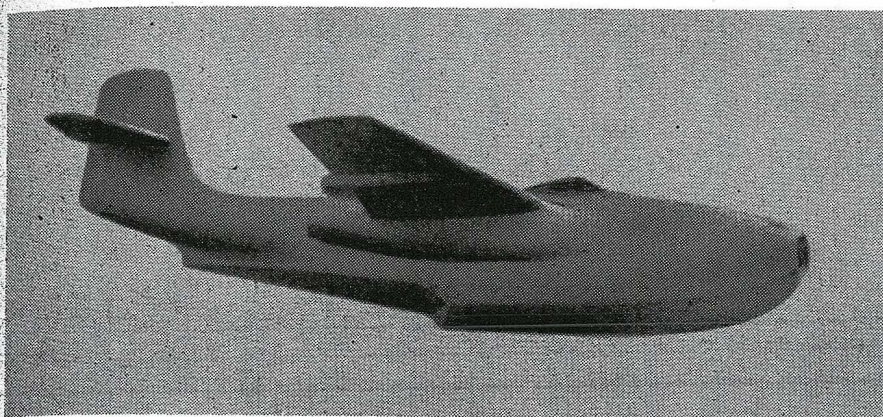
AIRSPPEED

*Ambassador*

AIRSPPEED LTD., CHRISTCHURCH & PORTSMOUTH, ENGLAND







## First Flying Boat Fighter Twin Jets Buried in Hull

**T**HE Saro SR/A1 single-seat flying boat fighter introduced by Saunders-Roe Ltd. in England seems to be of particular interest to lake-speckled countries such as Canada. Dominant features of this design are: a single air intake in the nose; two jet engines side-by-side in the hull; lateral proximity of the jet outlets, reducing jaw effect for one-engine performance; and virtual elimination of engine profile drag.

Before the advent of the jet motor, the problem of obtaining fighter performance and characteristics in a flying boat had been difficult, since it was necessary to provide sufficient water clearance for the propellers, which involved the use of shaft drives and other mechanical complications. In the SR/A1, these complications are avoided and all modern fighter requirements are amply met.

The aim of the company has been to provide the highest possible performance, and it was therefore decided in the initial stages of the design to preserve the high-speed characteristics of the wings by placing the power units and the armament in the hull.

The Metro-Vick F2/4 jet motor was finally selected for the project. The small diameter of this motor allows the units to be placed within the hull, and two of these units, mounted side by side, give approximately the same width of hull as that demanded by hydrodynamic considerations. The actual form drag of the motor installation has, therefore, been eliminated.

In addition, this side-by-side twin unit installation gives particularly good single engine flight characteristics, a very valuable feature in a

military aircraft of this type. Cruising economy, with increased radius of action, is also obtained during single engine operation, the additional speed always being available when required.

The air intake at the bow of the boat is in the most efficient aerodynamic position, as it gives the required ram effect so essential for a jet motor. Extensive tank testing shows that the bow is free from adverse spray effects under normal operational conditions. (The intake sleeve is extensible if required to avoid inhaling spray.)

### No Fixed Base Needed

Events in the recent war, especially in the Pacific zone, have confirmed that the land-based fighter has fulfilled its designed operational role quite successfully once the landing strip and base facilities have been built and means to defend them established.

The fighter flying boat on the other hand is independent of fixed bases, in the sense that any sheltered stretch of water will provide the runways required. This advantage renders unnecessary a mass of air-drome construction equipment, which is difficult to transport, and much reduces that vital factor in warfare, the time taken to get into action. In many cases too, the starting-off point of a "strike" force can be brought much nearer to the objective than would be possible with land-based aircraft. (The applications of a boat fighter for summer operation in northern Canada are obvious.)

It must also be borne in mind that seaborne operations have often been a prelude to invasion, and the fighter

flying boat with its relatively wide choice of base will undoubtedly form an important part of any future attacks of this nature. Jet propelled aircraft are, of course, restricted in range, due to the extreme fuel consumption of the motors—this is the price which at the moment must be paid for the high performance obtained—but the flying boat type of fighter can overcome this difficulty by bringing its starting point closer to the scene of operations.

Another point is that enemy action not infrequently results in a forced landing on water—a far greater hazard to the landplane than to the flying boat.

As a means of defense the fighter flying boat fulfils the same function as its land-based counterpart,

### Automatic Mooring

Hitherto, the difficulties associated with mooring and "ground" handling generally have rendered the single-seater flying boat impracticable, but with the introduction of the Saunders-Roe automatic mooring scheme these difficulties have been successfully overcome. The SR/A1 is provided with the special Saunders-Roe mooring hook which will enable the pilot to pick up moorings without leaving his cockpit and without any external assistance.

### SPECIFICATIONS:

**Type**—Single-seat twin-engine jet-propelled flying boat, high wing arrangement with single fin and rudder.

**Power units**—Two Metropolitan-Vickers F2/4 jet motors totally enclosed in the hull, with air intake at the extreme bows; jet outlets positioned aft of the wing trailing edge on either side.

**Pilot**—Located in a pressurized cabin forward of the wing and provided with emergency ejection device; control arrangements conventional in design.

**Armament**—Four 20 mm. cannon positioned in nose of hull with covering hinged for ease in re-arming, etc.

**Wing**—Profile of high-speed type. Single spar construction with chordwise stiffening.

**Hull**—Construction follows latest Saunders-Roe practice with close-spaced frames and relatively light stringers.

**Wing Floats**—Retractable in flight.

**Dimensions**—Span 46 ft.; Length (over-all), 50 ft.; Height (over-all), 17 ft.; Wing area, 415 sq. ft.; Aspect Ratio, 5:1; Taper Ratio, 2:1; Hull length, 50 ft.; Hull beam, 6.83 ft.



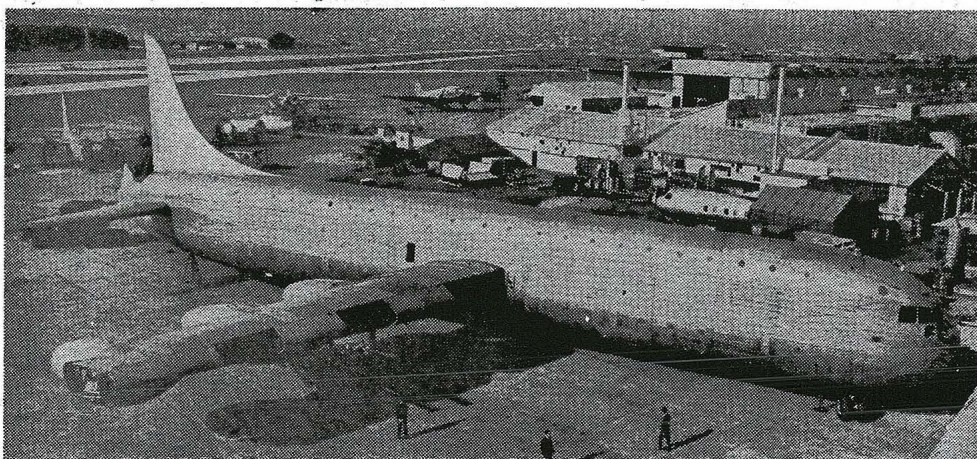
## Dutch Airline Seeks Canadians

Captain Carel Christiaan Speensma of Holland, assistant director of operations for the Royal Dutch Airlines, has been in Ottawa, Montreal and Toronto to interview Canadian airmen as prospective pilots for his airway, it was announced by Arthur MacNamara, Deputy Minister of Labor.

Mr. MacNamara stated that early last December the Dutch airlines engaged 60 Canadian pilots to fly four-engined machines in their service. So pleased was the Dutch organization with the calibre of men they were able to obtain in Canada at that time, that they have returned to this country for an additional 25 pilots.

The pilots must be not more than 33 years old, with several hundred hours flying time to their credit, preferably on four-engined planes. Transportation will be paid to Holland for the men

chosen, and in that country the men will undergo a certain amount of further training, depending on their experience. They then may do some flying in Europe before taking over trans-oceanic runs to the Far East.



Too large to be assembled indoors, the mammoth Convair transport has been moved into the open for attachment of engines, tail control surfaces, undercarriage and outer wing panels.

## Six-engined Transport To Carry 400 Troops

The world's largest land-based aircraft, the six-engine XC-99 cargo and troop transport being built by Consolidated Vultee Aircraft Corporation for the Army Air Forces, has been moved into the experimental yard at the company's San Diego plant to permit installation of main landing wheels and outer wing panels.

No building at Consolidated Vultee, officials said, is high enough to house the giant plane with its main landing wheels installed, or wide enough to house it with outer wing panels in place.

For the past month 30 feet of the aft fuselage have protruded from Convair's experimental building because the tail surfaces stick into the sky 57½ feet, several feet higher than the experimental building.

Wing leading and trailing edges, together with rudder, propellers, and interior fixtures, remain to be installed. Initial flights of the XC-99 must await completion of this

work and an extensive ground testing program.

A transport version of Convair's B-36 bomber, the double-decked XC-99 will be able to carry 400 troops, or 335 litter patients, or 100,000 pounds of cargo.

Like the B-36, it is powered by six 3,000-h.p. pusher-type engines turning 19-foot reversible-pitch propellers.

The AAF has revealed that the huge transport will have a maximum range with reduced loads of more than 8,000 miles. Flights of this distance will call for a five-man crew and an equal number of relief crew members.

Design gross weight of the XC-99 is 265,000 pounds. Its wingspan is 230 feet and its length, 182½ feet.

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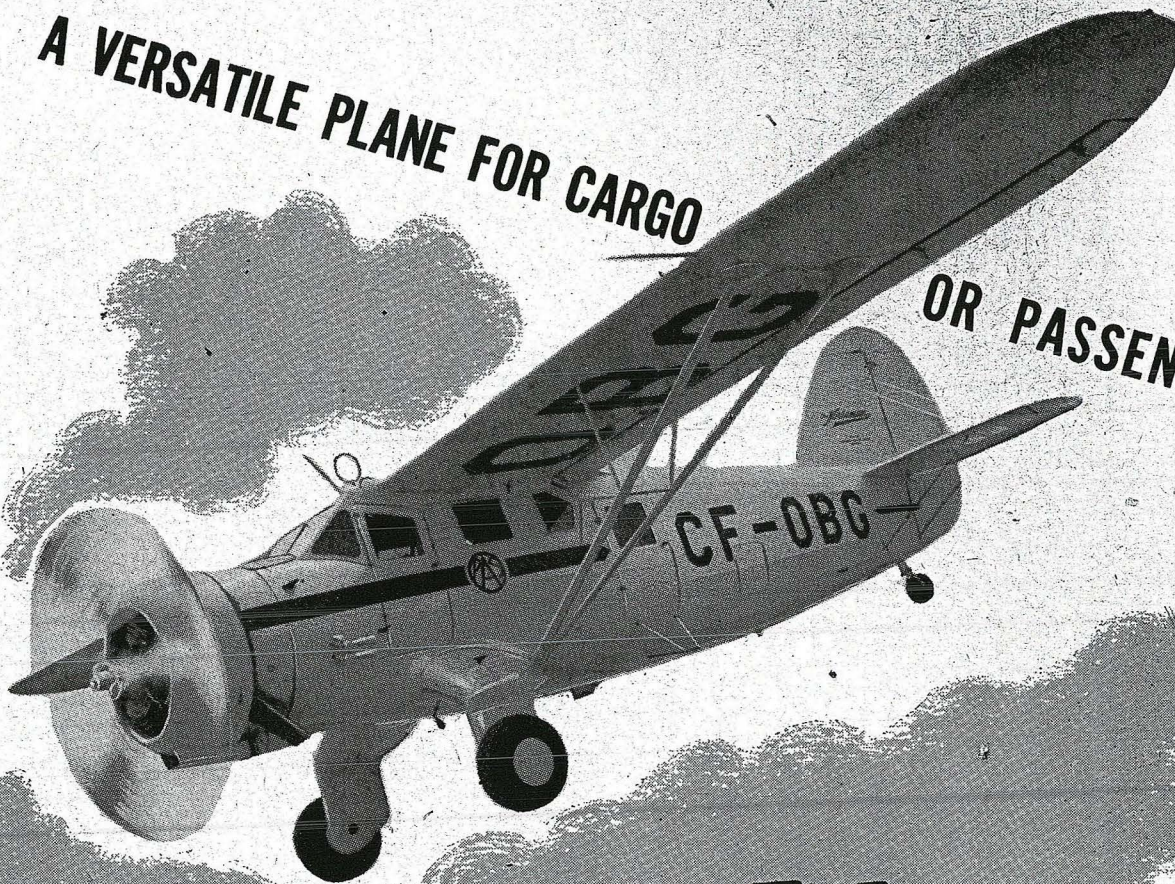
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approx. 2,500 hrs. use.. \$2,950

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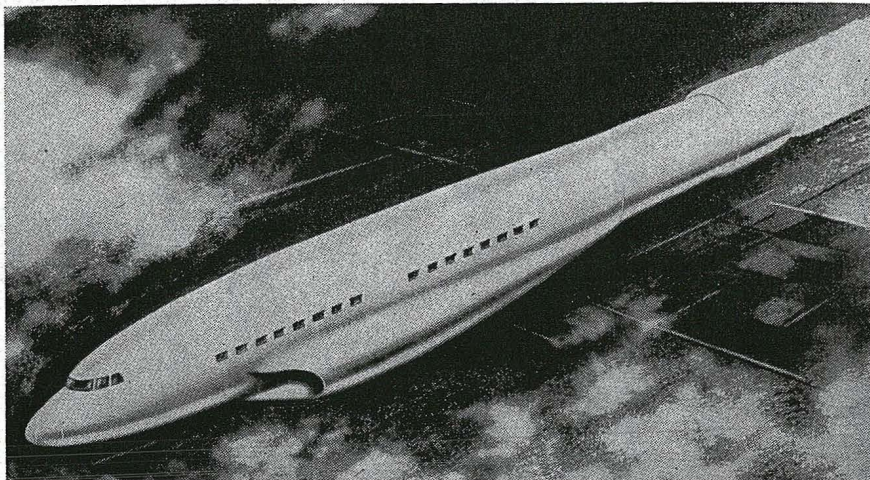
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**FUTURE AIRLINER?** Artist's conception shows the Aerodyne, a wingless craft using an internal lift-inducing propulsion system to take off and land vertically, hover like a helicopter and cruise like a conventional airliner.

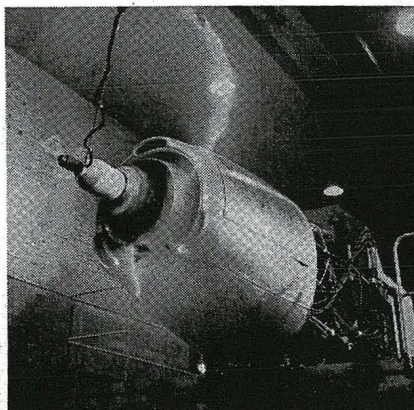
The U. S. President's budget message has asked for \$3 billions in new funds for foreign military assistance. The program is now supporting 300 air squadrons in 37 foreign countries together with 200 army divisions and 700 first-line naval vessels. Canada receives no U. S. military assistance except that paid for in cash.

\* \* \*

The U. S. Navy and Air Force have asked for \$7.5 billion for new aircraft and related equipment in the U. S. President's budget message out of a total \$34.9-billion defense budget.

1957 fiscal U. S. defense program calls for: build up from the present 127-wing air force to 137 wings; accelerated rate of conversion of B-36 wings to B-52s; completion of SAC build-up by June 30, 1956; stepped up aircraft procurement of F8U, F3H, F-101, F-102 and F-104 fighters and Falcon air-to-air missiles.

\* \* \*



**BE25 TEST BED.** The proposed power unit for later versions of the Britannia airliner, Bristol's BE25 supercharged turboprop is shown above on its test bed run. It is said to deliver constant 4,000 hp from sea level to about 20,000 feet.

With the exception of partial approval of an application from Quebecair Inc. and deferralment of a request from Trans-Labrador Airlines Ltd. regarding provision of helicopter service, the **Air Transport Board** recently indicated it favored the status quo on air services to and from such points as Schefferville (Knob Lake), Mont Joli, Seven Islands, Ross Bay, Fort Chimo and Frobisher. In addition to the two mentioned above, companies with applications before the board were Mont Laurier Aviation Co. and Northern Wings Ltd.

Quebecair was granted a Class 2 regular specific point commercial license to serve Seven Islands, Ross Bay and Schefferville. It had requested a Class 1 scheduled service license serving Fort Chimo and Frobisher in addition to the points mentioned.

The board's decision stated in part that it was satisfied requirements of the public for air services in the general area under discussion could be provided to best advantage by carriers already licensed to operate in the district.

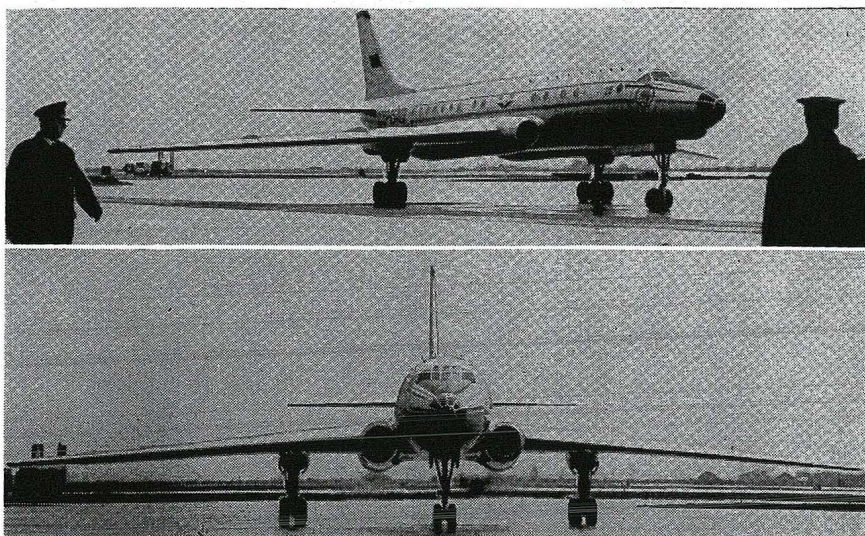
\* \* \*

As part of a large expansion program, **Sabena, Belgian World Airlines**, has established a regional sales office in Toronto. In charge of the firm's Toronto operation is Harry Beesley, regional manager.

\* \* \*

The **Soaring Association of Canada** will hold its annual general meeting at the Chateau Laurier Hotel in Ottawa on Saturday, March 3. A major item of business will be completing plans for sending a Canadian team to the World Soaring Competitions in France.





**MIXED RECEPTION.** On view at London Airport is Russia's Tupolev TU-104 jet transport. Early reports had British experts "shocked, amazed and goggle-eyed." Bristol Aircraft's Peter Masefield was apparently not as impressed as some. His comments: "It may certainly be a good Russian product but I don't think it a very good airplane. It would hardly pass muster in the shipyards around here for its rivetting."

## Tempest over Tupolev

By **OLIVER STEWART**  
(London Correspondent)

Sharply conflicting reports circulated when the Soviet jet airliner, the Tupolev 104, landed at London Airport. Some newspaper correspondents said that the aircraft was far in advance of anything known in Britain or in the United States and that its cruising speed was in the order of 1,000 kilometres an hour (620 statute miles an hour). On the other side there were the belittlers, who said that the aircraft was of no particular value; that it was badly made and that its performance was far below that of the Comet I.

But the more sober English journals accepted it as fact that the aircraft was capable of a performance about equal to that of the Comet I. It is, however, somewhat bigger and has a rather better range.

Earlier reports about the aircraft were full of inaccuracies. There was the statement, for instance, that the cabin was not pressurized whereas the layout of the cockpit transparencies showed that it was. Then there were the reports of engine thrust figures. Some said that each engine gave over 20,000-lb. static thrust. Once again wiser counsels prevailed later and the consensus of opinion came down for something between 12,000-lb. and 15,000-lb. thrust.

► **Aircraft Details.** The aircraft

itself is conventional. It is a monoplane with swept wings and tail plane, the amount of sweep diminishing somewhat from the root to the tips. This compound sweep bears a resemblance to that in the Vickers Valiant bomber. The wings have two boundary layer fences each and they carry large "boxes" into which the undercarriage units retract. The nose is almost identical to that of the Badger.

No one knew the exact wing span or other dimensions at the time these notes were being written; but the most generally accepted guess was a span of 37 metres (121.4 ft.). The weight was put at between 60 and 70 metric tons (125,000 lb. - 155,000 lb.). Seating can be arranged according to requirements. With coach seating there is room for 70. The Tu 104 which visited London was arranged with special executive seating and the interior of the aircraft was luxurious.

Perhaps the most important thing was the statement of Russian spokesmen that the aircraft was in series production. For whatever the merits of the machine relative to British, French and United States aircraft, it remains true that it would be the only jet airliner today in series production.

There was, however, some question about whether the Tu 104 was indeed in series production and some reports stated that it was a prototype. As it is fundamentally a Badger, however,

there is no reason to suppose that production would be difficult to start.

How can the impressions obtained from this first visit of a Soviet jet airliner be summed up? It is a good conventional aircraft, with no remarkable features, but of sound over-all design. The engines are as high powered as any in production in the world although there are, of course, many new and experimental types of much greater thrust.

Altogether those who examined this machine as closely as the London Airport police would permit (and they showed that the Russians can teach them nothing about holding back the mob) will agree that the Tu 104 testifies to the good health of the Russian aircraft industry.

► **Official Speed.** When the new world absolute speed record of 1,822 kilometres an hour (1,132 miles an hour) was set by Peter Twiss in the Fairey Delta II, many members of the public recalled that the Douglas and Bell rocket-powered research aircraft were said to have done higher speeds. This is typical of the reaction of the uninstructed.

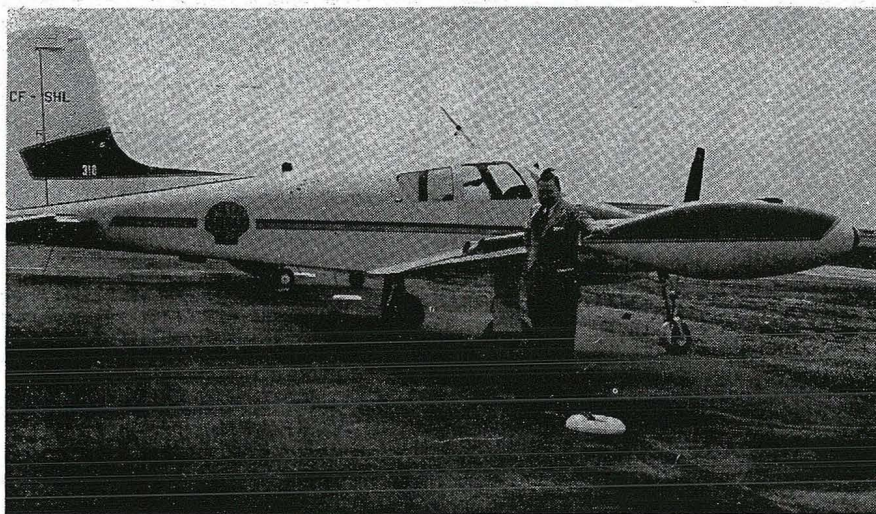
For there is no sort of comparison between snap instrument readings obtained by the rocket-driven machines and the exactly measured speed done by Twiss. For one thing the Fédération Aéronautique Internationale insists upon the measurement being made outside the aircraft. Its performance must be observed and measured from the ground.

Twiss had an exceedingly difficult problem to solve. He had to fly straight and level for a little over 15 kilometres (9.3 miles) and at no time during his attempt was he permitted to go much above the height at which the runs were made.

The Fairey Delta II is a particularly fine piece of design. The wing, although extremely thin, is an integral fuel tank and houses the undercarriage when it is retracted. Fairey power-operated controls are used and there is a new form of artificial feel.

Twiss said that the Delta II rode through Mach I without a tremor and the only means of knowing when supersonic speed was attained was by the flick of the altimeter needle as the static head pierced the shock wave. The aircraft has done many hours flying at supersonic speed and it can go through Mach I without reheat although reheat was used for the record runs. Altogether it is a historic record.





**NEW ARRIVAL.** Shell Oil's aviation manager, Charlie Stover, lays a loving hand on the new Cessna 310 which he is flying for the oil company, following delivery by Sanderson Aircraft Ltd., Malton

## Antarctic Route

Canadian Pacific Airlines President Grant McConachie says his company is giving serious consideration to establishment of an Antarctic route linking Australia and New Zealand with Europe by way of Argentina. He made the statement in Buenos Aires, capital of the Argentine, in the course of ceremonies which marked the inauguration of CPA flights from Canada to the Argentine. Such a route, McConachie said, would be shorter than existing routes from Down Under to Europe. It would involve one stop on the South Polar ice cap, but the CPA president saw no difficulty in this on the basis of the airline's experience with its Vancouver-Amsterdam schedule over the North Pole.

## Maritime Central

First MCA DC-4 charter to Europe was a university group chartering to London and Amsterdam. MCA already has another 25 to 30 groups booked for the summer, most of them to London. Cost is \$2 per mile for the flight. The chartering group assumes the responsibility for the cost of three one-way crossings unless it can arrange for a European group to occupy the aircraft on one of the flights which otherwise would return deadhead.

Return fare, if the chartered plane is fully loaded, works out to about \$350 return per passenger, although this can be reduced by as much as one third if the plane can be filled on a return flight. Present airline tourist return (Montreal-London) is \$513.

## Convair 440's

Four airlines, SABENA, Swissair, National and EAL, have taken delivery of their first Convair 440's. Convair had eight commercial 440's scheduled for June.

## Passenger Trends

Airline traffic will increase at a rate of 15% a year and lower fares are destined to play a major role in tapping new markets according to Dr. T. P. Wright, Cornell University. He related passenger market to fares by saying the potential market increases inversely as the cube of the fare. If U.S. airline fares come down from the present 5.34c per passenger-mile average to the present first-class railroad average of 3.31c, he predicted the present market potential of 10 million passengers would rise to 40 million.

## Lower Fares

Efforts by European and other carriers to block the lower transAtlantic tourist fares proposed by TWA and Pan American may be temporarily successful but the lower fares must come putting even greater pressure on Trans-Canada Air Lines to increase its transAtlantic services or press the Cabinet to change its "no Canadian competition" policy between Eastern Canada and Europe. Since the introduction of the present tourist fares on the North Atlantic in 1952, traffic has more than doubled to 800,000 passengers in 1955.

## Tupolevs for Sale

Russia is quoting \$1,200,000 as the price for the Tupolev TU-104 jet transport for 1958 delivery with specs. for an 80-passenger tourist configuration. Maximum speed is 620 mph, cruise at between 495 and 560 mph and range is 3,100 miles.

## Pan Am to Moscow

Pan American World Airways will send seven representatives to Moscow to discuss inauguration of PAA service to Moscow following Soviet invitation to U. S. for a commercial service.

## Polar Routes

U. S. carriers have revealed they are very anxious to begin operations on over-the-Pole routes to Europe. Both Trans World Airlines and Pan American World Airways have applications pending for such routes. A TWA official pointed out recently at hearings in connection with the route requests that the company's share of the West Coast to Europe market had dropped from 50 per cent to less than 30 per cent as a result of business which has gone to Scandinavian Airlines Systems which began operating on the polar route from the U. S. last year. Heavy bookings on SAS summer flights were cited as proof that U. S. operations would meet with good response. Canadian Pacific Airlines recently increased its over-the-Pole Vancouver-Amsterdam schedule to three flights a week. Western Canadian operators, particularly the newly formed Transair Ltd., have indicated a considerable interest in further development of the route. The SAS schedule runs through Winnipeg.

## Third-Class Fares

Officials of leading airlines seem to be agreed that any "third-class" fares introduced by International Air Transport Association will apply on piston-engine aircraft, with space on jets and turboprops being reserved for first-class and tourist ticket holders.

## Fares Down

Tourist class fares between North American west coast cities and Europe have been cut by \$20 one way and \$36 return by Canadian Pacific Airlines. The reduction was effective in mid-June on the airline's thrice-weekly trans-Polar schedule connecting Vancouver, Seattle, Portland and San Francisco with London and Amsterdam. Present tourist rates are \$389 one way and \$720 return.

## TRANSPORT NOTES

Canadian Pacific Airlines will fly the 120-member Canadian team to the 1956 Olympic Games in Australia this November.

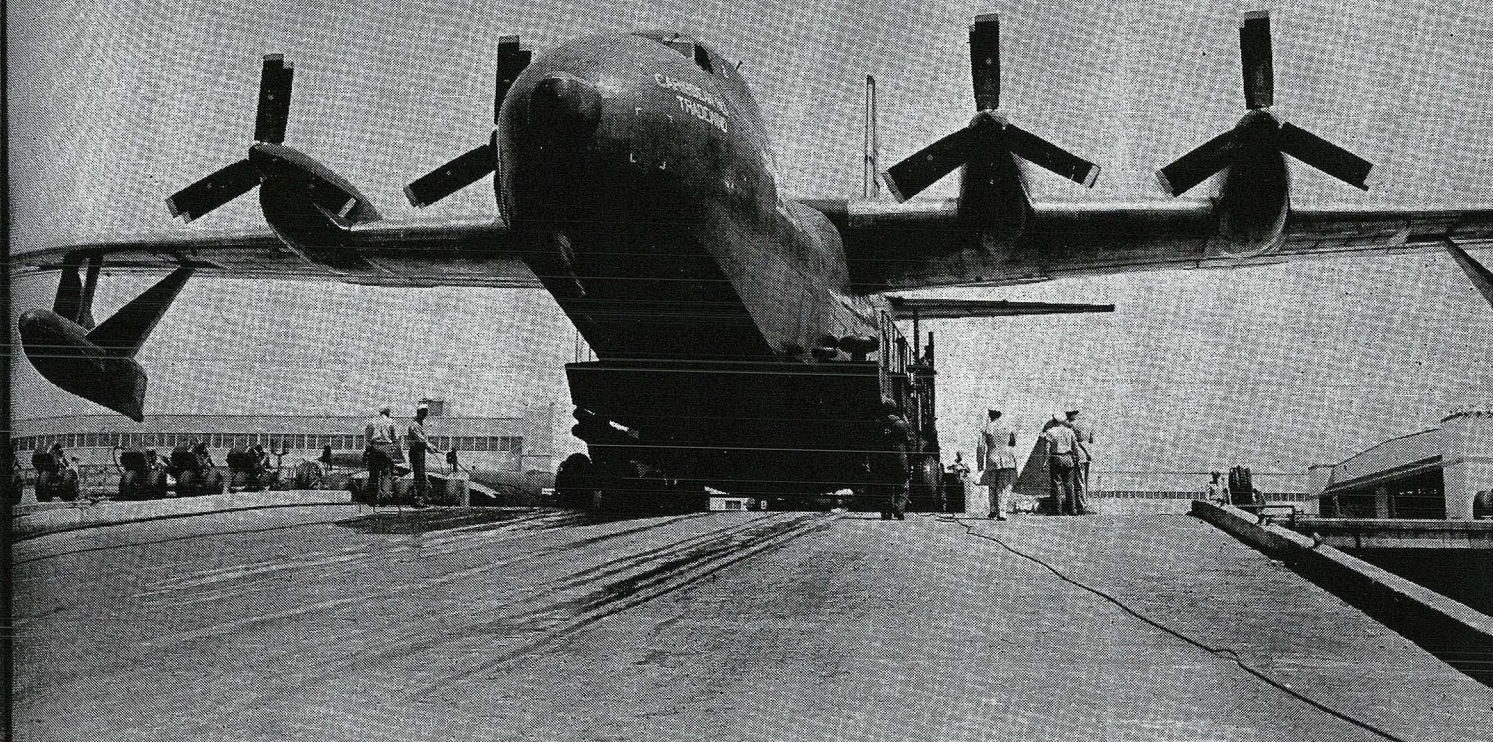
Eastern Air Lines Inc. has taken over Colonial's operations from eastern U. S. points to Montreal and Ottawa and is able to offer one-carrier service between the Canadian points and the whole eastern seaboard down to Miami.

Maritime Central Airways is unable to get better than 18 months delivery on the first of its two Douglas DC-6B's on order.

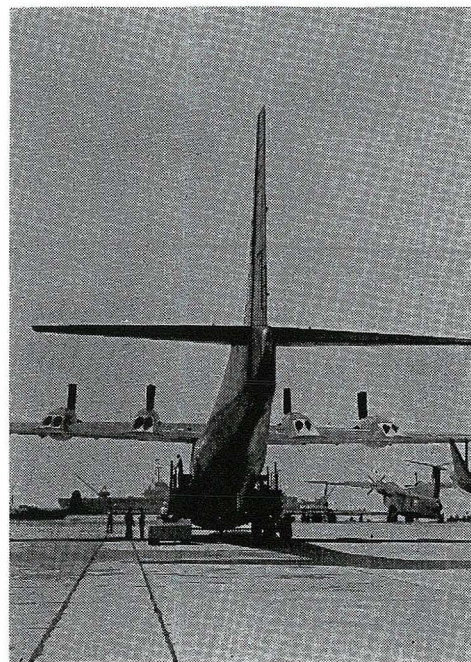
Transair is expected to take over TCA's prairie services as soon as it can get adequate modern passenger equipment and trained crews.

Timmins Aviation, Montreal, is reported to have leased a Royal Gull amphibian to Noranda Mines and is understood to be about to lease a DC-3 with crew to Shell Oil.





## USN's Big Tradewind



U. S. NAVY's VR-2 squadron, Alameda, California, is presently evaluating the new giant Convair R3Y-2 "Tradewind" flying boats. With a gross weight of 150,000, range with max. payload is 2,300 miles. Maximum speed is 386 mph. at 25,000 ft. and cruise speed is 300 mph. It is powered by four Allison T40A-10 5,500 hp. turboprop engines. Unusual features are: high aspect ratio vertical tail, high length-beam ratio hull for low drag in flight and good water handling characteristics. An assault transport, it is loaded from the bow. The VR-2 squadron is destined to receive 11 Tradewinds and at the time of going to press had received its fourth. Capt. W. A. Sullivan, squadron C.O., believes it will take about a year's time to develop the crews and the full potentiality of the aircraft for service use as a good attack transport.

(Photos By H. Levy)



FEB 47

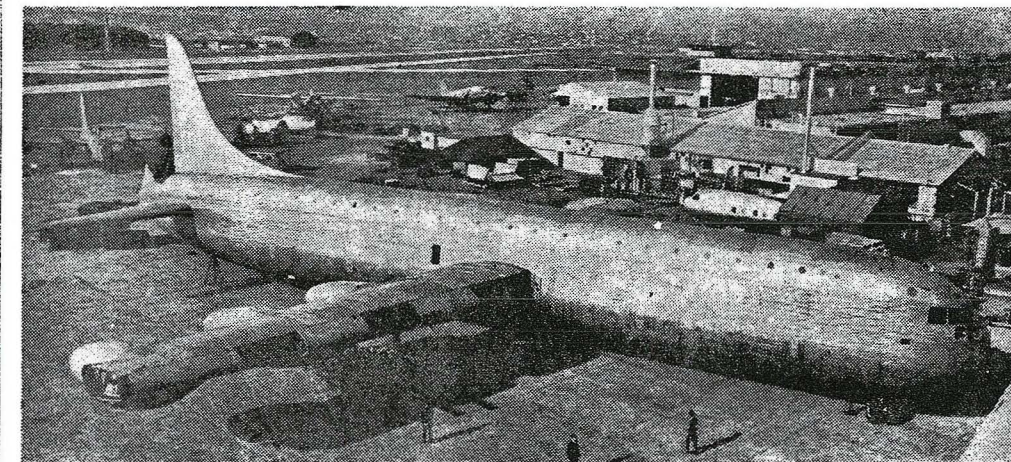
CANADIAN AVIATION

## Dutch Airline Seeks Canadians

Captain Carel Christiaan Speensma of Holland, assistant director of operations for the Royal Dutch Airlines, has been in Ottawa, Montreal and Toronto to interview Canadian airmen as prospective pilots for his airway, it was announced by Arthur MacNamara, Deputy Minister of Labor.

Mr. MacNamara stated that early last December the Dutch airlines engaged 60 Canadian pilots to fly four-engined machines in their service. So pleased was the Dutch organization with the calibre of men they were able to obtain in Canada at that time, that they have returned to this country for an additional 25 pilots.

The pilots must be not more than 33 years old, with several hundred hours flying time to their credit, preferably on four-engined planes. Transportation will be paid to Holland for the men



Too large to be assembled indoors, the mammoth Convair transport has been moved into the open for attachment of engines, tail control surfaces, undercarriage and outer wing panels.

chosen, and in that country the men will undergo a certain amount of further training, depending on their experience. They then may do some flying in Europe before taking over trans-oceanic runs to the Far East.

## Six-engined Transport To Carry 400 Troops

The world's largest land-based aircraft, the six-engine XC-99 cargo and troop transport being built by Consolidated Vultee Aircraft Corporation for the Army Air Forces, has been moved into the experimental yard at the company's San Diego plant to permit installation of main landing wheels and outer wing panels.

No building at Consolidated Vultee, officials said, is high enough to house the giant plane with its main landing wheels installed, or wide enough to house it with outer wing panels in place.

For the past month 30 feet of the aft fuselage have protruded from Convair's experimental building because the tail surfaces stick into the sky 57½ feet, several feet higher than the experimental building.

Wing leading and trailing edges, together with rudder, propellers, and interior fixtures, remain to be installed. Initial flights of the XC-99 must await completion of this

work and an extensive ground testing program.

A transport version of Convair's B-36 bomber, the double-decked XC-99 will be able to carry 400 troops, or 335 litter patients, or 100,000 pounds of cargo.

Like the B-36, it is powered by six 3,000-h.p. pusher-type engines turning 19-foot reversible-pitch propellers.

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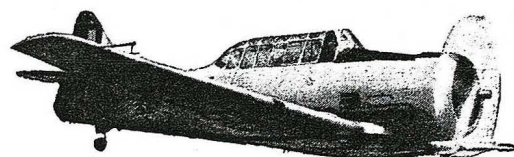
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Powered to perform the Norseman is serving, coast to coast, in forest fire fighting, in forestry, fishing, mining, crop dusting, in air ambulance, industrial development and natural resources work, in photographic surveys, feeder line passenger service—in every field where dependable, economical, profitable performance is essential.

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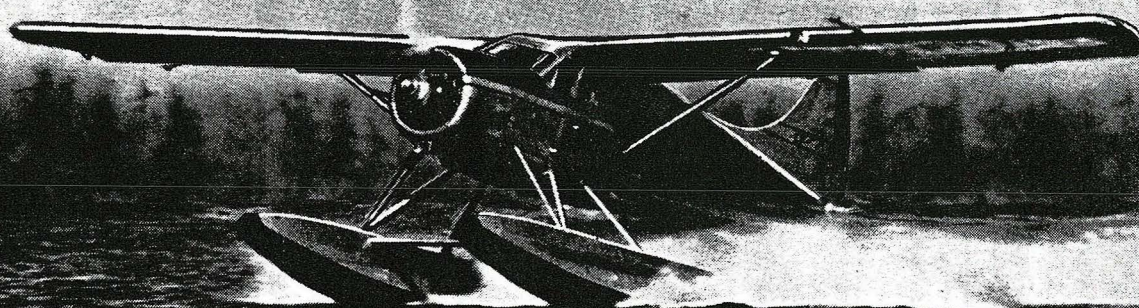
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*At An All Up Weight Of 4,750 lbs.*

- ✓ LARGE CARGO DOORS
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- ✓ ECONOMICAL OPERATION



Take-off distance, less than  $1/6$  mile. 50 feet altitude in less than  $1/4$  mile. The Beaver could be safely operated out of a lake less than  $1/2$  mile long.

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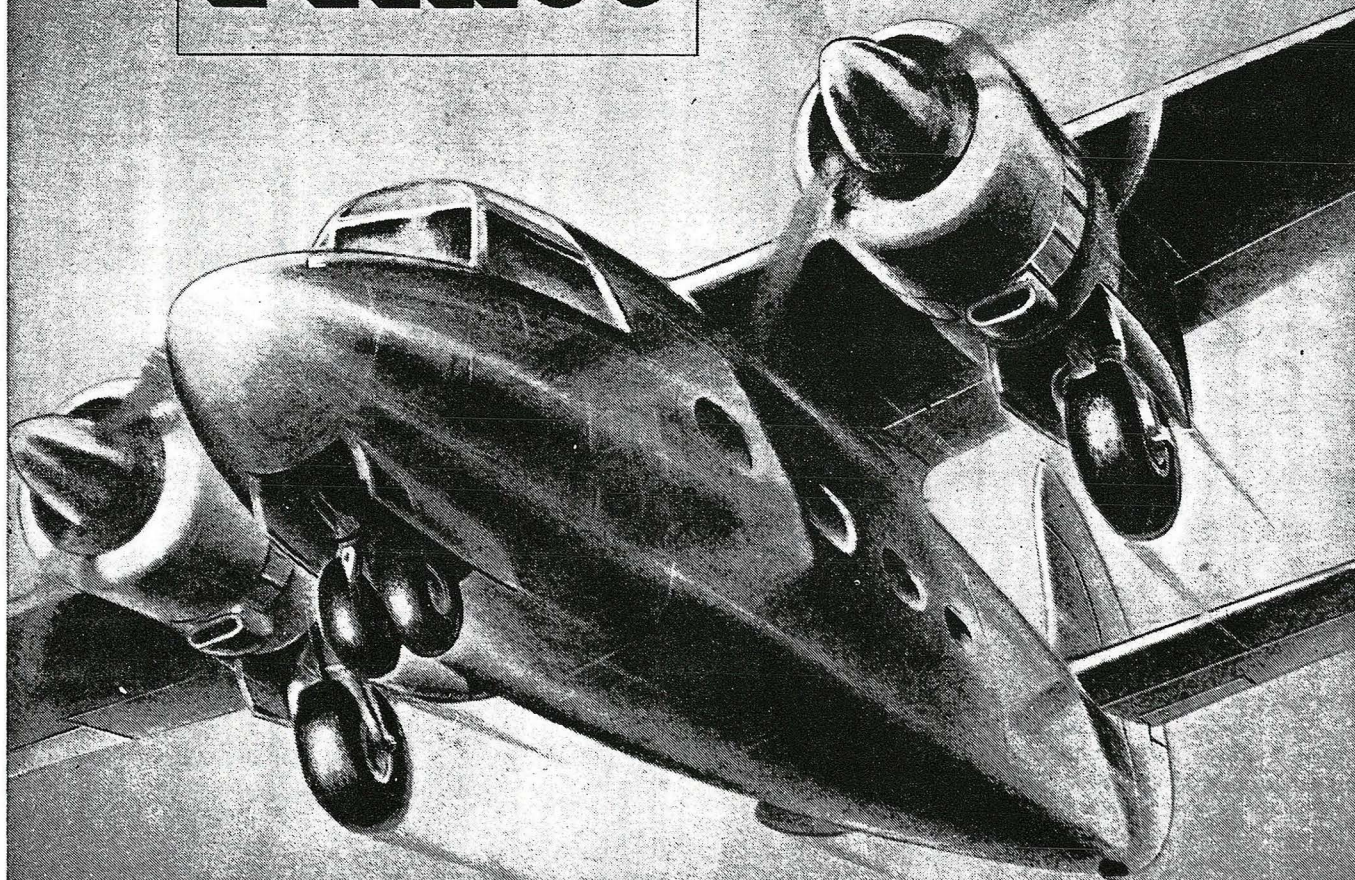




*Designed to carry large payloads over long distances, affording fast travel with maximum passenger comfort and operating economy.*

*A typical use:—transportation of eight passengers, two crew and 400 lbs. of luggage for 800 miles, cruising at 180 m.p.h. at 10,000 ft. using 55% power.*

*The Percival*  
**Prince**



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## Photo Survey Company Gets Large Contract

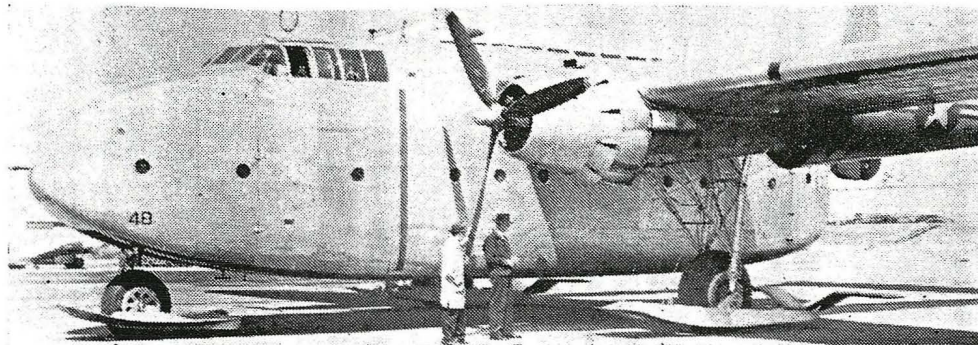
Air survey contracts totaling 21,700 square miles in the area of the much discussed iron ore deposits in Northern Quebec and Labrador were announced recently by Photographic Survey Company Limited, of Toronto.

By far the largest of these contracts calls for photographing of 19,650 square miles south of Fort Chimo, Quebec, for the Federal Department of Mines and Resources. This job, which must be completed during the summer months, involves the photography of the area at a scale of 2,640 ft. to the inch.

Contracts covering the remaining 2,000 square miles are with three private mining companies, who are undertaking the project on a co-operative basis.

Execution of these contracts will require four aircraft of Photographic Survey's fleet to operate out of Fort Chimo and Knob Lake for a period of at least two months. Aircrew and ground personnel will be based at Fort Chimo.

## Fairchild Packet Gets Retractable Skis



FAIRCHILD C-82 TROOP CARRIER

A new retractable wheel-ski landing gear, developed by Federal Aircraft Works in collaboration with the U.S. Air Materiel Command which will allow a big cargo airplane to set down and take off safely and efficiently on either concrete or deep snow, has recently been tested in the Fairbanks, Alaska, area on a C-82 Airplane.

The skis can be raised or lowered electrically in relation to the wheels, as well as retracted with the existing

airplane landing gear. This type of wheel-ski gear was originally developed and perfected for use on C-47 cargo planes, and has been proven successful in service on the recent Naval Expedition to the South Pole as well as with the U.S. Air Forces in the Arctic Regions.

The gear has now been adapted for use on a Fairchild C-82 and is the first electrically operated, and the first using a nose ski in addition to the two main skis.

The centre portion of the skis are cut out to permit the wheel to stick through.

The main skis are approximately 16 feet long and four feet wide, and have small wings attached at the rear to rig and keep them in proper position at all times, whether the landing gear is extended or retracted, as well as through the process of retraction and extension. The existing landing gear with the skis installed is almost fully retracted during flight.

## MAINTENANCE AND OVERHAUL

### COMPARE ADVANTAGES

- Modern premises and equipment.
- Landing strip AND seaplane base facilities.
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One of the new "Canadair Fours," of the type recently ordered by B.O.A.C.

## Threshold To All The World

**Dominion Battleship Linoleum will cushion your first step on the new B.O.A.C. "Canadair Fours"**

Comfortable underfoot, colourful, light, Dominion Battleship Linoleum was a logical specification for the new "Canadair Fours" — which have just been ordered by B.O.A.C.

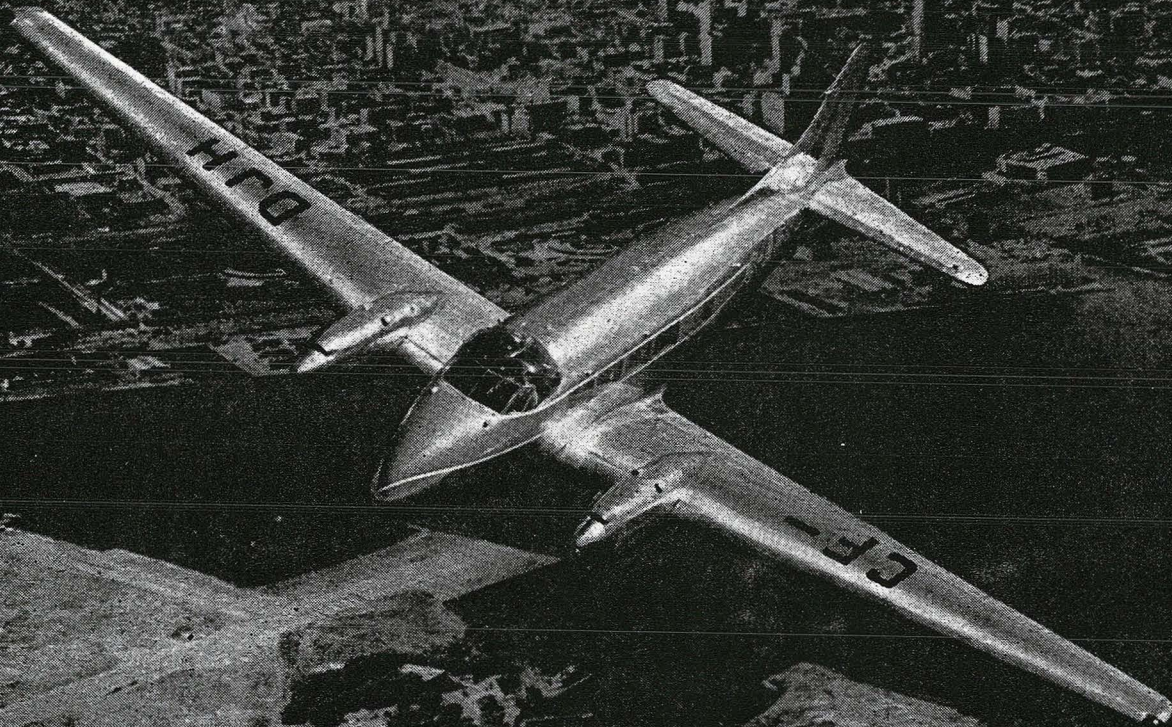
"Dominion Battleship" has all the qualities that the covering of a busy floor should have. Quiet to walk upon and lastingly resilient, it absorbs sound and keeps its glowing good looks under the heaviest traffic. Wherever fine appearance is essential, wherever the wear is extra hard, Dominion Battleship Linoleum is an investment in flooring satisfaction. You'll find linoleum, too, on the new T.C.A. planes, as well as at busy airport and airline offices. For full information, contact your local contractor or linoleum dealer.

**DOMINION OILCLOTH & LINOLEUM CO. LIMITED, MONTREAL**



# *The Dove*

8-11 Passenger Executive and Feeder Line Transport  
for Canadian Industry



*Sold and Serviced by*

THE DE HAVILLAND AIRCRAFT OF CANADA  
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CANADA



SOUTH AMERICA

NEW ZEALAND

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SOUTH AFRICA

SOUTH AMERICA

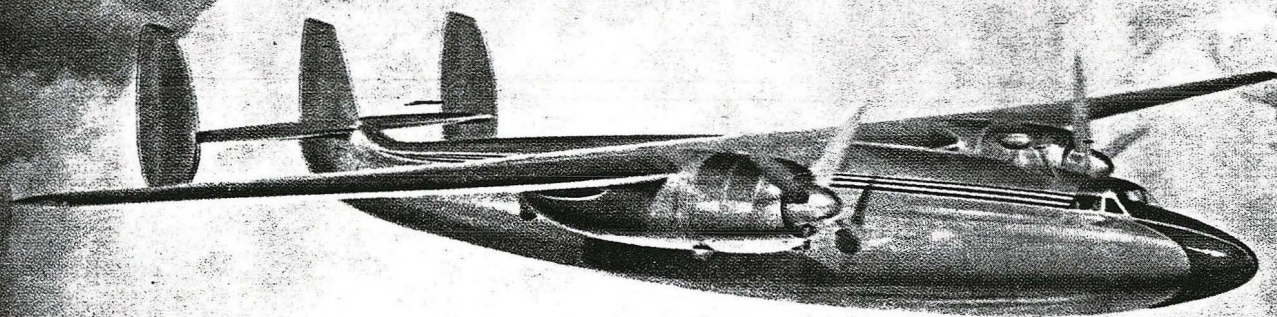
CANADIAN AVIATION Aug 1948







# Mainliner of tomorrow



**SPEED:** Weak-mixture cruising at 285 m.p.h. at 10,000 ft.

**SAFETY:** A single-engined climb of 525 ft./min.

These are two test-proven features in the performance of the pressurised

## A M B A S S A D O R

which carries 40 passengers over a block distance of 1,000 miles.

AIRSPEED LIMITED, CHRISTCHURCH & PORTSMOUTH, HAMPSHIRE, ENGLAND  
*Associated Companies in Australia, Canada, India, Africa and New Zealand*



## ON THE HORIZON

**Sept. 2-3** — Webster Trophy Competition, Calgary, Alta.

**Sept. 3-5** — Air Show, Calgary, Alta.

**Sept. 4-6** — National Air Races, Cleveland, O.

**Sept. 6** — Air Show, Chatham, Ont.

**Sept. 6** — ICAO Air Navigation Committee, Montreal.

**Sept. 7** — ICAO Council fifth session, Montreal.

**Sept. 7** — ICAO Air Transport Committee, Montreal.

**Sept. 7-12** — SBAC Aircraft Show and Display, Farnborough, England.

**Sept. 11-12** — Air Show, Windsor, Ont.

**Sept. 14-18** — IATA Fourth Annual General Meeting, Brussels.

**Sept. 18** — Air Show, Brantford, Ont.

**Sept. 19-21** — Northwest International Aviation Conference, Vancouver, B.C.

## U. S. Air Force to Buy Over 5,000 Engines

The United States Air Force will buy more than 5,000 aircraft engines in the current fiscal year at a cost of \$367 millions, according to a recent report. Some of the orders have been placed, others are being negotiated. Four manufacturers will

A Vickers - Armstrongs Viscount airliner, powered by four Rolls-Royce Dart gas-turbine propeller engines—the first of its kind in the world—recently made a successful initial flight. It was air-borne for about 20 minutes, piloted by Capt. "Mutt" Summers, Vickers chief test pilot.

The Viscount, designed to be powered by propeller-turbine engines, has accommo-

supply the engines—Pratt & Whitney division of United Aircraft Corp., Allison division of General Motors, Wright Aeronautical Corp. and General Electric.

Meanwhile, aircraft manufacturers on the Pacific coast with contracts for 2,309 planes for the Air Force and Navy, report shortages of manpower. They also report shortages in alloy steel, fuel pumps, hydraulic valves and landing gear struts.

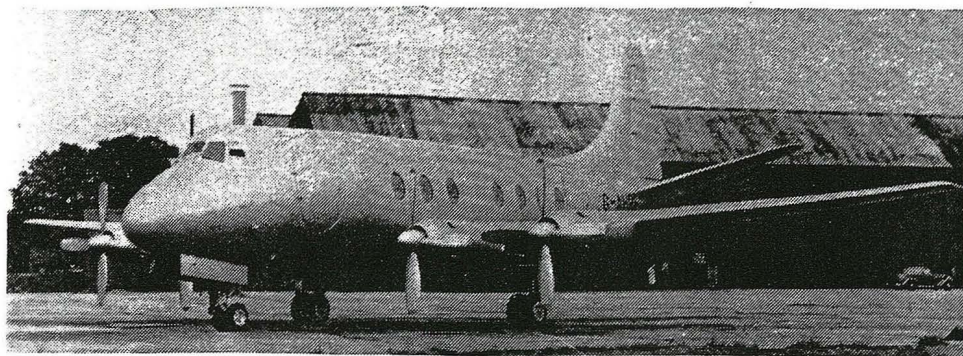
## VICKERS-ARMSTRONG VISCOUNT

ation for 32 to 40 passengers and a crew of four in a pressurized fuselage. Its top speed is 331 mph; cruising speed at 20,000 ft. is 276 mph; range is 1,725 miles. Pressurization maintains sea-level conditions up to 15,000 ft. It is a conventional, low-wing aeroplane with a nose-wheel under-carriage, single fin and rudder and a dihedral tailplane.

The Dart engines, each de-

veloping more than 1,000 hp, have an extremely small diameter compared with piston engines of similar power. They provide visual evidence of one of the advantages of this type of engine; the smaller diameter means reduced drag. But passengers and crew will be conscious of the reduction of noise and the marked reduction of vibration.

# World's First Propeller-turbine Airliner Flies



## Hunting Aviation Group Head Lauds Air Survey Expansion

Air Survey is gradually winning recognition for its advantages of speed and efficiency over ground survey methods, Percy Llewellyn Hunting, head of Hunting Aviation Group, declared at a recent conference of air survey officials held at Caledon, Ont.

Mr. Hunting pointed out

that the intensive American search for raw materials, currently being carried in foreign countries, offers a challenge to all air survey companies, and that this challenge is being met by American as well as Canadian and British companies.

He warned the delegates that if Canadian and British companies are to stay in the fight, they must retain technical supremacy in instance in which they established it.

Canadian delegates to the conference included: D. N. Kendall, managing director of Photographic Survey Co. Ltd.; D. A. MacFadyen, Assistant to Mr. Kendall and general manager of Kenting Aviation Ltd.; R. A. Young, secretary-treasurer, Photographic Survey Co. Ltd.; K. F. Mackenzie, K.C., Director of Photographic Survey Co. Ltd.; W. H. Godfrey, sales manager for the Hunting Companies in Canada; M. G. Percival Aircraft (Canada) Limited; J. M. Bridgeman, manager, Technical and Electronic Division, Photographic Survey Co. Ltd.; W. A. Scott, production manager, Photographic Survey Co. Ltd.

## Models For 1949 Introduced by Taylorcraft



### TRAVELER

The Taylorcraft Triplets—1949 Model 85 Taylorcraft Deluxe, 1949 Model 65 Taylorcraft, and the Traveler, have been received and adopted by a number of personal flyers throughout the U.S., Canada and South American countries, according to a company announcement.

The official release of the

### TAYLORCRAFT 85 DELUXE

new Taylorcraft products took place at Alliance, Ohio, recently when the distributor-owners of Taylorcraft, Inc. met to participate in the christening ceremonies.

Almost immediately after the ceremonies, Mr. L. W. (Roy) Hubert, Taylorcraft distributor of Vancouver,

Wash., took off with the first Model 85, and a Deluxe 65 was flown away with him by an associate, both flying back to Vancouver.

The second 85 was taken from the assembly line by C. W. Millard of Toronto, Taylorcraft distributor for Canada.



# Propeller Overhaul

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- We are set up to give unexcelled propeller and governor overhaul service—a contribution to the economy of your flying operations. Our modern plant—the finest in Western Canada—is geared to solve your problems. Badly bent or curled propellers are quickly straightened and re-pitched. Time expired propellers and governors are overhauled and reconditioned in a minimum of time. Our facilities are licensed and approved by the Department of Transport.

### OVERHAUL SPECIALISTS

for Hamilton Standard and Hydromatic propellers, DeHavilland Dove propellers, Hartzell's, McCauley's, Beechcraft propellers and Flottorp Controlable. We are equipped, fully experienced and handle parts to overhaul and recondition practically any type of propeller and governor encountered in Canada.

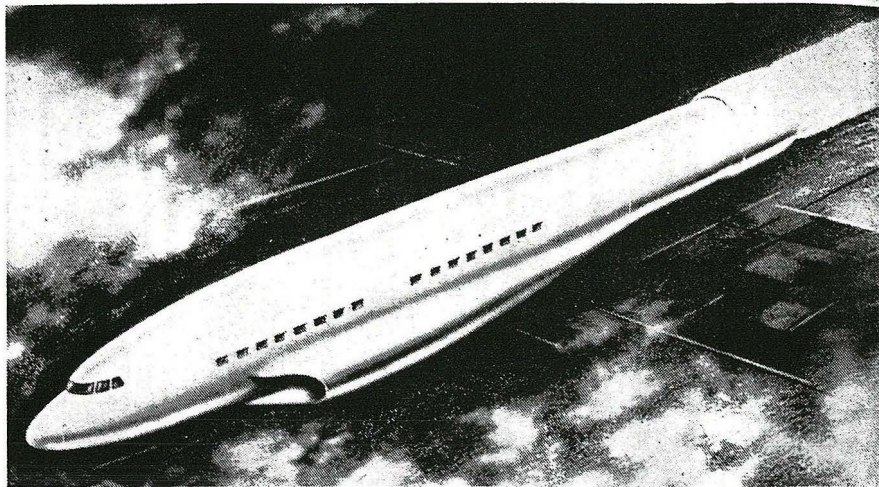
### FACTORY DISTRIBUTORS

for McCauley Met-L-Props and Met-L-matics, Sensenich Skyblades, Sensenich all-metal and Sensenich wooden propellers, Test Clubs and Flottorp Controlable. We also deal in reconditioned propellers and governors.

For fast, guaranteed service  
write, wire or phone:

# WESTERN PROPELLER CO. LTD.

Hangar 16, Municipal Airport  
Edmonton, Alta. Phone 86563



**FUTURE AIRLINER?** Artist's conception shows the Aerodyne, a wingless craft using an internal lift-inducing propulsion system to take off and land vertically, hover like a helicopter and cruise like a conventional airliner.

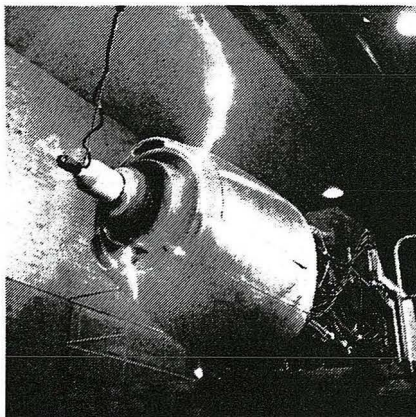
The U.S. President's budget message has asked for \$3 billions in new funds for foreign military assistance. The program is now supporting 300 air squadrons in 37 foreign countries together with 200 army divisions and 700 first-line naval vessels. Canada receives no U.S. military assistance except that paid for in cash.

\* \* \*

The U.S. Navy and Air Force have asked for \$7.5 billion for new aircraft and related equipment in the U.S. President's budget message out of a total \$34.9-billion defense budget.

1957 fiscal U.S. defense program calls for: build up from the present 127-wing air force to 137 wings; accelerated rate of conversion of B-36 wings to B-52s; completion of SAC build-up by June 30, 1956; stepped up aircraft procurement of F8U, F3H, F-101, F-102 and F-104 fighters and Falcan air-to-air missiles.

\* \* \*



**BE25 TEST BED.** The proposed power unit for later versions of the Britannia airliner, Bristol's BE25 supercharged turboprop is shown above on its test bed run. It is said to deliver constant 4,000 hp from sea level to about 20,000 feet.

With the exception of partial approval of an application from Quebecair Inc. and deferralment of a request from Trans-Labrador Airlines Ltd. regarding provision of helicopter service, the **Air Transport Board** recently indicated it favored the status quo on air services to and from such points as Schefferville (Knob Lake), Mont Joli, Seven Islands, Ross Bay, Fort Chimo and Frobisher. In addition to the two mentioned above, companies with applications before the board were Mont Laurier Aviation Co. and Northern Wings Ltd.

Quebecair was granted a Class 2 regular specific point commercial license to serve Seven Islands, Ross Bay and Schefferville. It had requested a Class 1 scheduled service license serving Fort Chimo and Frobisher in addition to the points mentioned.

The board's decision stated in part that it was satisfied requirements of the public for air services in the general area under discussion could be provided to best advantage by carriers already licensed to operate in the district.

\* \* \*

As part of a large expansion program, **Sabena, Belgian World Airlines**, has established a regional sales office in Toronto. In charge of the firm's Toronto operation is Harry Beesley, regional manager.

\* \* \*

The **Soaring Association of Canada** will hold its annual general meeting at the Chateau Laurier Hotel in Ottawa on Saturday, March 3. A major item of business will be completing plans for sending a Canadian team to the World Soaring Competitions in France.



## DC-3 Source

Plans for the release of 23 DC-3 type aircraft to civil carriers were announced recently by the U. S. Navy "to accelerate development of the air transport industry." Lessees must bear cost of overhaul, spare parts and other expenses on the craft which navy spokesmen say have seen considerable service and will require major overhauls to come up to flight standards.

## CPA Report

Heavy participation in the DEW-line cargo airlift during 1955 boosted Canadian Pacific Airlines' gross revenue from domestic operations by 45%. The company's net profit in the year was \$275,000, a drop from the \$969,000 piled up in 1954 with the sale of two DC-6As and final payment on Korean airlift contracts. Total mileage in 1955 operations was 11,646,543, carrying 276,201 revenue passengers, 23,901,550 lb. of freight (including DEW lift) and 3,908,128 lb. mail.

## TCA Changes

Trans-Canada Air Lines has replaced its durable North Stars with propeller-turbine Vickers Viscounts on all first class flights in the trans-continental service. Effective June 1, the airline will operate a second east-west Super Constellation flight Toronto-Calgary-Vancouver. These and other changes will provide 15 per cent more passenger capacity than was available last summer and 35 per cent more than was provided in the winter schedule. On its overseas routes TCA has begun daily service across the Atlantic and effective June 6 there will be 10 trans-Atlantic flights weekly, three of them originating and terminating in Toronto.

## Britannia Customer

Reports persist of Capital Airlines' interest in the Bristol Britannia for its New York-Chicago run. Ten aircraft is the figure most frequently heard.

## Traffic Separation

Saturation traffic appears precipitating an end to joint civil-military use of major airports in the U. S. Military has been notified that leases will not be renewed at Miami and Greater Pittsburgh fields and a separate military field is being sought in St. Louis area.

## Helicopter Transfer

Free helicopter transfer service between Newark Airport and La Guardia or Idlewild Airports is being offered by Delta Air Lines for connecting passengers using the airline's first-class service between New York-Atlanta or points beyond.



CONVAIR'S jet transport proposal for a medium range jet airliner. The Skylark 600, says Convairstar, will have a 609 mph cruising speed. On a first-class 80-passenger configuration operating costs will be 1.4c to 1.7c per seat mile. Over a 500-mile range block speed will be 413 mph, on a 1,000-mile stage the speed will be 470 mph and 504 mph block speed on a 1,500-mile stage. The engines will be General Electric CJ-805's—commercial version of the J79.

## Barriers Down

Less international red tape for air travelers is being predicted by International Air Transport Association officials. Most governments are said to be taking steps to simplify passport and visa requirements and to streamline baggage declaration procedures for air travelers.

## Continental Aircoach

A new type of nonstop transcontinental aircoach service is to be inaugurated this month by American Airlines. The aircraft will be a DC-7 with a special interior design. The Royal Coachman services will operate between New York and Los Angeles and later between Washington and Los Angeles.

## KLM Fokkers

KLM is reported considering an increase in its order for two Fokker F-27 twin turbine transports.

## Lufthansa Route

Twice-weekly trans-Atlantic service has been inaugurated by Lufthansa (the West German air line). Route is Chicago - Montreal - Shannon - Manchester - Frankfurt-Dusseldorf.

## Viscount Record

Trans-Canada Air Lines' first year of operations with Vickers' Viscounts set up the following statistics: 470,000 passengers carried at an over-all passenger load factor of 81%; total miles 7,443,000; revenue passenger miles 223,000,000; total hours 29,000; daily utilization per aircraft, seven hours; fleet average utilization eight hours daily.

## Fare Reduction

A reduction for return fares amounting to 70% of one-way passage has been announced by Canadian Pacific Airlines between Canada or the U. S. and Lima or Buenos Aires. Excursion rates are for two or more persons with a 30-day return limit.

## Melting Pot

A program for interchange of ideas between the company and the airlines to quicken the flow of transport design advancement has been undertaken by Lockheed Aircraft Corp. An Airline Operations Engineering Department will be headed by Charles D. Mercer, head of flight engineering and flight operations.

## Western Anniversary

Western Air Lines recently celebrated 30 years of scheduled air transportation, making it the oldest continuously operative airline in the United States. The line made its inaugural flight on April 17, 1926. It was estimated that in a single day of operations in 1956 Western would carry 15 times as many passengers as the company served during its entire first year.

## Fare Conference

The Traffic Conference of the International Air Transport Association, where airlines work out international rates and fares for government approval will be held in Europe on May 29.

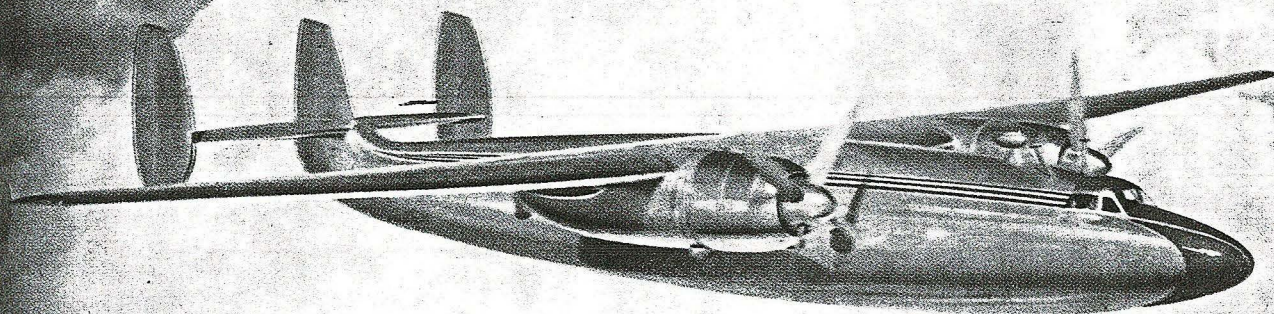
## Aeroflot Plans

Aeroflot, the Soviet airline, has its 1956 traffic targets set at 20% above 1955 for passengers and 13.5% up for cargo.





# Mainliner of tomorrow



**SPEED:** Weak-mixture cruising at 285 m.p.h. at 10,000 ft.

**SAFETY:** A single-engined climb of 525 ft./min.

These are two test-proven features in the performance of the pressurised

## A M B A S S A D O R

which carries 40 passengers over a block distance of 1,000 miles.

AIRSPEED LIMITED, CHRISTCHURCH & PORTSMOUTH, HAMPSHIRE, ENGLAND  
*Associated Companies in Australia, Canada, India, Africa and New Zealand*



### Govt. Gets Brief From Maritime Flyers

A six-point program urging that light aircraft be utilized for public services in the eastern provinces was presented to members of the Dominion Government by a four-man delegation of the Maritime Aviation Association recently.

Salient points of the brief included:

1. Rural mail delivery to central points in the Maritimes.
2. Training of a reserve of civilian pilots for standby purposes in event of a national emergency.
3. Training of Air Cadets at their own bases as opposed to the present type of training allocated only to the Royal Canadian Flying Clubs which are club organizations and not a commercial enterprise.
4. Aerial aid to the Dept. of Fisheries in spotting of illegal lobster and other fishing. Spotting of schools of herring for bait purposes.
5. Certain operators are prepared to carry aerial re-

forestation, seeding of burnt-out Federal land, and spraying marshes in national parks.

6. The association urged in its entirety of its 15% transportation tax which is levied on all flights undertaken by operators.

### Boeing Stratojet Ends First Phase of Tests

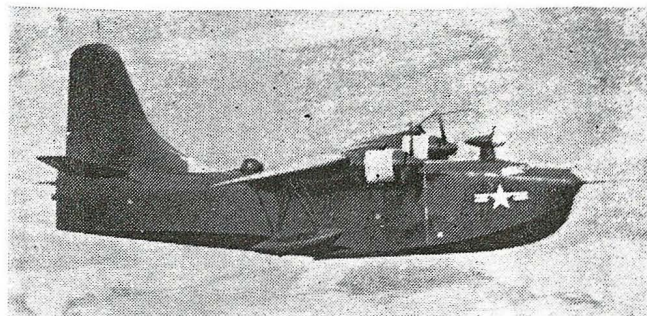
Boeing's 60-ton XB-47 stratojet bomber has completed the first phase of its flight test program "with highly satisfactory results," according to an announcement from the chief of the company's flight test program.

The airplane will soon be turned over to the USAF air material command pilots for more tests.

Initial tests on the six-jet bomber included landing, take-off, and speed and power performance at various altitudes.

The plane's six jets have a total thrust of 24,000 lb. The 18 JATO take-off units have 18,000 lb. thrust, making possible a 42,000-lb.

## Flying Boat Has New Hull Design



### Martin XP5M-1 (Navy)

Featuring a new type of hull, the new Martin XP5M-1 Navy flying boat had its initial flight from the Glenn L. Martin Company plant in Baltimore recently.

Latest in a long series of Martin flying boats, the XP5M-1 will be used to evaluate the new type hull, expected to improve materially the performance of flying boats. The long afterbody hull permits safer landings in rough seas without excessive pitching and bouncing, and reduces normal take-off time and distance.

The new flying boat is

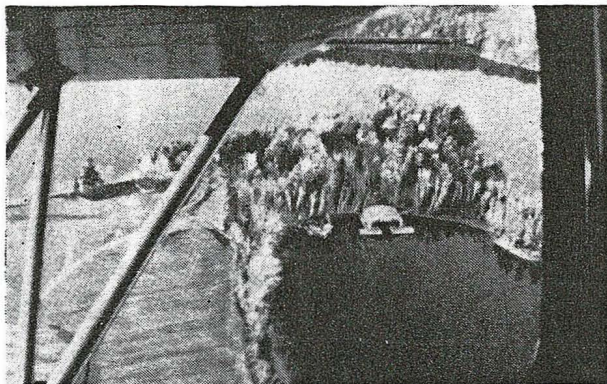
powered by two Curtiss Wright R-3350 engines, each developing 2700 horsepower, and has a top speed of more than 200 miles per hour.

### TCA Fish Freight Halifax-Toronto

Fast air freight of fresh fish from coastal Nova Scotia to the Toronto market via TCA has been started from Halifax.

The intention is to have the seafood on display for Toronto shoppers 10 hours after it is caught.

## 105 AIR MILES NORTH OF TORONTO TO RED WING FLYING SERVICE



You will look down on this well sheltered harbor with its unsurpassed scenic beauty. Landing, you are surrounded by all the attractions of the famous Muskoka vacation paradise.

Port Carling is two miles southeast and you are adjacent to the Muskoka Lakes Golf and Country Club. If it's fishing you want . . . the big fellows are within easy flight. Bring your own aircraft or fly with Red Wing and we will gladly arrange to show you the real fishing spots.

### DROP IN AND SEE US

A range of aviation gasoline and lubricants is included in our facilities for the complete service of your aircraft.

Sightseeing flights and charter trips arranged for fishing and hunting parties. Write today for further information.

## RED WING FLYING SERVICE PORT CARLING, ONTARIO

19 years of commercial operation in this area.





## FLYING CLUBS



## REPORT

By D. L. Buchanan, Sec.-Mgr., RCFA.

**Action**—While there can be no doubt that the flying clubs have had, in common with most aviation enterprises, a tough time of it for the last couple of years, it is a certainty that they are really doing something about their difficulties.

The intense concentration on problems and keen discussion by delegates at the recent annual meeting in Vancouver left no doubt that interest in flying club movement is greater than it ever was and that the people who are running flying clubs in 1948 are fully aware of the need for the continuance of the scheme in the interest of defence preparedness.

That this year is going to be one of real action for the flying clubs is borne out by communications now coming into the Ottawa office reporting on club annual meetings and elections. Any postwar lethargy on the part of club directorates in the management and operation of their clubs is on its way out. The clubs are following one of President Yorath's most important recommendations at the meeting, that is, of strengthening their directorates. There has been many a thorough overhauling in recent weeks. Valuable new timber has been drafted in the form of younger people whose interest is high and who have time and energy to devote to club business.

During the next ten months, you members at large are going to be called upon by your directorates for assistance. You can advance the interests and development of your own club, as well as making a worthwhile contribution to National Defense preparedness by giving freely of your time and talent when called upon.

**Safety Awards** — Before this appears in print, full information will have been

despatched to all member clubs of the association with respect to the safe flying campaign for 1948. The details of this program as they affect you, a flying member, will come to your attention in due course, but right now, there is one phase of the program of which you should be aware.

The association is presenting to each club for each "accident-free" month of operation, a safety award pennant and there will be a special award at the end of the year for each club that manages to hang up 12 of these monthly pennants.

**RCMP Assistance** — The Lethbridge Flying Club headed by Ernie McFarland, newly elected Alberta zone

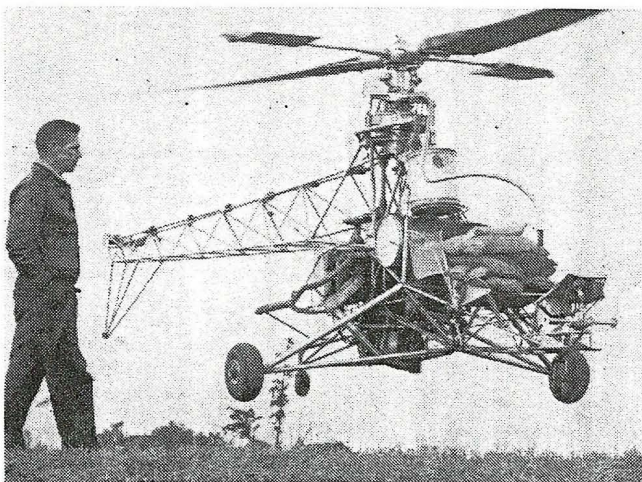
director of the association, has taken the lead in soliciting the assistance of the Royal Canadian Mounted Police in combating low and dangerous flying. Apprehension and prosecution of this type of offender is largely dependent upon the sufficient knowledge of flying and Air Regulations on the part of officers.

During the week of Feb. 16 to 21, the RCMP of southern Alberta met in Lethbridge. The Lethbridge Flying Club tended luncheons to two detachments of officers and through the co-operation of the Department of Transport, had an inspector of the Civil Aviation Division give a talk to the RCMP lads at each of these sessions.

**National Flying Club Week** — The association has asked its member clubs to observe National Flying Club Week, June 6 to June 12, inclusive, 1948. Special national publicity is being arranged and the clubs will be asked to co-operate in their own localities.

Again the prime purpose of this observance is, through increased memberships, to draw public attention to the need for increased pilot training if the country is to, at all times, have a pool of young pilots available in the interest of national security.

## Helicopter Flies Itself!



HOVERING UNAIDED

A test pilot of United Helicopters, Inc. watches as an experimental helicopter flies completely unaided. Stanley Hiller, Jr., president of the firm, has revealed that this feat is made possible by an entirely new conception of helicopter control—a servo control motor which makes the helicopter inherently stable.

Up to this time it has been virtually impossible to hover a helicopter hands off because of the complexity of control and lack of stability. Basically, this new control system consists of an overhead control stick connecting through a simple linkage to a control rotor.

A self-dampening action on the part of the control rotor corrects any oscillation of the helicopter, thus providing the craft with inherent stability.

## BLACK MARKET..

that's what we understand is the name of over-priced places. We suppose "white market" is the name of standard price merchants. Since we're going to offer you aircraft at a discount, we suppose the name of that is a "blue market." We're not blue ourselves but we will deliver any U.S.-made aircraft at a discount from list. We will make immediate deliveries and accept anything in trade, so wire me if you want to buy a U.S.-made airplane brand new.

## KASHOWER OF OSHAWA

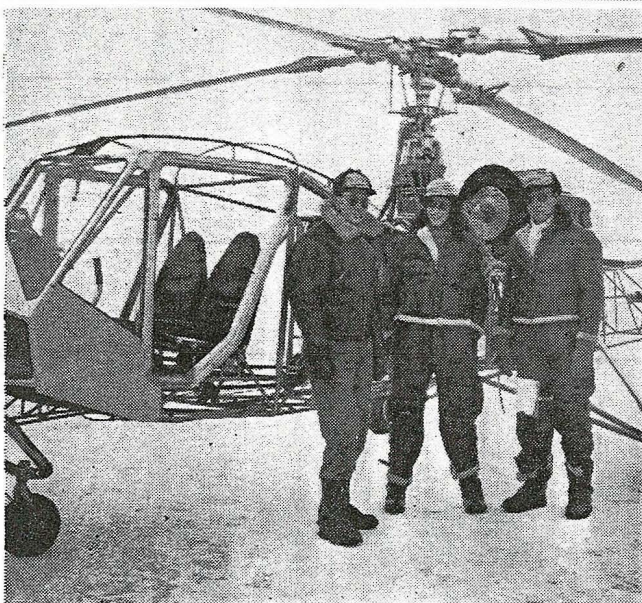
## FAIRCHILD 24

powered with either Ranger or Warner engine. You can buy this airplane brand new for less money, delivered in Canada, than any other four-place aircraft equipped with float fittings. Why fly an oversize three-place airplane or a two-place airplane with a rumble seat when you can have a man-size airplane with a low R.P.M. engine that gets you off the water without playing motor boat all afternoon. Delivered anywhere in Canada—trades accepted. Kashower of Oshawa.

## KASHOWER OF OSHAWA



# Canadian-Built Helicopter Production Model Flies



UPPER. The SG Mark VI-D helicopter hovers just off the ground on its initial flight.

LOWER. Standing by the helicopter, reading from left to right, are Henry Eagle Jr., pilot, Selma Gottlieb and Bernard Szczyer, the engineers who designed the machine.

The newest machine on the helicopter horizon in Canada is the SG Mark VI-D. Designed by the engineering team of Bernard Szczyer and Selma Gottlieb of New York City, and built by Intercity Airlines Co. of Montreal, this helicopter made its first flight tests recently, just six months from the day the design was started.

Piloted by Henry Eagle, Jr. of Hackensack, N.J., the SG MK VI-D proved to be positively free from any vibrations, stick shake, or annoying lag of control responses. This has been achieved by judicious rotor and control system design, coupled

with mass distribution of the machine. No special stability or other extraordinary devices were used to obtain these results.

Powered by a 165 hp Franklin engine, horizontally mounted, the SG Mark VI-D would normally be put into the small helicopter class. However, it is capable of carrying two passengers and 25 lb of baggage in addition to the pilot for a range of 120 miles.

Flown as a two-seater, this range will increase to 300 miles. Dual controls can be fitted easily, the instructor and student sitting side by side with the instrument

panel directly in the line of vision of both. Large plexiglas panels in the nose give full vision in all directions, and each occupant is provided with a separate door. The cabin arrangement is such as to avoid any obstacles which would endanger the occupants in case of a hard or crash landing.

The four-bladed, 34-ft. diameter rotor is of the fully flapping type. Low solidity blades are of wooden construction, fiber-glas covered. The antitorque rotor is of the same construction, but is a two-bladed, semirigid type.

## Trophy Presented to Montreal Flying Club

A trophy, designed to stimulate amateur flying in Montreal will be competed for by members of the Montreal Flying Club at Cartierville during the next four months.

Presented by Colonial Airlines Inc., for competition among Montreal private pilots, the trophy will also be a symbol of the ever-present need for caution and safety in flying, whether it be commercial or amateur.

## Memorial to BCATP Planned for Trenton

A permanent memorial to the British Commonwealth Air Training Plan is to be established in Canada by the British, Australian and New Zealand Governments.

The memorial will be in the form of wrought-iron gates for the entrance to the RCAF station at Trenton, where the Governments have already laid down a memorial avenue of English oak trees, flanked by pavilions of native Australian and New Zealand timbers.

● **Scott Aviation Corp.**, Lancaster, N.Y., has announced a new folder listing their entire line of aviation accessories for 1948. Included are details on tail wheels, engine instruments and fuel gauges.

## Canadian Pilots Rate High With KLM

Canadian pilots, after a year's service, are faring well with KLM, the Royal Dutch Airlines, according to a report from Amsterdam.

"Experience has shown that they have a high standard of air sense," the dispatch states, "and get along very well with the Dutch people."

## Deny Chinese Govt. Seek Canadian Pilots

Canadian Government officials said recently that they doubted that the Chinese Government representatives were seeking to recruit Canadian pilots to fly the Mosquito fighter-bombers purchased by China from Canada.

One official stated that it was possible that some former RCAF fliers may be sounding out the Chinese for such jobs but there is no evidence of it.

It was reported earlier in Toronto that the Chinese Consul in Washington was trying to recruit Canadian pilots for service in China offering them \$1,000 a month. However, the Chinese Air Force has sent a group of its own pilots to Toronto to learn to fly the Mosquitos at the de Havilland plant where the planes are being assembled before being crated and shipped to China.

● **The 15th National Soaring Contest** will be held at Elmira, N.Y., this year from June 30 to July 11.

## Government's Interest In Kossuth Clarified

The Federal Government is prepared to spend \$520,000 towards construction of the proposed airport at Kossuth, Ont., to serve the counties of Wellington, and Waterloo, according to a letter from Hon. C. D. Howe to the Guelph city council.

Mr. Howe's letter stated in part:

"I may summarize the arrangement with the municipalities as follows: The municipalities will acquire the land and either erect or be responsible for the erection of the necessary buildings. The Airport Commission will be responsible for the operation and maintenance of the airport."

## D.O.T. Resumes Control Canada's Air Services

The administration of Canada's air services will be transferred back to its original command — The Department of Transport.

Commander C. P. Edwards, 62-year-old communications veteran and deputy minister of transport, will become deputy minister of transport for air services, in charge of Trans-Canada Air Lines. Until that time, he will remain deputy minister of reconstruction and supply for that department's liquidation period.





### GYRODYNE HELICOPTER

Embodying many new ideas, the Fairey Gyrodyne helicopter will soon make its first flight. The variable-pitch propeller mounted on the small stub wing serves two purposes—it counteracts the rotor torque and provides thrust for forward propulsion. The new machine is claimed to have greater safety, higher forward speed (125 mph) and greater comfort. Carrying four people, the Gyrodyne is powered by a 550 hp Alvis Leonides radial engine.

### Upswing in 1947 for Aviation in Canada

A decided increase in the number of pilots in Canada during 1947 was indicated in a report on the situation by the Dept. of Transport. At the end of November, there were 3,860 pilots licensed in Canada as compared to 3,188 at the end of December, 1946. At this rate of increase, the estimated total of licensed pilots at the end of 1947 was 3,921, a jump of 733 during the year.

Other aviation categories which also showed expansion during 1947 included air engineers, whose numbers increased from 1,296 at the end of 1946 to 1,484 at the end of 1947, a jump of 215; airport traffic control officers showing an increase from 103 to 123.

Registration of aircraft showed a definite upswing when 251 private and 788 commercial aircraft were issued registration certificates during 1947. This brings the total of private aircraft from 45 at the end of 1946 to 296 at the end of 1947, while commercial aircraft jumped from 866 to 1,654 in the same period.

### Swing to Airlines Worries Railroads

Railways are apparently showing anxiety over the growth of airlines, according to a statement in the latest issue of Railway Progress magazine which reports "air passenger revenue last year was more than \$275 millions, a figure greater than the railroads received either in coaches (without commuters) or sleeping or parlor cars in any year from 1937 through 1941."

• The annual meeting of the Soaring Association of Canada will be held on February 7, at the Queens Hotel in Montreal.

### Air Lectures Held at McGill University

McGill University, Montreal, through its extension committee and the School of Commerce, is sponsoring a series of 18 weekly lectures on "The Basic Factors of Air Transportation."

Specialists in each of six different fields will deliver the lectures. The course director is Dr. J. B. Rollit, assistant dean of the faculty of arts and science.

The course is designed for officials and employees of international air associations, air lines, railways and the air supply industries, and will also be attended by undergraduate and postgraduate students in transportation economics at McGill.

### New Minimum Age—17 For RCAF Applicants

Young men 17 years of age may now join the RCAF according to an announcement from Air Force Headquarters in Ottawa. This is a departure from the old policy which required a minimum age of 18 years to be able to join.

It is necessary if an applicant is under 18 to submit a letter signed by his parents consenting to his joining the RCAF before he is accepted.

The Air Force wants 400 men a month for the next eight months in order to bring the service up to its peacetime strength.

### Plans Seaplane Base At Muskoka Resort

A plan to inaugurate a completely equipped aerial vacation resort in the Muskoka district of Ontario got its start recently when John B. Lome, president of Lome Airways Ltd., and Aero Tool Works Ltd., Toronto, purchased Pow-Wow Point Lodge near Huntsville for \$100,000.

The grand opening will be in the spring, when Mr. Lome hopes to have a fully equipped base on adjacent Peninsula Lake. Plans call for a hangar and mooring buoys to accommodate 15 odd amphibious or float-equipped aircraft.

Guests will be flown from the Lome Airways base at

the Toronto Island Airport to the front door of the main lodge within an hour. Aerial fishing parties, with guides, will be flown to remote fishing spots anywhere in Northern Ontario. Hunters will be provided with the same service in the fall.

In the winter, Mr. Lome expects to have the latest ski tows and chalets at the lodge, and special ski planes will be flown in regularly for week ends. A skiers excursion plane service to the Laurentians is also planned for next winter.

• Canadian Pacific Airlines have inaugurated a Lockheed Lodestar service on the route between Flin Flon and Winnipeg.

## Toronto Gliding Club Tests Winter Soaring



Stu. Alexander Photo

Frank Brame of the Toronto Gliding Club in the cockpit of the club's Laister-Kaufmann 10A sailplane after qualifying for his "C" certificate under winter conditions at Oshawa.

Members of the Toronto Gliding Club, based at the Oshawa Airport, have been testing the possibilities of soaring in winter conditions. However, due to consistently poor weather conditions, intense activity in this line has been drastically curtailed.

Despite these drawbacks, the club has been able to get their two gliders airborne on a few occasions. The two machines, a war-surplus Laister-Kaufmann sailplane and a rented Schweizer 2-22 utility glider, are usually launched from a Tiger Moth which tows them to between 1,000 and 2,000 ft. before releasing them. Future plans contemplate the use of a mobile winch for launching purposes.

During one of the winter soaring operations recently,

Don Holman, president of the club, carried out a 40-minute flight in the Laister-Kaufmann under deteriorating weather conditions.

Immediately after this, Frank Brame, another club member, qualified for his "C" certificate in the same craft by remaining aloft for 35 minutes after release. Most of this flight was made during a brisk snow storm.

Prolonged flights are discouraging because of the cold, but several good flights have been recorded in the Schweizer. As a result of such successful activity, the club anticipates no shortage of enthusiasts for their winter operations. They are convinced that soaring is possible under such climatic conditions.





Shown on a test flight three days after coming out of the shop, the Hiller "360" displays the simple pattern of its design. The pilot and two passengers sit abreast in the wide cabin quite comfortably. Production models will have a fairing over the tail rotor drive shaft.

## Claim Hiller Helicopter Is Unusually Stable

Before a large gathering of aviation and press representatives at the company's new production plant site in Palo Alto, Calif., United Helicopters recently unveiled its three-place production helicopter, the Hiller "360." According to company officials, the demonstration displayed for the first time in helicopter history complete inherent stability. This newest entry into the commercial field was impressive, not only for its unique control system which achieves the long-sought stability, but equally for its simplicity of design and resulting weight savings.

The 178-hp craft, although designed as a three-place ship, easily lifted five people. In a stripped-down condition for field work in agriculture, the "360" achieves a useful load upward of 1,000 lb.

Before the "360" went through its paces the onlookers witnessed a stability demonstration during which a helicopter was rocked by an assistant standing on the ground and quickly righted itself without the pilot's touching the controls. Then, appropriately enough, this helicopter flew over to a screen set up nearby and unveiled the "360" by pulling off the canvas, following which Frank Peterson, chief test pilot for the company, gave a complete aerial demonstration illustrating the various novel control charac-

teristics embodied in this new helicopter.

Stanley Hiller, Jr., president of the company, stated in a short address that the "360" was slated for the agricultural and industrial markets. He pointed out that this new helicopter was built around several radically new design features which he said "sets a new standard for the helicopter industry in simplicity, stability, and safety."

Mr. Hiller further stated that the company anticipates completion of CAA test and certification of the "360" in a few months with the outlook for production and deliveries in 1948.

### Lancasters for RCAF Air-Sea Rescue

Three Lancasters, complete with radar, latest devices for air-sea rescue work and air-borne lifeboats will bolster the strength of Eastern Air Command's Search and Rescue Unit, S/L Ray Miller, officer commanding the section, announced recently.

The Lancs, which flew scores of operational trips overseas, will arrive early next spring, it was stated.

With this addition, the search unit will have seven aircraft. At the present time, an Anson V, a Sikorsky helicopter and two Cansos are assigned for search and rescue work.

### British Jet Wing Performs in Public

Claimed as the most advanced type of research aircraft in the world, the British Armstrong-Whitworth jet-propelled flying wing made its first flight in public recently.

The highly-polished plane is powered by two Rolls Royce "Nene" engines, has a wing span of 90 ft. and a fully laden take-off weight of 33,000 lb. It cost about \$800,000 to produce.

To make the air flow smoothly over its surfaces, the wing has a superfine grooveless skin with not a single rivet marring the even flow of air. On take-off, it was air-borne in a remarkably short distance.

Except when it was directly overhead, the wing was practically noiseless as it circled the field.

● The deHavilland Beaver prototype seaplane acceptance trials have been completed by the Dept. of Transport and the recommendation for a Certificate of Airworthiness has been made.

### Airport Post Office For Calgary

A new branch postoffice has been opened at the Calgary Municipal Airport, providing on-the-spot mailing facilities for air mail.

Known as the Air Mail Field Post Office it will be staffed by two postal employees who will be on duty sorting and bagging outgoing and incoming air mail.

● British Overseas Airways Corp has announced the opening of a new office in Toronto. The opening of this office marks a further step in the long-term BOAC policy for the improvement of booking and planning facilities for trans-Atlantic passengers.

In addition, this new office will enable local passenger agents to make a check on flight bookings and schedules on Speedbird routes in any part of the world.

### Cochrane Establishes Closed Course Record

● Jacqueline Cochrane, famous woman pilot, recently established a new 100-kilometer closed course speed record of 469 miles per hour for planes powered with reciprocating engines while at the same time setting a new international women's record for this particular distance.

The 62,136-mile course was flown by Miss Cochrane in an old model P-51 "Mustang" which she bought from the government's stockpile of surplus and obsolete planes. The course was over the Coachella desert where Miss Cochrane has a ranch home.

The flight was under the supervision of the National Aeronautic Association with Charles S. Logsdon of that organization present as chief observer, and, subject to later calibration of all instruments, will be certified in due course to the Federation Aeronautique Internationale in Paris.



### LARGEST TROOP TRANSPORT FLIES

Five stories high and a block long, Consolidated Vultee's \$15,000,000 experimental XC-99, is shown on the approach after its first successful one-hour test flight recently. The new giant landplane, designed to carry 400 fully outfitted troops, is equipped with six 3,000-hp engines and has a range of 8,100 miles at 300 mph.

Four years were required to build the huge craft.





## Bristol Builds British Commercial Helicopter

When the Bristol Type 171 Mk. 1 helicopter, shown above, made its first flight, it became the first British commercial helicopter to take the air. The layout of the new machine is conventional, consisting of a single main rotor with the torque counteracted by a tail rotor; however, something new is the folding rotor blades for convenient parking or storage. Intended for use as an air-taxi, feeder-line aircraft, rescue work or artillery spotting, the Type 171 provides accommodation for four persons and is fitted with dual controls.

### Continental Sponsors Annual Trophy Race

A silver trophy and \$10,000 in cash prizes will be awarded by the Continental Motor Corp. airplane race to be featured at the sixteenth annual Miami All-American Air Manoeuvres, January 9 to 11 inclusive.

The race is to be an annual event in connection with the Miami Air Manoeuvres, and will be featured as the Continental Motors Trophy Race, C. J. Reese, Continental president, announced. Continental's purpose in sponsoring the race is to stimulate improvement in design of light planes, for which it is a leading supplier of engines, he stated.

Rules for the race have been developed by the Professional Race Pilots Association, with specifications covering airplane airworthiness and pilot qualifications aimed at guaranteeing maximum safety, Mr. Reese said.

The silver trophy for winner of first place will stand about three feet in height and will be inscribed as "honoring the pilots of today who are developing the airplanes of tomorrow." It is designed to show aviation progress

since the Wright brothers made the first flight at Kitty Hawk. Space for engraving the name of each year's winner is provided. The trophy will remain in Continental's possession for display at various aviation and other public events throughout the year, but a replica in miniature will be given to the winner of each year's race to keep.

Rules for dividing the \$10,000 prize money among various contestants are to be established by the Professional Race Pilots Association, together with all other specifications and qualifications for participation.

● **Saskatchewan Government Airways** plans to use wheel-equipped Anson V aircraft for operations during the entire winter. The aircraft will be based at Beaver Lake, and will operate from frozen lakes throughout the province which will have the snow cleared from the ice surface by heavy tractors.

### Four-place Aeronca Test Flown

Initial flight tests of the 1948 four-passenger Aeronca Model 15 prototype were conducted at the manufacturing plant of the Aeronca Aircraft Corporation recently in the presence of all its employees, community leaders and Civil Aeronautics Authority officials. The new four-place Aeronca took to the air for a two-hour flight that exceeded all theoretical performance calculations.

Designed around the recommendations from the personal plane industry as to features and requirements of private owners the new Aeronca is a high wing monoplane with conventional landing gear and controls. Rapid take-off and rate of climb, and lower landing speeds are featured in the new plane.

The foregoing features and the elimination of complicated controls and flying technique were designed to enable the private owner pilot, whose experience may be limited to lightplane flying, to carry four passengers comfortably and safely and take off and land from restricted places or temporary air strips.

Other features include a useful load over 900 pounds, 145-hp Continental engine complete with electric starter and generator, navigation light and two landing lights.

### D.O.T. Closes Flying School at Yarmouth

A difference of opinion as to the legality of a charge for storage fees as presented by the Dept. of Transport to the Yarmouth Flying School, at Yarmouth, N. S., has resulted in the company being barred from entering the Yarmouth Airport and temporarily at least, putting them out of business.

From their company offices across the main highway from the airport, the co-managers of the flying school, G. C. McKay and J. M. McRae, ex-RCAF officers, watched Dept. of Transport employees erect a fence across their entrance to the runways.

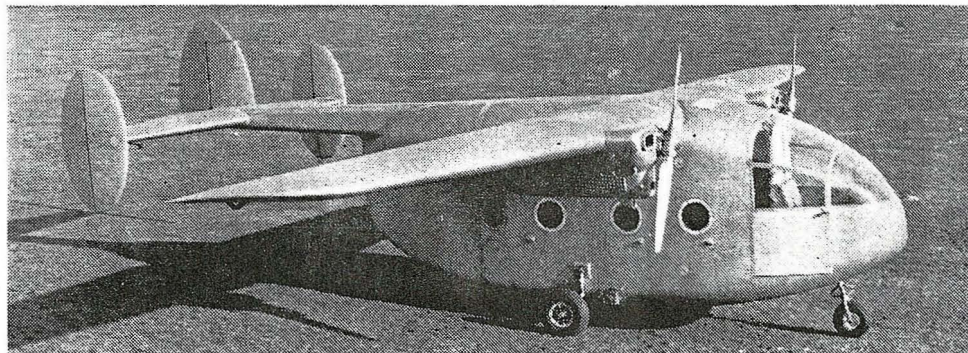
According to the two pilots, the charges in question are for storage fees for their airplanes covering a period of several months during time they have not been using their equipment on airport property. The school company complete hangar on their own side the road this fall, and been storing their there.

The bills in question said to total approximately \$110. This is apart charges for use of the ways on which question is no disagreement.

### Supercruisers Circle Globe in 123 Days

The two globe-circling Piper Supercruisers piloted by Cliff Evans and Saskatchewan-born George Truman completed their round-the-world flight of 25,162 miles in 123 days.

Taking off from Teterboro, N.J., the two pint-sized aircraft hopped leisurely around the globe, side by side, to a total of 49 stops in 23 countries before touching down again at their starting point.



### MODIFIED AEROVAN

The Miles Aerovan shown here is fitted with two Lycoming O-435A type engines of 195 hp each and embodies a modified tail assembly. The machine is now flying and the performance is quite satisfactory.



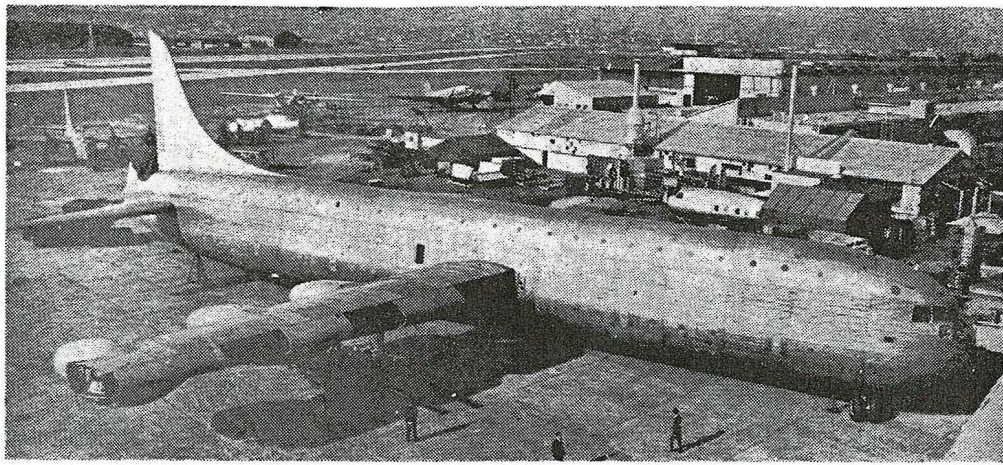
## Dutch Airline Seeks Canadians

Captain Carel Christiaan Speensma of Holland, assistant director of operations for the Royal Dutch Airlines, has been in Ottawa, Montreal and Toronto to interview Canadian airmen as prospective pilots for his airway, it was announced by Arthur MacNamara, Deputy Minister of Labor.

Mr. MacNamara stated that early last December the Dutch airlines engaged 60 Canadian pilots to fly four-engined machines in their service. So pleased was the Dutch organization with the calibre of men they were able to obtain in Canada at that time, that they have returned to this country for an additional 25 pilots.

The pilots must be not more than 33 years old, with several hundred hours flying time to their credit, preferably on four-engined planes. Transportation will be paid to Holland for the men

chosen, and in that country the men will undergo a certain amount of further training, depending on their experience. They then may do some flying in Europe before taking over trans-oceanic runs to the Far East.



Too large to be assembled indoors, the mammoth Convair transport has been moved into the open for attachment of engines, tail control surfaces, undercarriage and outer wing panels.

## Six-engined Transport To Carry 400 Troops

The world's largest land-based aircraft, the six-engine XC-99 cargo and troop transport being built by Consolidated Vultee Aircraft Corporation for the Army Air Forces, has been moved into the experimental yard at the company's San Diego plant to permit installation of main landing wheels and outer wing panels.

No building at Consolidated Vultee, officials said, is high enough to house the giant plane with its main landing wheels installed, or wide enough to house it with outer wing panels in place.

For the past month 30 feet of the aft fuselage have protruded from Convair's experimental building because the tail surfaces stick into the sky 57½ feet, several feet higher than the experimental building.

Wing leading and trailing edges, together with rudder, propellers, and interior fixtures, remain to be installed. Initial flights of the XC-99 must await completion of this

work and an extensive ground testing program.

A transport version of Convair's B-36 bomber, the double-decked XC-99 will be able to carry 400 troops, or 335 litter patients, or 100,000 pounds of cargo.

Like the B-36, it is powered by six 3,000-h.p. pusher-type engines turning 19-foot reversible-pitch propellers.

The AAF has revealed that the huge transport will have a maximum range with reduced loads of more than 8,000 miles. Flights of this distance will call for a five-man crew and an equal number of relief crew members.

Design gross weight of the XC-99 is 265,000 pounds. Its wingspan is 230 feet and its length, 182½ feet.

● Shirley Goldring, Vi Wright and Margaret Beetham were elected president, secretary, and treasurer respectively, of a Community Aviation Club to foster interest in flying among women in Toronto.

## Peterborough Airport Closer As Company Reorganizes

Although Peterborough voters turned down a referendum regarding the city taking over the airport under construction by Canadian Aircraft and Auto Co., the prospects of the city having an airport on the same site are improved lately.

Eldon Purvis, president of the company, reports to Canadian Aviation that the vote was 2,444 against the proposal and 1,027 favoring the purchase of the airport by the city. Further action by the city's committee is reported to have improved the outlook, and work on the airport is to continue.

Stressing that other reports to the contrary, the company

is continuing, Mr. Purvis told of a reorganization of the company that will result in increased capitalization by making the firm a public company and selling shares to the public.

The board of directors has been increased from three to seven members, and comprises the original three—Eldon Purvis, Harvey Strub and Jas. Ireland—in addition to R. McClellan, Chas. Kingan and Adam Sands. The seventh director has not yet been named.

The capital of the firm has been increased from \$40,000 to \$350,000 with special attention being paid to the original stockholders of the company.



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**FIRST CARIBOU IN RCAF MARKINGS**, one of four purchased for air support of Canadian Army units serving in the Belgian Congo, is shown during crew familiarization flight from Downsview, de Havilland Canada's base of operations. Six pilots and 36 groundcrew took Caribou conversion course.

## Avian No. 2 Readied

A second prototype of the Avian 2/180 gyroplane will soon start pre-flight ground running trials. The first machine was destroyed last spring when it made an unplanned flight during taxi tests by a test pilot undergoing type familiarization.

The second machine, which incorporates some minor changes in exterior design, was to be rolled out of the Georgetown, Ont., plant of Avian Industries Ltd. early this month. The pre-flight tests which were interrupted by the accident last spring, will be started again from the beginning.

## 104 Simulators by CAE

Contracts totalling approximately \$18 million have been placed with Canadian Aviation Electronics Ltd. for F-104G simulators by the governments of West Germany and The Netherlands. Confirmation has been received from both countries together with commitments of funds necessary for the immediate commencement of work.

The total value of the overall program is estimated at \$18 million with the simulators being built by CAE with technical and administrative supervision being the responsibility of the RCAF and DDP officers. This is the same arrangement existing with the work being done on the RCAF CF-104 simulator program which began last May.

The decision of Germany and Netherlands to purchase simulators in

Canada resulted from RCAF and DDP co-operation with German and Netherlands Air Force experts to investigate the possibilities of a joint program. The choice of CAE was based on a tender competition for RCAF CF-104 simulators early this year. Price and technical proposals were obtained at the same time for Germany and The Netherlands at their request.

There are prospects of further simulator orders from other countries adopting F-104 Starfighter aircraft.

## CF-104 Prototype Flies

Bearing the RCAF's maple leaf roundel, the Lockheed-built prototype of the CF-104 made a successful first flight at Palmdale, California, Sept. 1. Piloted by C. A. Kitchens of Lockheed's engineering flight test department, the Mach 2 fighter was aloft over Southern California for 43 minutes.

The prototype CF-104 is actually a modified early-model Starfighter. It is fitted with an advanced electronics system which provides a true all-weather capability. The prototype program will flight test the fire control and flight control systems.

Initial flight of the first Canadair-produced CF-104 is scheduled for late spring of 1961.

## More 104 Work for CL

Canadair Ltd. has received a sub-contract worth \$4 million for the supply of 86 sets of wings, rear fuselages and empennages for F-104

aircraft being assembled at Lockheed for ultimate delivery to the Netherlands, Belgium and Japan. Of the 86 aircraft involved in the new order, Japan is to receive 40, Holland 31, and Belgium 15.

Canadair's share of the project is in the form of subcontracts—as in the case of the earlier order for 80 sets of the same components for the West German Air Force. As before, the work will be carried out in parallel with the program by which the company is producing 200 CF-104's for the RCAF.

The latest orders mean that Canadair Ltd. is now engaged in production, in whole or in part, of 366 aircraft of the CF-104 family.

## Ghana Buys Beavers

Fourteen DHC-2 Beaver utility transport planes have been ordered by the government of Ghana from de Havilland Canada. The initial delivery of the first two aircraft on the million dollar contract will be made in December of this year.

The Beavers will be operated by the Ghanaian Air Force and will be used primarily to fly government personnel to remotely located administrative areas, for emergency air ambulance work, and aerial surveys.

Two of the aircraft will be fitted with dual controls for training purposes and six will be equipped for camera installations. The camera-equipped Beavers will be employed on an extensive aerial survey, mapping and photographic project being planned by the Ghanaian government.

## Napier O/H by Can. P & W

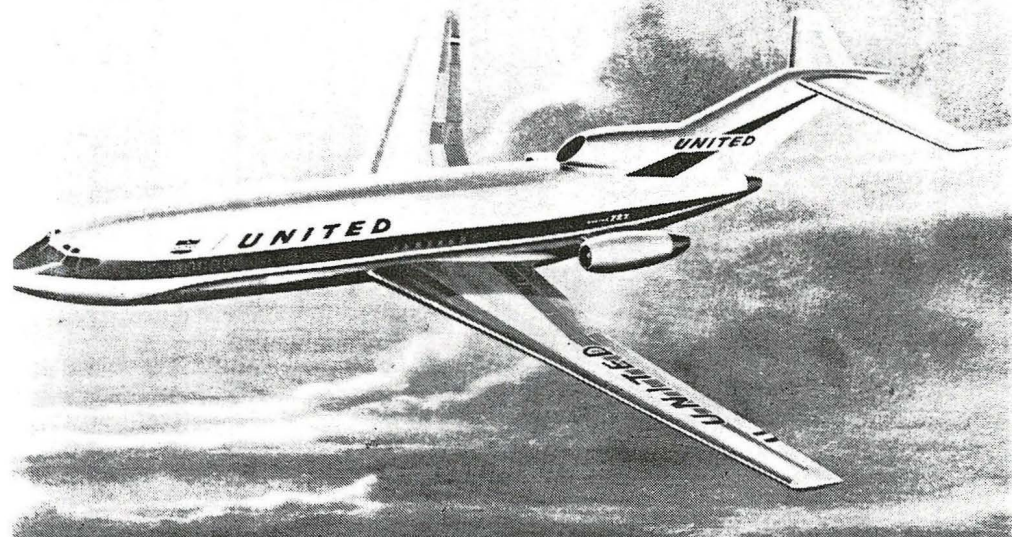
Overhaul facilities for Napier engines in North America, including the Eland turboprops used in the Canadair/Convair 540 airliner series, are being provided by Canadian Pratt & Whitney Aircraft Co. Ltd., Montreal.

## Avro in Marine Field

Avro Aircraft Ltd. and United Marine Inc. jointly announced last month that the two organizations have become associated in a manufacturing agreement. Under it, Avro will manufacture aluminum hulls for the power cruisers of United Marine's Richardson Boat Div., North Tonawanda, N.Y.

Avro has established a new marine division devoted entirely to the en-





**FORTY BOEING 727 SHORT/MEDIUM** range jetliners have been ordered by United Air Lines for late 1963 delivery. Artist's conception shows configuration strikingly like DH-121 Trident. Powered by three P & W JT8D turbofans, the 550-600 mph. airliner will operate from 5000 ft. runways carrying 70-114.

## TCA Pilot Lay-Off

TCA has announced that 104 pilots will lose their flying jobs between February and August 1961. The pilots, the bulk of whom are presently flying out of Montreal, and all with less than three years' seniority, will be offered non-flying jobs with TCA. Some have already applied for and been accepted by Aer Lingus TTA, Ireland's national airline.

Reason for the lay-off is the introduction of new equipment on TCA services. The higher block speeds and increased seating capacities of the new jet and turboprop equipment, allows TCA to offer the same flight service and density with fewer aircraft. An example of this is the DC-8 which handles roughly twice as much traffic as the Super Constellation which it is replacing. With the retirement of such aircraft as the Super Connie, the North Star and the venerable DC-3, Canada's airline requires fewer aircrews.

## Central Register

A bill to provide a central Canadian aircraft registry has been introduced to Commons by the Hon. John Drysdale. Purpose of the bill is to record title to and all encumbrances against Canadian civil aircraft.

Provision is made for registration according to nationality in order to

comply with the provisions of the convention on the international recognition of rights in aircraft. By providing a central aircraft registry according to nationality, Canada can then become a signatory to that convention.

## IDB Financing

An embarrassed AITA has manfully admitted that the criticisms it made last summer of Industrial Development Bank lending practices (see *AIRCRAFT*, September 1960, p.42) were "not entirely in accordance with fact."

The criticisms were made in an AITA letter signed by President F. T. Wood sent to Finance Minister Fleming in July, requesting that the Minister ease the terms of loans made by the IDB to Canadian air carriers to finance the purchase of new aircraft.

In a letter dated Oct. 26 (and recently circulated among AITA membership) officially replying to the AITA's charges, IDB General Manager D. G. Marble shows remarkable restraint in refuting every one of the points about which the Association complained. Mr. Marble pointed out that the IDB does not operate under the direction of the Department of Finance nor as a branch of the Government and noted that . . . "We have made 86 loans to 47 air carriers and we cannot believe that your letter

fairly represents their views of their relations with the Bank."

For its part, the AITA said that . . . "It should be emphasized that the officers of IDB have extended and are prepared to extend every reasonable co-operation to the Association and its members in the handling of financing problems. We, on our part, must also be prepared to co-operate with the Bank's officers and recognize that while they are anxious and willing to help, they cannot carry all of our financial burdens on their shoulders."

## Quebecair/WWA Agree

Agreement has been reached between Quebecair and World Wide Airways on a common approach to the ATB for flying rights between Montreal and Schefferville along the Wabush-Gagnon - Minicougan - Chicoutimi - Quebec route. They had earlier been opposing each other's applications.

Under the arrangement outlined to the board, Quebecair would confine itself to carrying passengers, mail and express. World Wide would fly heavy freight, forsaking its claim to passenger rights except on a charter basis. Quebecair is seeking a Class 2 licence and World Wide a Class 3.

All points on the projected route now are served by Quebecair, but on a different route pattern than that projected. Quebecair said the new direct route would cut to three hours from four the flying time between Schefferville and Montreal. There would also be a 15 to 20 per cent reduction in fares. Quebecair said Matane Air Services, Northern Wings and Eastern Provincial Airways were also supporting its application.

## TCA Vikings Delivered

Deliveries of TCA's Vickers Vanguard turboprop airliners started early in December and are continuing at a one-a-week clip.

The first TCA Vanguard to be delivered, CF-TKD, arrived in Montreal December 8, and the second was on hand for the Dec. 15 official opening of the airline's big new turbine engineering and maintenance base at Dorval. Delivery schedule calls for the first 14 to be delivered to TCA at Montreal by April 28.

The deliveries began almost immediately following the receipt of full Certificates of Airworthiness for both



## FLYING CLUBS



## REPORT

By D. L. Buchanan, Sec.-Mgr., RCFA.

**Action**—While there can be no doubt that the flying clubs have had, in common with most aviation enterprises, a tough time of it for the last couple of years, it is a certainty that they are really doing something about their difficulties.

The intense concentration on problems and keen discussion by delegates at the recent annual meeting in Vancouver left no doubt that interest in flying club movement is greater than it ever was and that the people who are running flying clubs in 1948 are fully aware of the need for the continuance of the scheme in the interest of defence preparedness.

That this year is going to be one of real action for the flying clubs is borne out by communications now coming into the Ottawa office reporting on club annual meetings and elections. Any postwar lethargy on the part of club directors in the management and operation of their clubs is on its way out. The clubs are following one of President Yorath's most important recommendations at the meeting, that is, of strengthening their directorates. There has been many a thorough overhauling in recent weeks. Valuable new timber has been drafted in the form of younger people whose interest is high and who have time and energy to devote to club business.

During the next ten months, you members at large are going to be called upon by your directorates for assistance. You can advance the interests and development of your own club, as well as making a worthwhile contribution to National Defense preparedness by giving freely of your time and talent when called upon.

**Safety Awards** — Before this appears in print, full information will have been

despatched to all member clubs of the association with respect to the safe flying campaign for 1948. The details of this program as they affect you, a flying member, will come to your attention in due course, but right now, there is one phase of the program of which you should be aware.

The association is presenting to each club for each "accident-free" month of operation, a safety award pennant and there will be a special award at the end of the year for each club that manages to hang up 12 of these monthly pennants.

**RCMP Assistance** — The Lethbridge Flying Club headed by Ernie McFarland, newly elected Alberta zone

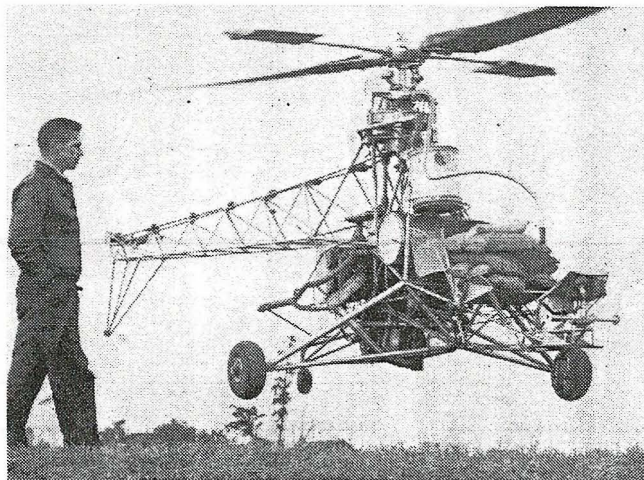
director of the association, has taken the lead in soliciting the assistance of the Royal Canadian Mounted Police in combating low and dangerous flying. Apprehension and prosecution of this type of offender is largely dependent upon the sufficient knowledge of flying and Air Regulations on the part of officers.

During the week of Feb. 16 to 21, the RCMP of southern Alberta met in Lethbridge. The Lethbridge Flying Club tended luncheons to two detachments of officers and through the co-operation of the Department of Transport, had an inspector of the Civil Aviation Division give a talk to the RCMP lads at each of these sessions.

**National Flying Club Week** — The association has asked its member clubs to observe National Flying Club Week, June 6 to June 12, inclusive, 1948. Special national publicity is being arranged and the clubs will be asked to co-operate in their own localities.

Again the prime purpose of this observance is, through increased memberships, to draw public attention to the need for increased pilot training if the country is to, at all times, have a pool of young pilots available in the interest of national security.

## Helicopter Flies Itself!



HOVERING UNAIDED

A test pilot of United Helicopters, Inc. watches as an experimental helicopter flies completely unaided. Stanley Hiller, Jr., president of the firm, has revealed that this feat is made possible by an entirely new conception of helicopter control—a servo control motor which makes the helicopter inherently stable.

Up to this time it has been virtually impossible to hover a helicopter hands off because of the complexity of control and lack of stability. Basically, this new control system consists of an overhead control stick connecting through a simple linkage to a control rotor.

A self-dampening action on the part of the control rotor corrects any oscillation of the helicopter, thus providing the craft with inherent stability.

## BLACK MARKET..

that's what we understand is the name of over-priced places. We suppose "white market" is the name of standard price merchants. Since we're going to offer you aircraft at a discount, we suppose the name of that is a "blue market." We're not blue ourselves but we will deliver any U.S.-made aircraft at a discount from list. We will make immediate deliveries and accept anything in trade, so wire me if you want to buy a U.S.-made airplane brand new.

## KASHOWER OF OSHAWA

## FAIRCHILD 24

powered with either Ranger or Warner engine. You can buy this airplane brand new for less money, delivered in Canada, than any other four-place aircraft equipped with float fittings. Why fly an oversize three-place airplane or a two-place airplane with a rumble seat when you can have a man-size airplane with a low R.P.M. engine that gets you off the water without playing motor boat all afternoon. Delivered anywhere in Canada—trades accepted. Kashower of Oshawa.

## KASHOWER OF OSHAWA



# Canadian-Built Helicopter Production Model Flies



UPPER. The SG Mark VI-D helicopter hovers just off the ground on its initial flight.

LOWER. Standing by the helicopter, reading from left to right, are Henry Eagle Jr., pilot, Selma Gottlieb and Bernard Szczyer, the engineers who designed the machine.

The newest machine on the helicopter horizon in Canada is the SG Mark VI-D. Designed by the engineering team of Bernard Szczyer and Selma Gottlieb of New York City, and built by Intercity Airlines Co. of Montreal, this helicopter made its first flight tests recently, just six months from the day the design was started.

Piloted by Henry Eagle, Jr. of Hackensack, N.J., the SG MK VI-D proved to be positively free from any vibrations, stick shake, or annoying lag of control responses. This has been achieved by judicious rotor and control system design, coupled

with mass distribution of the machine. No special stability or other extraordinary devices were used to obtain these results.

Powered by a 165 hp Franklin engine, horizontally mounted, the SG Mark VI-D would normally be put into the small helicopter class. However, it is capable of carrying two passengers and 25 lb of baggage in addition to the pilot for a range of 120 miles.

Flown as a two-seater, this range will increase to 300 miles. Dual controls can be fitted easily, the instructor and student sitting side by side with the instrument

panel directly in the line of vision of both. Large plexiglas panels in the nose give full vision in all directions, and each occupant is provided with a separate door. The cabin arrangement is such as to avoid any obstacles which would endanger the occupants in case of a hard or crash landing.

The four-bladed, 34-ft. diameter rotor is of the fully flapping type. Low solidity blades are of wooden construction, fiber-glas covered. The antitorque rotor is of the same construction, but is a two-bladed, semirigid type.

## Trophy Presented to Montreal Flying Club

A trophy, designed to stimulate amateur flying in Montreal will be competed for by members of the Montreal Flying Club at Cartierville during the next four months.

Presented by Colonial Airlines Inc., for competition among Montreal private pilots, the trophy will also be a symbol of the ever-present need for caution and safety in flying, whether it be commercial or amateur.

## Memorial to BCATP Planned for Trenton

A permanent memorial to the British Commonwealth Air Training Plan is to be established in Canada by the British, Australian and New Zealand Governments.

The memorial will be in the form of wrought-iron gates for the entrance to the RCAF station at Trenton, where the Governments have already laid down a memorial avenue of English oak trees, flanked by pavilions of native Australian and New Zealand timbers.

● **Scott Aviation Corp.**, Lancaster, N.Y., has announced a new folder listing their entire line of aviation accessories for 1948. Included are details on tail wheels, engine instruments and fuel gauges.

## Canadian Pilots Rate High With KLM

Canadian pilots, after a year's service, are faring well with KLM, the Royal Dutch Airlines, according to a report from Amsterdam.

"Experience has shown that they have a high standard of air sense," the dispatch states, "and get along very well with the Dutch people."

## Deny Chinese Govt. Seek Canadian Pilots

Canadian Government officials said recently that they doubted that the Chinese Government representatives were seeking to recruit Canadian pilots to fly the Mosquito fighter-bombers purchased by China from Canada.

One official stated that it was possible that some former RCAF fliers may be sounding out the Chinese for such jobs but there is no evidence of it.

It was reported earlier in Toronto that the Chinese Consul in Washington was trying to recruit Canadian pilots for service in China offering them \$1,000 a month. However, the Chinese Air Force has sent a group of its own pilots to Toronto to learn to fly the Mosquitos at the de Havilland plant where the planes are being assembled before being crated and shipped to China.

● **The 15th National Soaring Contest** will be held at Elmira, N.Y., this year from June 30 to July 11.

## Government's Interest In Kossuth Clarified

The Federal Government is prepared to spend \$520,000 towards construction of the proposed airport at Kossuth, Ont., to serve the counties of Wellington, and Waterloo, according to a letter from Hon. C. D. Howe to the Guelph city council.

Mr. Howe's letter stated in part:

"I may summarize the arrangement with the municipalities as follows: The municipalities will acquire the land and either erect or be responsible for the erection of the necessary buildings. The Airport Commission will be responsible for the operation and maintenance of the airport."

## D.O.T. Resumes Control Canada's Air Services

The administration of Canada's air services will be transferred back to its original command — The Department of Transport.

Commander C. P. Edwards, 62-year-old communications veteran and deputy minister of transport, will become deputy minister of transport for air services, in charge of Trans-Canada Air Lines. Until that time, he will remain deputy minister of reconstruction and supply for that department's liquidation period.





### GYRODYNE HELICOPTER

Embodying many new ideas, the Fairey Gyrodyne helicopter will soon make its first flight. The variable-pitch propeller mounted on the small stub wing serves two purposes—it counteracts the rotor torque and provides thrust for forward propulsion. The new machine is claimed to have greater safety, higher forward speed (125 mph) and greater comfort. Carrying four people, the Gyrodyne is powered by a 550 hp Alvis Leonides radial engine.

### Upswing in 1947 for Aviation in Canada

A decided increase in the number of pilots in Canada during 1947 was indicated in a report on the situation by the Dept. of Transport. At the end of November, there were 3,860 pilots licensed in Canada as compared to 3,188 at the end of December, 1946. At this rate of increase, the estimated total of licensed pilots at the end of 1947 was 3,921, a jump of 733 during the year.

Other aviation categories which also showed expansion during 1947 included air engineers, whose numbers increased from 1,296 at the end of 1946 to 1,484 at the end of 1947, a jump of 215; airport traffic control officers showing an increase from 103 to 123.

Registration of aircraft showed a definite upswing when 251 private and 788 commercial aircraft were issued registration certificates during 1947. This brings the total of private aircraft from 45 at the end of 1946 to 296 at the end of 1947, while commercial aircraft jumped from 866 to 1,654 in the same period.

### Swing to Airlines Worries Railroads

Railways are apparently showing anxiety over the growth of airlines, according to a statement in the latest issue of Railway Progress magazine which reports "air passenger revenue last year was more than \$275 millions, a figure greater than the railroads received either in coaches (without commuters) or sleeping or parlor cars in any year from 1937 through 1941."

• The annual meeting of the Soaring Association of Canada will be held on February 7, at the Queens Hotel in Montreal.

### Air Lectures Held at McGill University

McGill University, Montreal, through its extension committee and the School of Commerce, is sponsoring a series of 18 weekly lectures on "The Basic Factors of Air Transportation."

Specialists in each of six different fields will deliver the lectures. The course director is Dr. J. B. Rollit, assistant dean of the faculty of arts and science.

The course is designed for officials and employees of international air associations, air lines, railways and the air supply industries, and will also be attended by undergraduate and postgraduate students in transportation economics at McGill.

### New Minimum Age—17 For RCAF Applicants

Young men 17 years of age may now join the RCAF according to an announcement from Air Force Headquarters in Ottawa. This is a departure from the old policy which required a minimum age of 18 years to be able to join.

It is necessary if an applicant is under 18 to submit a letter signed by his parents consenting to his joining the RCAF before he is accepted.

The Air Force wants 400 men a month for the next eight months in order to bring the service up to its peace-time strength.

### Plans Seaplane Base At Muskoka Resort

A plan to inaugurate a completely equipped aerial vacation resort in the Muskoka district of Ontario got its start recently when John B. Lome, president of Lome Airways Ltd., and Aero Tool Works Ltd., Toronto, purchased Pow-Wow Point Lodge near Huntsville for \$100,000.

The grand opening will be in the spring, when Mr. Lome hopes to have a fully equipped base on adjacent Peninsula Lake. Plans call for a hangar and mooring buoys to accommodate 15 odd amphibious or float-equipped aircraft.

Guests will be flown from the Lome Airways base at

the Toronto Island Airport to the front door of the main lodge within an hour. Aerial fishing parties, with guides, will be flown to remote fishing spots anywhere in Northern Ontario. Hunters will be provided with the same service in the fall.

In the winter, Mr. Lome expects to have the latest ski tows and chalets at the lodge, and special ski planes will be flown in regularly for week ends. A skiers excursion plane service to the Laurentians is also planned for next winter.

• Canadian Pacific Airlines have inaugurated a Lockheed Lodestar service on the route between Flin Flon and Winnipeg.

## Toronto Gliding Club Tests Winter Soaring



Stu. Alexander Photo

Frank Brame of the Toronto Gliding Club in the cockpit of the club's Laister-Kaufmann 10A sailplane after qualifying for his "C" certificate under winter conditions at Oshawa.

Members of the Toronto Gliding Club, based at the Oshawa Airport, have been testing the possibilities of soaring in winter conditions. However, due to consistently poor weather conditions, intense activity in this line has been drastically curtailed.

Despite these drawbacks, the club has been able to get their two gliders airborne on a few occasions. The two machines, a war-surplus Laister-Kaufmann sailplane and a rented Schweizer 2-22 utility glider, are usually launched from a Tiger Moth which tows them to between 1,000 and 2,000 ft. before releasing them. Future plans contemplate the use of a mobile winch for launching purposes.

During one of the winter soaring operations recently,

Don Holman, president of the club, carried out a 40-minute flight in the Laister-Kaufmann under deteriorating weather conditions.

Immediately after this, Frank Brame, another club member, qualified for his "C" certificate in the same craft by remaining aloft for 35 minutes after release. Most of this flight was made during a brisk snow storm.

Prolonged flights are discouraging because of the cold, but several good flights have been recorded in the Schweizer. As a result of such successful activity, the club anticipates no shortage of enthusiasts for their winter operations. They are convinced that soaring is possible under such climatic conditions.





Shown on a test flight three days after coming out of the shop, the Hiller "360" displays the simple pattern of its design. The pilot and two passengers sit abreast in the wide cabin quite comfortably. Production models will have a fairing over the tail rotor drive shaft.

## Claim Hiller Helicopter Is Unusually Stable

Before a large gathering of aviation and press representatives at the company's new production plant site in Palo Alto, Calif., United Helicopters recently unveiled its three-place production helicopter, the Hiller "360." According to company officials, the demonstration displayed for the first time in helicopter history complete inherent stability. This newest entry into the commercial field was impressive, not only for its unique control system which achieves the long-sought stability, but equally for its simplicity of design and resulting weight savings.

The 178-hp craft, although designed as a three-place ship, easily lifted five people. In a stripped-down condition for field work in agriculture, the "360" achieves a useful load upward of 1,000 lb.

Before the "360" went through its paces the onlookers witnessed a stability demonstration during which a helicopter was rocked by an assistant standing on the ground and quickly righted itself without the pilot's touching the controls. Then, appropriately enough, this helicopter flew over to a screen set up nearby and unveiled the "360" by pulling off the canvas, following which Frank Peterson, chief test pilot for the company, gave a complete aerial demonstration illustrating the various novel control charac-

teristics embodied in this new helicopter.

Stanley Hiller, Jr., president of the company, stated in a short address that the "360" was slated for the agricultural and industrial markets. He pointed out that this new helicopter was built around several radically new design features which he said "sets a new standard for the helicopter industry in simplicity, stability, and safety."

Mr. Hiller further stated that the company anticipates completion of CAA test and certification of the "360" in a few months with the outlook for production and deliveries in 1948.

### Lancasters for RCAF Air-Sea Rescue

Three Lancasters, complete with radar, latest devices for air-sea rescue work and air-borne lifeboats will bolster the strength of Eastern Air Command's Search and Rescue Unit, S/L Ray Miller, officer commanding the section, announced recently.

The Lancs, which flew scores of operational trips overseas, will arrive early next spring, it was stated.

With this addition, the search unit will have seven aircraft. At the present time, an Anson V, a Sikorsky helicopter and two Cansos are assigned for search and rescue work.

### British Jet Wing Performs in Public

Claimed as the most advanced type of research aircraft in the world, the British Armstrong-Whitworth jet-propelled flying wing made its first flight in public recently.

The highly-polished plane is powered by two Rolls Royce "Nene" engines, has a wing span of 90 ft. and a fully laden take-off weight of 33,000 lb. It cost about \$800,000 to produce.

To make the air flow smoothly over its surfaces, the wing has a superfine grooveless skin with not a single rivet marring the even flow of air. On take-off, it was air-borne in a remarkably short distance.

Except when it was directly overhead, the wing was practically noiseless as it circled the field.

● The deHavilland Beaver prototype seaplane acceptance trials have been completed by the Dept. of Transport and the recommendation for a Certificate of Airworthiness has been made.

### Airport Post Office For Calgary

A new branch postoffice has been opened at the Calgary Municipal Airport, providing on-the-spot mailing facilities for air mail.

Known as the Air Mail Field Post Office it will be staffed by two postal employees who will be on duty sorting and bagging outgoing and incoming air mail.

● British Overseas Airways Corp has announced the opening of a new office in Toronto. The opening of this office marks a further step in the long-term BOAC policy for the improvement of booking and planning facilities for trans-Atlantic passengers.

In addition, this new office will enable local passenger agents to make a check on flight bookings and schedules on Speedbird routes in any part of the world.

### Cochrane Establishes Closed Course Record

● Jacqueline Cochrane, famous woman pilot, recently established a new 100-kilometer closed course speed record of 469 miles per hour for planes powered with reciprocating engines while at the same time setting a new international women's record for this particular distance.

The 62.136-mile course was flown by Miss Cochrane in an old model P-51 "Mustang" which she bought from the government's stockpile of surplus and obsolete planes. The course was over the Coachella desert where Miss Cochrane has a ranch home.

The flight was under the supervision of the National Aeronautic Association with Charles S. Logsdon of that organization present as chief observer, and, subject to later calibration of all instruments, will be certified in due course to the Federation Aeronautique Internationale in Paris.

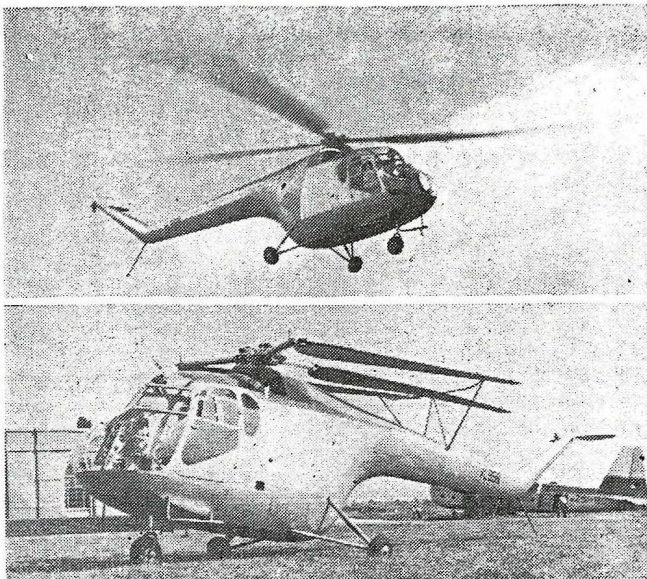


### LARGEST TROOP TRANSPORT FLIES

Five stories high and a block long, Consolidated Vultee's \$15,000,000 experimental XC-99, is shown on the approach after its first successful one-hour test flight recently. The new giant landplane, designed to carry 400 fully outfitted troops, is equipped with six 3,000-hp engines and has a range of 8,100 miles at 300 mph.

Four years were required to build the huge craft.





## Bristol Builds British Commercial Helicopter

When the Bristol Type 171 Mk. 1 helicopter, shown above, made its first flight, it became the first British commercial helicopter to take the air. The layout of the new machine is conventional, consisting of a single main rotor with the torque counteracted by a tail rotor; however, something new is the folding rotor blades for convenient parking or storage. Intended for use as an air-taxi, feeder-line aircraft, rescue work or artillery spotting, the Type 171 provides accommodation for four persons and is fitted with dual controls.

### Continental Sponsors Annual Trophy Race

A silver trophy and \$10,000 in cash prizes will be awarded by the Continental Motor Corp. airplane race to be featured at the sixteenth annual Miami All-American Air Manoeuvres, January 9 to 11 inclusive.

The race is to be an annual event in connection with the Miami Air Manoeuvres, and will be featured as the Continental Motors Trophy Race, C. J. Reese, Continental president, announced. Continental's purpose in sponsoring the race is to stimulate improvement in design of light planes, for which it is a leading supplier of engines, he stated.

Rules for the race have been developed by the Professional Race Pilots Association, with specifications covering airplane airworthiness and pilot qualifications aimed at guaranteeing maximum safety, Mr. Reese said.

The silver trophy for winner of first place will stand about three feet in height and will be inscribed as "honoring the pilots of today who are developing the airplanes of tomorrow." It is designed to show aviation progress

since the Wright brothers made the first flight at Kitty Hawk. Space for engraving the name of each year's winner is provided. The trophy will remain in Continental's possession for display at various aviation and other public events throughout the year, but a replica in miniature will be given to the winner of each year's race to keep.

Rules for dividing the \$10,000 prize money among various contestants are to be established by the Professional Race Pilots Association, together with all other specifications and qualifications for participation.

● Saskatchewan Government Airways plans to use wheel-equipped Anson V aircraft for operations during the entire winter. The aircraft will be based at Beaver Lake, and will operate from frozen lakes throughout the province which will have the snow cleared from the ice surface by heavy tractors.

### Four-place Aeronca Test Flown

Initial flight tests of the 1948 four-passenger Aeronca Model 15 prototype were conducted at the manufacturing plant of the Aeronca Aircraft Corporation recently in the presence of all its employees, community leaders and Civil Aeronautics Authority officials. The new four-place Aeronca took to the air for a two-hour flight that exceeded all theoretical performance calculations.

Designed around the recommendations from the personal plane industry as to features and requirements of private owners the new Aeronca is a high wing monoplane with conventional landing gear and controls. Rapid take-off and rate of climb, and lower landing speeds are featured in the new plane.

The foregoing features and the elimination of complicated controls and flying technique were designed to enable the private owner pilot, whose experience may be limited to lightplane flying, to carry four passengers comfortably and safely and take off and land from restricted places or temporary air strips.

Other features include a useful load over 900 pounds, 145-hp Continental engine complete with electric starter and generator, navigation light and two landing lights.

### D.O.T. Closes Flying School at Yarmouth

A difference of opinion as to the legality of a charge for storage fees as presented by the Dept. of Transport to the Yarmouth Flying School, at Yarmouth, N. S., has resulted in the company being barred from entering the Yarmouth Airport and temporarily at least, putting them out of business.

From their company offices across the main highway from the airport, the co-managers of the flying school, G. C. McKay and J. M. McRae, ex-RCAF officers, watched Dept. of Transport employees erect a fence across their entrance to the runways.

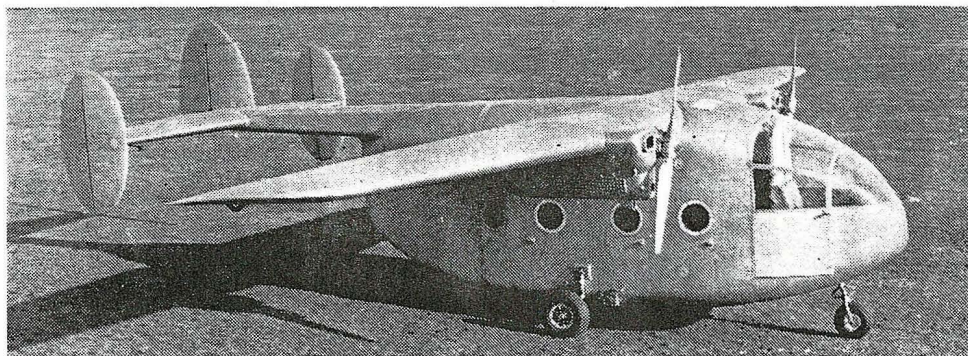
According to the two pilots, the charges in question are for storage fees for their airplanes covering a period of several months during time they have not been using their equipment or port property. The school company company hangar on their own side of the road this fall, and been storing their there.

The bills in question said to total approximately \$110. This is apart charges for use of the ways on which question is no disagreement.

### Supercruisers Circle Globe in 123 Days

The two globe-circling Piper Supercruisers piloted by Cliff Evans and Saskatchewan-born George Truman completed their round-the-world flight of 25,162 miles in 123 days.

Taking off from Teterboro, N.J., the two pint-sized aircraft hopped leisurely around the globe, side by side, to a total of 49 stops in 23 countries before touching down again at their starting point.



### MODIFIED AEROVAN

The Miles Aerovan shown here is fitted with two Lycoming O-435A type engines of 195 hp each and embodies a modified tail assembly. The machine is now flying and the performance is quite satisfactory.

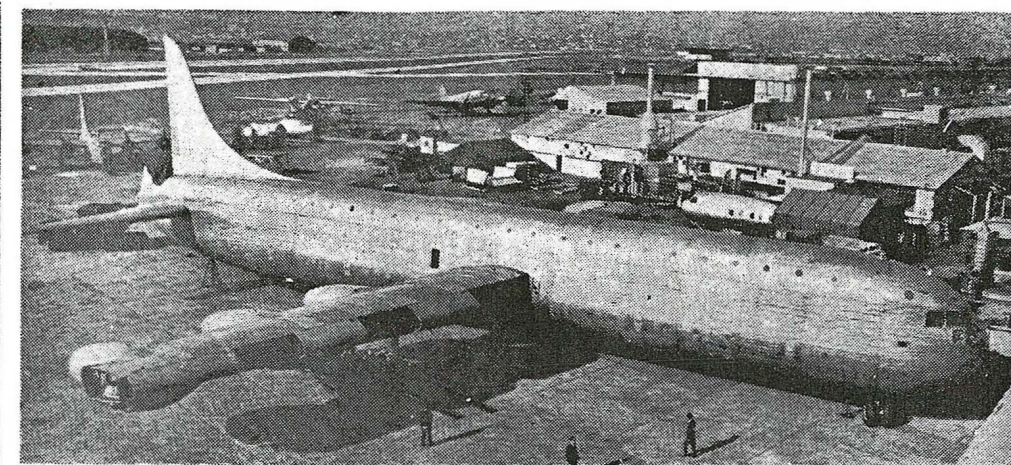


## Dutch Airline Seeks Canadians

Captain Carel Christiaan Speensma of Holland, assistant director of operations for the Royal Dutch Airlines, has been in Ottawa, Montreal and Toronto to interview Canadian airmen as prospective pilots for his airway, it was announced by Arthur MacNamara, Deputy Minister of Labor.

Mr. MacNamara stated that early last December the Dutch airlines engaged 60 Canadian pilots to fly four-engined machines in their service. So pleased was the Dutch organization with the calibre of men they were able to obtain in Canada at that time, that they have returned to this country for an additional 25 pilots.

The pilots must be not more than 33 years old, with several hundred hours flying time to their credit, preferably on four-engined planes. Transportation will be paid to Holland for the men



Too large to be assembled indoors, the mammoth Convair transport has been moved into the open for attachment of engines, tail control surfaces, undercarriage and outer wing panels.

chosen, and in that country the men will undergo a certain amount of further training, depending on their experience. They then may do some flying in Europe before taking over trans-oceanic runs to the Far East.

## Peterborough Airport Closer As Company Reorganizes

Although Peterborough voters turned down a referendum regarding the city taking over the airport under construction by Canadian Aircraft and Auto Co., the prospects of the city having an airport on the same site are improved lately.

Eldon Purvis, president of the company, reports to Canadian Aviation that the vote was 2,444 against the proposal and 1,027 favoring the purchase of the airport by the city. Further action by the city's committee is reported to have improved the outlook, and work on the airport is to continue.

Stressing that other reports to the contrary, the company

is continuing, Mr. Purvis told of a reorganization of the company that will result in increased capitalization by making the firm a public company and selling shares to the public.

The board of directors has been increased from three to seven members, and comprises the original three—Eldon Purvis, Harvey Strub and Jas. Ireland—in addition to R. McClellan, Chas. Kingan and Adam Sands. The seventh director has not yet been named.

The capital of the firm has been increased from \$40,000 to \$350,000 with special attention being paid to the original stockholders of the company.

## Six-engined Transport To Carry 400 Troops

The world's largest land-based aircraft, the six-engine XC-99 cargo and troop transport being built by Consolidated Vultee Aircraft Corporation for the Army Air Forces, has been moved into the experimental yard at the company's San Diego plant to permit installation of main landing wheels and outer wing panels.

No building at Consolidated Vultee, officials said, is high enough to house the giant plane with its main landing wheels installed, or wide enough to house it with outer wing panels in place.

For the past month 30 feet of the aft fuselage have protruded from Convair's experimental building because the tail surfaces stick into the sky 57½ feet, several feet higher than the experimental building.

Wing leading and trailing edges, together with rudder, propellers, and interior fixtures, remain to be installed. Initial flights of the XC-99 must await completion of this

work and an extensive ground testing program.

A transport version of Convair's B-36 bomber, the double-decked XC-99 will be able to carry 400 troops, or 335 litter patients, or 100,000 pounds of cargo.

Like the B-36, it is powered by six 3,000-h.p. pusher-type engines turning 19-foot reversible-pitch propellers.

The AAF has revealed that the huge transport will have a maximum range with reduced loads of more than 8,000 miles. Flights of this distance will call for a five-man crew and an equal number of relief crew members.

Design gross weight of the XC-99 is 265,000 pounds. Its wingspan is 230 feet and its length, 182½ feet.

● Shirley Goldring, Vi Wright and Margaret Beetham were elected president, secretary, and treasurer respectively, of a Community Aviation Club to foster interest in flying among women in Toronto.

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# The Industry



**FIRST CARIBOU IN RCAF MARKINGS**, one of four purchased for air support of Canadian Army units serving in the Belgian Congo, is shown during crew familiarization flight from Downsview, de Havilland Canada's base of operations. Six pilots and 36 groundcrew took Caribou conversion course.

## Avian No. 2 Readied

A second prototype of the Avian 2/180 gyroplane will soon start pre-flight ground running trials. The first machine was destroyed last spring when it made an unplanned flight during taxi tests by a test pilot undergoing type familiarization.

The second machine, which incorporates some minor changes in exterior design, was to be rolled out of the Georgetown, Ont., plant of Avian Industries Ltd. early this month. The pre-flight tests which were interrupted by the accident last spring, will be started again from the beginning.

## 104 Simulators by CAE

Contracts totalling approximately \$18 million have been placed with Canadian Aviation Electronics Ltd. for F-104G simulators by the governments of West Germany and The Netherlands. Confirmation has been received from both countries together with commitments of funds necessary for the immediate commencement of work.

The total value of the overall program is estimated at \$18 million with the simulators being built by CAE with technical and administrative supervision being the responsibility of the RCAF and DDP officers. This is the same arrangement existing with the work being done on the RCAF CF-104 simulator program which began last May.

The decision of Germany and Netherlands to purchase simulators in

Canada resulted from RCAF and DDP co-operation with German and Netherlands Air Force experts to investigate the possibilities of a joint program. The choice of CAE was based on a tender competition for RCAF CF-104 simulators early this year. Price and technical proposals were obtained at the same time for Germany and The Netherlands at their request.

There are prospects of further simulator orders from other countries adopting F-104 Starfighter aircraft.

## CF-104 Prototype Flies

Bearing the RCAF's maple leaf roundel, the Lockheed-built prototype of the CF-104 made a successful first flight at Palmdale, California, Sept. 1. Piloted by C. A. Kitchens of Lockheed's engineering flight test department, the Mach 2 fighter was aloft over Southern California for 43 minutes.

The prototype CF-104 is actually a modified early-model Starfighter. It is fitted with an advanced electronics system which provides a true all-weather capability. The prototype program will flight test the fire control and flight control systems.

Initial flight of the first Canadair-produced CF-104 is scheduled for late spring of 1961.

## More 104 Work for CL

Canadair Ltd. has received a sub-contract worth \$4 million for the supply of 86 sets of wings, rear fuselages and empennages for F-104

aircraft being assembled at Lockheed for ultimate delivery to the Netherlands, Belgium and Japan. Of the 86 aircraft involved in the new order, Japan is to receive 40, Holland 31, and Belgium 15.

Canadair's share of the project is in the form of subcontracts—as in the case of the earlier order for 80 sets of the same components for the West German Air Force. As before, the work will be carried out in parallel with the program by which the company is producing 200 CF-104's for the RCAF.

The latest orders mean that Canadair Ltd. is now engaged in production, in whole or in part, of 366 aircraft of the CF-104 family.

## Ghana Buys Beavers

Fourteen DHC-2 Beaver utility transport planes have been ordered by the government of Ghana from de Havilland Canada. The initial delivery of the first two aircraft on the million dollar contract will be made in December of this year.

The Beavers will be operated by the Ghanaian Air Force and will be used primarily to fly government personnel to remotely located administrative areas, for emergency air ambulance work, and aerial surveys.

Two of the aircraft will be fitted with dual controls for training purposes and six will be equipped for camera installations. The camera-equipped Beavers will be employed on an extensive aerial survey, mapping and photographic project being planned by the Ghanaian government.

## Napier O/H by Can. P & W

Overhaul facilities for Napier engines in North America, including the Eland turboprops used in the Canadair/Convair 540 airliner series, are being provided by Canadian Pratt & Whitney Aircraft Co. Ltd., Montreal.

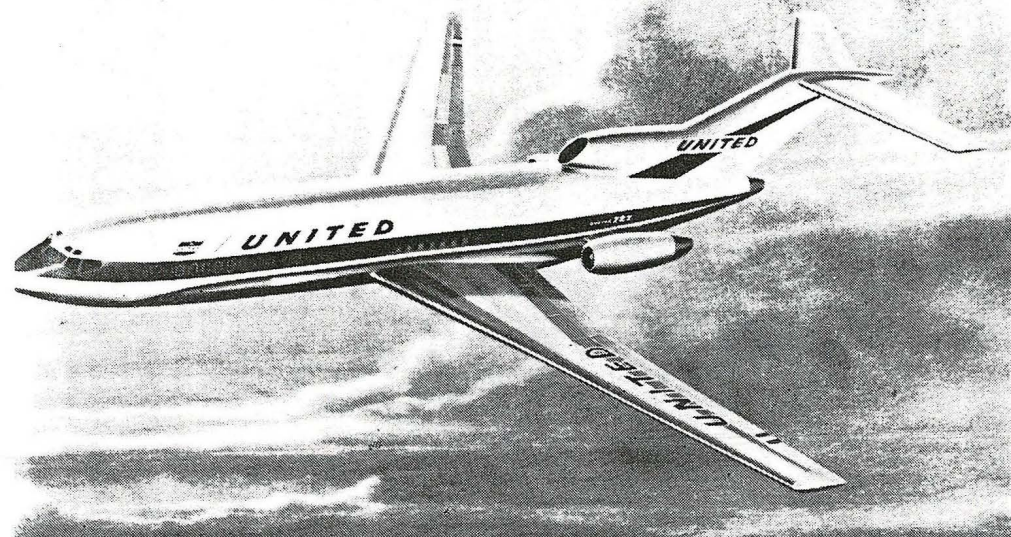
## Avro in Marine Field

Avro Aircraft Ltd. and United Marine Inc. jointly announced last month that the two organizations have become associated in a manufacturing agreement. Under it, Avro will manufacture aluminum hulls for the power cruisers of United Marine's Richardson Boat Div., North Tonawanda, N.Y.

Avro has established a new marine division devoted entirely to the en-



# Commercial Aviation



**FORTY BOEING 727 SHORT/MEDIUM** range jetliners have been ordered by United Air Lines for late 1963 delivery. Artist's conception shows configuration strikingly like DH-121 Trident. Powered by three P & W JT8D turbofans, the 550-600 mph. airliner will operate from 5000 ft. runways carrying 70-114.

## TCA Pilot Lay-Off

TCA has announced that 104 pilots will lose their flying jobs between February and August 1961. The pilots, the bulk of whom are presently flying out of Montreal, and all with less than three years' seniority, will be offered non-flying jobs with TCA. Some have already applied for and been accepted by Aer Lingus TTA, Ireland's national airline.

Reason for the lay-off is the introduction of new equipment on TCA services. The higher block speeds and increased seating capacities of the new jet and turboprop equipment, allows TCA to offer the same flight service and density with fewer aircraft. An example of this is the DC-8 which handles roughly twice as much traffic as the Super Constellation which it is replacing. With the retirement of such aircraft as the Super Connie, the North Star and the venerable DC-3, Canada's airline requires fewer aircrews.

## Central Register

A bill to provide a central Canadian aircraft registry has been introduced to Commons by the Hon. John Drysdale. Purpose of the bill is to record title to and all encumbrances against Canadian civil aircraft.

Provision is made for registration according to nationality in order to

comply with the provisions of the convention on the international recognition of rights in aircraft. By providing a central aircraft registry according to nationality, Canada can then become a signatory to that convention.

## IDB Financing

An embarrassed AITA has manfully admitted that the criticisms it made last summer of Industrial Development Bank lending practices (see *AIRCRAFT*, September 1960, p.42) were "not entirely in accordance with fact."

The criticisms were made in an AITA letter signed by President F. T. Wood sent to Finance Minister Fleming in July, requesting that the Minister ease the terms of loans made by the IDB to Canadian air carriers to finance the purchase of new aircraft.

In a letter dated Oct. 26 (and recently circulated among AITA membership) officially replying to the AITA's charges, IDB General Manager D. G. Marble shows remarkable restraint in refuting every one of the points about which the Association complained. Mr. Marble pointed out that the IDB does not operate under the direction of the Department of Finance nor as a branch of the Government and noted that . . . "We have made 86 loans to 47 air carriers and we cannot believe that your letter

fairly represents their views of their relations with the Bank."

For its part, the AITA said that . . . "It should be emphasized that the officers of IDB have extended and are prepared to extend every reasonable co-operation to the Association and its members in the handling of financing problems. We, on our part, must also be prepared to co-operate with the Bank's officers and recognize that while they are anxious and willing to help, they cannot carry all of our financial burdens on their shoulders."

## Quebecair/WWA Agree

Agreement has been reached between Quebecair and World Wide Airways on a common approach to the ATB for flying rights between Montreal and Schefferville along the Wabush-Gagnon - Minicougan - Chicoutimi - Quebec route. They had earlier been opposing each other's applications.

Under the arrangement outlined to the board, Quebecair would confine itself to carrying passengers, mail and express. World Wide would fly heavy freight, forsaking its claim to passenger rights except on a charter basis. Quebecair is seeking a Class 2 licence and World Wide a Class 3.

All points on the projected route now are served by Quebecair, but on a different route pattern than that projected. Quebecair said the new direct route would cut to three hours from four the flying time between Schefferville and Montreal. There would also be a 15 to 20 per cent reduction in fares. Quebecair said Matane Air Services, Northern Wings and Eastern Provincial Airways were also supporting its application.

## TCA Vikings Delivered

Deliveries of TCA's Vickers Vanguard turboprop airliners started early in December and are continuing at a one-a-week clip.

The first TCA Vanguard to be delivered, CF-TKD, arrived in Montreal December 8, and the second was on hand for the Dec. 15 official opening of the airline's big new turbine engineering and maintenance base at Dorval. Delivery schedule calls for the first 14 to be delivered to TCA at Montreal by April 28.

The deliveries began almost immediately following the receipt of full Certificates of Airworthiness for both



# THE AVIAN GYROPLANE

## A Progress Report

**T**HE AVIAN GYROPLANE is essentially an up-dated version of the pre-war autogyro. In the 1930's the autogyro, using a rotor which revolved freely in the airstream instead of being driven by the engine, had reached an advanced state of development but research into this mode of flight was suspended when the helicopter was perfected as a practical flying machine.

The dispersal of the various design teams which had become familiar with the problems of auto-rotating flight caused a hiatus in development which has made the task of the present-day gyroplane designer particularly difficult. He must, in effect, rediscover all the basic principles and then apply them in the context of advanced aerodynamics and modern industrial technology.

**Background:** The development of the Avian Gyroplane can be traced back to a project which started at Avro Aircraft Ltd. when the fate of the Arrow was hanging in the balance and the company was casting about for ways to diversify. A survey carried out by the company's sales department revealed the existence of a substantial market for a 3-5 seat autogyro and design of this project, designated the P.15, was commenced.

The P.15 became an incidental casualty when the Arrow was cancelled but the project had by then generated considerable enthusiasm among the design engineers concerned and it was they who set up the Avian company to construct a similar but smaller aircraft.

The Avian Gyroplane has suffered its share of mishaps and the company makes no attempt to minimize the problems that have been involved in perfecting the plane. The first prototype was destroyed when a non-company pilot inadvertently operated the collective pitch lever while taxiing. On another occasion the disintegration of a propeller caused severe structural damage. A canopy which came adrift in flight also resulted in damage to one aircraft when the pilot was compelled to land the plane with inadequate directional control because

of the increased drag at one side.

**Sound Design:** However, it is notable that, although the fourth and fifth prototypes are now flying, no major changes in the overall design have been or are being contemplated. The general configuration of the aircraft with its stubby fuselage and pusher propeller enclosed in a duct which substantially increases the thrust, is considered sound and the present engineering effort is concentrated solely on improving the performance.

The basic structure of the Avian is essentially a single steel beam to which a steel tube forming the basis of the rotor is attached. The fuselage is of light Fibreglas stressed to withstand air loads only.

Since the rotor is not driven in flight but derives lift solely from the air passing over the rotor blades as the plane moves forward, the hinging of the blades to the rotor head must be arranged to permit an automatic cyclic pitch adjustment as the rotor revolves. This is essential to create a balanced condition and prevent the craft from rolling and the hinges now used were developed by Avian only after a long process of experimentation.

Provision is made for a jump start, this being accomplished by using the engine to drive the rotor through a system of belt drives. While the plane is still on the ground the blades remain at neutral pitch. The engine drives the rotor until it reaches a predetermined rpm and operation of a pitch lever then changes the pitch of the blades from neutral to coarse and simultaneously declutches the engine. The kinetic energy stored in the whirling blades is sufficient to lift the plane well clear of the ground after which it goes into a normal forward climb.

**Gradual Improvement:** The aerodynamic and structural problems encountered have been systematically solved and each of the five prototypes has been an improvement on its predecessor.

When it was discovered that the duct blanked off too much of the rudder resulting in a lack of adequate directional control, a larger rudder was fitted. The design of the duct itself

By **HARRY McDOUGALL**

February, 1964







has undergone a constant process of refinement. A crucial factor in the design is the distance between the tip of the propeller and the inner face of the duct, which for maximum efficiency must be kept as small as possible.

More than 300 hours flying time have been accumulated on the prototype aircraft and all the various phenomena encountered are now thoroughly understood.

Since the prime requirement to improve the performance is more power, this is the area now receiving most attention. A change which is expected to have a major effect is the substitution of a constant speed Hartzell propeller of the type used by the Republic Seabee, for the wooden propeller presently used. A prime result of this

drive mechanism which at present consists of two belt drives. The lower belt will be retained but the upper belt may be substituted by a geared drive which, in addition to being more rugged, will probably be lighter in weight.

Since the efficiency of any ducted propeller depends almost entirely on the manner in which duct and propeller are matched, substitution of the new propeller will inevitably involve some further redesign of the duct to provide maximum efficiency. However, as the ducts used to date have been built from balsa wood covered with Fiberglas this does not pose particular constructional problems. When the design of the new duct is complete it can be fabricated with relative ease.

**Handling Technique:** The best fly-

Although there is no danger involved in leaving the rotor blades in coarse pitch, a better performance is achieved by moving the pitch lever to the central position; this gives cruising pitch. The lever has infinite movement and some measure of control over the performance under particular circumstances can be achieved by selecting various intermediate positions.

For cruise, the rotor normally turns at 240 rpm. Minimum cruising speed for the aircraft is about 30 mph but it is hoped eventually to reduce this to 25 mph.

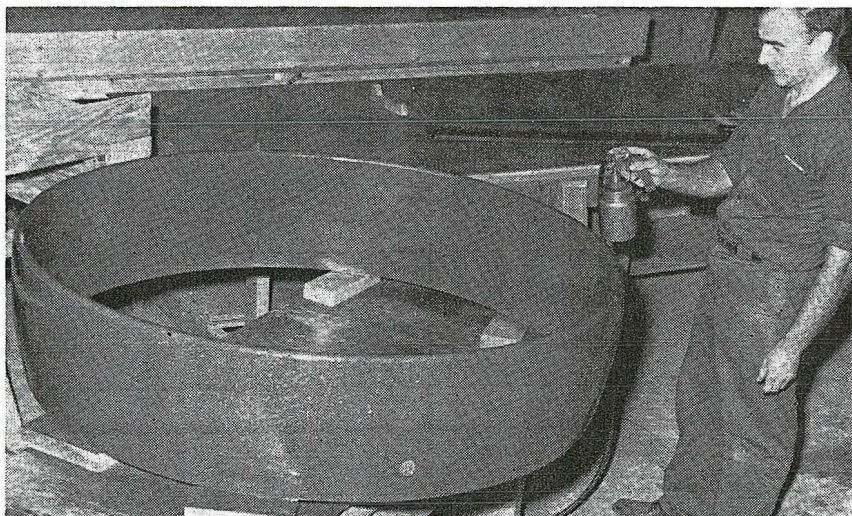
**No Rotor Torque:** Since the rotor revolves freely and is not driven in flight there is no torque, but bearing drag has a very slight tendency to put the aircraft into a left turn. This could be counteracted by the installation of a simple trimming device in the duct but the effect is so minor that this modification has not been considered necessary. Directional control by use of the rudder is excellent. Steep turns at low speeds and low altitudes can be made with safety.

The normal landing approach speed is about 30 mph with a fairly steep nosedown attitude, the rate of descent being about 700-800 fpm at gross load. The aircraft is flared out in the normal manner and the landing roll, using brakes but not the pitch control is about 75 feet.

No-roll landings are made using a slightly different technique. On the approach, the pitch control is used to reduce the pitch of the rotor blades. This has the effect of increasing the rate of descent to about 1,800 fpm but it also builds up the rotor speed. At approximately 50 feet altitude the nose is raised and at the same time the pitch control is moved to coarse which results in a sudden increase in lift permitting the aircraft to touch down very easily and stop immediately, with no roll even in still air conditions.

**Money Matters:** Avian's efforts have, to some extent, been hampered by lack of capital. Initially, the company was financed by Georgetown Industrial Developments Ltd., an organization formed by a group of Georgetown, Ont., businessmen to encourage any company which had a potential for providing employment in the area after the Arrow was cancelled.

*(Continued on page 30)*



Much development work has gone into duct, which substantially boosts thrust.

change is that a much higher proportion of the available power will be delivered to the rotor for the jump takeoff, which it is hoped will ultimately be increased to 50 feet.

**Bigger Disc:** To improve the general performance, longer rotor blades are being substituted for those presently used. These will have the effect of increasing the lifting capacity and the general performance by decreasing the disc loading which is defined as the area swept by the rotor blades divided by the load. One effect will be to improve the rate of climb which with the present short rotor blades is a rather modest 400 fpm. Avian expects ultimately to double this.

To permit the extra power to be transmitted to the rotor blades it will be necessary to strengthen the rotor

ing techniques for the aircraft have now been established fairly clearly. In its present configuration, using the wooden propeller, it is customary to idle the engine at about 1,000 rpm then engage the rotor drive mechanism by depressing the pitch lever to full down. This is done gradually and has the effect of simultaneously moving the rotor blades to neutral pitch.

The rpm are increased by means of the twist grip throttle mounted at the top of the control column and when rotor speed reaches 300 rpm, the brakes are released and the pitch lever is pulled to the full up position. This simultaneously declutches the engine and changes the pitch of the rotor blades to coarse. The aircraft ascends vertically for a few feet and then goes into its normal climb.



the new facilities. Three main runways have been reinforced with asphalt and the north-south runway has been extended to 11,000 feet. A \$1,167,000 aircraft parking apron has been completed in front of the terminal.

**Attractive Facilities:** "The new facilities should attract more business," said William Fenn, regional air service director for DoT. Four or five of the old terminals would fit into the waiting room of the new one.

For years, Winnipeg has watched airliners on international flights fly

over the city without stopping because they had no right to take on or discharge passengers and freight here. There is now the possibility as a result of pending air route talks with the U.S. that some of this may be changed and Winnipeg may have the chance to enjoy some of the advantages that its geographical position astride international and domestic air routes.

## CONTINUATION

(from page 14)

### GYROPLANE

Subsequent to the demise of the first prototype, new capital was introduced by Thermo Electric (Canada) Ltd., whose Fred S. Walter is now Avian's president. The money invested by Thermo Electric is in the form of an interest-bearing loan which may be taken back, at the discretion of the lender, as Avian stock.

Recently, Avian has been reorganized as a public limited company but at the time of writing had not completed its prospectus for the Toronto Securities Exchange Commission.

Although the nearly \$1M in funds invested to date has been adequate to support the research and development program, it has not been sufficient to permit all problems to be tackled simultaneously. In particular, the time required to analyze test results has delayed development.

The engineering manpower available, while permitting thorough investigations of each specific area in sequence, has been inadequate to enable all the various problem areas to be investigated simultaneously. If more engineering manpower had been available the test program, by this time,

might have been completed and the plane would possibly have entered the production stages. This shortage of engineering manpower rather than any insuperable technical problem, has been the main reason for the length of the present development program.

**No Predictions:** Avian officials are confident that the plane will ultimately receive a Certificate of Airworthiness although they are not making over-optimistic predictions of the date when that aim will be achieved. Present indications are that the test program will be completed in early 1965.

Surveys to establish the potential market for the aircraft have been conducted and tentative plans have been made for production. The plans call for 30 aircraft to be produced during the first year. These will be part of the first 100 aircraft which Avian proposes to sell direct to users. The philosophy behind this arrangement is that the company will be able to maintain a close liaison with users and incorporate any minor changes that are requested.

The second year's production is estimated at 150; third year, 300; fourth year, 500; and subsequently 700 per year.

Avian does not anticipate any difficulty in raising the necessary funds to finance production. However, since the company has at present no product to offer for sale the research and development program must be financed entirely out of capital and this may cause some financial problems.

Many enquiries from dealers who hope eventually to handle the Gyroplane have been received, some with offers of substantial deposits, but Avian has made no firm commitments. It

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is fairly obvious that there is intense interest in the aircraft, which will market, according to present estimates, in the \$17,000-\$20,000 range.

## Letters to the Editor

### Hangar Rash

Sir:

Congratulations to R. L. Jerry for the very fine article, "Hangar Rash—Its Prevention and Cure", in the December 1963 issue of AIRCRAFT.

Too many of these basic fundamentals of flying and those things associated with it are being either forgotten or ignored by the majority of "after 5" and weekend pilots.

An article such as this, with illustrations, has much more impact than the general "check-off" list.

I for one would like to see more of this type of article as I have felt for some time now that AIRCRAFT Magazine, while interesting, goes over the heads of most weekend flyers. After all, how many can afford a 180, Apache, or Tri Pacer on the average working man's salary? Let's get back to the J3's, Aerona, Taylorcrafts, and Ercoupes.

There's a good article in "Air Progress" . . . on how to buy a used plane. It goes into such things as what to look for, what to expect and basic costs of buying, owning, and operating . . . all of which is American. Can not something like this be done for us with the Canadian viewpoint, for the sake of an argument, the six of seven basic light aircraft—J3, Aerona, Luscombe, Taylorcraft, Ercoupe, 140, and Stinson?

It is my hope in the near future, as is it that of many pilots I suppose, to purchase a used plane, but being a fairly new member of the society I am not familiar with the general owning and operating costs and would be very pleased to receive any information I could get on this subject.

ORMAND RICHES

Willowdale, Ont.

### Fuel at Frobisher

Sir:

In the December issue of AIRCRAFT, we noticed an item containing information in regard to the availability of fuel at Frobisher Bay [see "Twilight at Frobisher" p. 35]. It would appear this information was obtained from a DoT Notam. Part of the information contained in the Notam was correct at the time it was issued, however, in respect to the availability of fuel, it was not quite accurate.

Esso Aviation 115/145 gasoline has always been available at Frobisher Bay. In regard to turbine fuel JP1, it became necessary for us to ship a refueler unit in from Montreal in order to provide this service. The refueler was delayed due to space availability aboard vessels going to Frobisher Bay, however, in the meantime we had provided turbo fuel for a number of aircraft passing through Frobisher Bay using an existing refueler in another service. The vehicle which now distributes JP1 at Frobisher is capable of delivering high and low pressure fueling as well as under-wing and over-wing fueling.

Subsequent to the Notam which you published in your magazine, a second Notam was issued in January correcting the information previously distributed.

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weight of 13,000 lbs. The Commu-  
naute is powered by two Turbomeca  
Bastan engines rated at 750 hp each,  
and boasts a cruising speed of 335 mph  
max.

## Avian Accident Report

Pilot inexperience and an unplanned  
take-off have been blamed by the DoT  
for the accident which wrote off the  
first prototype Avian 2/180 at the  
Waterloo - Wellington Airport, Ont.  
last April.

The aircraft, which was undergoing  
high speed taxiing and acceleration  
tests leading up to DoT certification,  
left the ground and climbed to an  
estimated 50 to 100 feet, then crashed  
on the runway in a nose-down attitude.  
The pilot, Emil Zuber, was alone at  
the time and escaped with injuries.

According to the official accident  
report, when DoT investigators ex-  
amined the wreckage, it was found  
that the collective pitch control was  
jammed in the "full up" position,  
which is only used for a jump take-off.  
The pilot stated that he did not move  
the collective pitch lever but considers  
that it must have been jolted to the  
"up" position. Examination of the  
lock on this control indicated that it  
was adequate for its purpose, but there  
was a possibility that the control had  
been incorrectly set at an intermediate  
position for decelerating the rotor.

The accident report concluded: "The  
aircraft inadvertently took off during  
taxiing tests when the collective pitch  
control was either jolted or selected  
to the full up position. Due to in-  
experience on rotary wing aircraft, the  
pilot was unable to control the aircraft  
when it became airborne."

## Contracts Awarded

Contractors awarded business in excess of  
\$10,000 by the Department of Defence Pro-  
duction during the period August 1-31, 1960,  
include the following. The list does not in-  
clude orders placed by the Department out-  
side Canada, or with other agencies or in-  
creases in orders placed earlier — nor do  
orders classified as secret appear here.

Names appearing in bold face are current  
AIRCRAFT advertisers.

**Aircraft Industries of Canada Ltd.**, St.  
Johns, Que., \$10,000 for repair and overhaul  
of airframes and airframe components dur-  
ing year ending March 31/61.

**Aviation Electric Ltd.**, Montreal, \$152,072  
for aircraft spares.

**Aviation Electric Ltd.**, Montreal, \$63,212  
for oil pressure transmitters.

**Canadair Ltd.**, Montreal, \$14,323 for emer-  
gency oxygen drop down system kits.

**Canadian Curtiss-Wright Ltd.**, Toronto,  
\$454,909, for aircraft spares.

**Canadian General Electric Co. Ltd.**, Toronto,  
\$10,206 for aircraft instruments.

**Canadian Vertol Aircraft Ltd.**, Arnprior,  
Ont. \$32,512 for helicopter spares.

**Canadian Westinghouse Co. Ltd.**, Ottawa,  
\$10,241 for aircraft spares.

**Collins Radio Co. of Canada Ltd.**, Toronto,  
\$64,607 for range indicators.

**Collins Radio Co. of Canada Ltd.**, Toronto,  
\$14,843 for antenna.

**Godfrey Engineering Co. Ltd.**, Montreal,  
\$11,907 for modification kits for brake assem-  
blies.

**Goodyear Tire & Rubber Co. of Canada Ltd.**,  
Toronto, \$40,070 for aircraft tires.

**Irvin Air Chute Ltd.**, Fort Erie, Ont.  
\$13,098, for spares for aircraft towed target  
gear.

**Northwest Industries Ltd.**, Edmonton, Alta.,  
\$11,878, for technical publications.

**Pennsalt Chemicals of Canada Ltd.**, Oak-  
ville, Ont. \$12,353 for aircraft cleaning com-  
pound.

**Raytheon Canada Ltd.**, Ottawa, \$89,216 for  
electronic tubes.

**Shell Oil Co. of Canada Ltd.**, Toronto,  
\$26,908 for aircraft engine oil during year  
ending March 31/61.

**Sperry Gyroscope Co. of Canada Ltd.**, Mont-  
real, \$620,791 for models control equipment.

**Avro Aircraft Ltd.**, Toronto, \$71,580 for  
supply and installation of electronic controls  
for high speed wind tunnel — Ottawa (Up-  
lands), Ont.

**Ampex of Canada Ltd.**, Ottawa, \$15,096,  
for airborne multichannel magnetic tape re-  
cording facility.

**Aviation Electric Ltd.**, Montreal, \$61,771  
for aircraft spares.

**Aviation Electric Ltd.**, Montreal, \$10,935  
for generators

**Aviation Electric Ltd.**, Montreal, \$34,776  
for aircraft main wheel assemblies.

**Avro Aircraft Ltd.**, Toronto, \$36,817 for  
technical representatives during year ending  
March 31/61.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$26,  
218 for airframe spares.

**Canadian Aviation Electronics Ltd.**, Winni-

peg, \$15,617 for installation and testing of  
microwave equipment.

**Canadian Curtiss-Wright Ltd.**, Toronto, \$33,-  
494 for aircraft spares.

**Canadian Curtiss-Wright Ltd.**, Toronto,  
\$140,542, for aero engine spares.

**Canadian Marconi Co.**, Montreal, \$1,184,019  
for airborne navigation equipment.

**Canadian Marconi Co.**, Montreal, \$145,590  
for magnetrons.

**Canadian Pratt & Whitney Aircraft Co.  
Ltd.**, Montreal, \$17,467 for propeller spares  
and tools.

**Collins Radio Co. of Canada Ltd.**, Toronto,  
\$17,389 for electronic equipment.

**DeHavilland Aircraft of Canada Ltd.**,  
Downsview, Ont., \$2,957,080 for aircraft.

**DeHavilland Aircraft of Canada Ltd.**,  
Downsview, Ont., \$218,028 for aircraft pro-  
pellers and spares.

**DeHavilland Aircraft of Canada Ltd.**,  
Downsview, Ont. \$40,733 for aircraft spares.

**DeHavilland Aircraft of Canada Ltd.**,  
Downsview, Ont., \$23,000 for engineering con-  
sultant services during period ending March  
31/61.

**Delta Aircraft Equipment Ltd.**, Toronto,  
\$18,666 for antennae.

**Dunlop Canada Ltd.**, Toronto, \$107,940 for  
aircraft tires.

**Fairey Aviation Co. of Canada Ltd.**, Dart-  
mouth, N.S., \$89,922 for painting of aircraft.

**Fleet Manufacturing Ltd.**, Fort Erie, Ont.,  
\$118,966 for sonar domes.

**Hunting Survey Corporation Ltd.**, Toronto,  
\$45,443, for aerial photography and topo-  
graphical services.

**Martin-Barker Aircraft Co. Ltd.**, Colling-  
wood, Ont., \$19,266 for accessories for flying  
clothing.

**A. E. Simpson Ltd.**, Montreal, \$40,764 for  
aerial photography and topographical services.

**Standard Aero Engine Ltd.**, Winnipeg,  
\$63,606, for aircraft engines.

## FIBREGLASS SAILPLANE

### EDMONTON FIRM PRODUCING REINFORCED POLYESTER GLIDERS

A focal point of interest at western  
Canada gliding meets and the  
Canadian National Soaring  
Contest this summer was a  
Canadian-built all-fibreglass sail-  
plane, the Viking, which an  
Edmonton company is putting into  
series production.

The company, Fiberlite Products  
Ltd., is headed by Oscar (Pete)  
Peterson as president, and Paul  
Tingskou as secretary-treasurer.  
Peterson and Tingskou say that the  
Viking is the world's first production  
fibreglass glider, though there have  
been other experimental machines,  
notably the German Phoenix, built  
on a one-off basis of reinforced  
polyesters.

The Viking seen around the  
Canadian soaring circuit in recent  
months is the pre-production proto-  
type. Production examples will  
incorporate some minor modifications  
dictated by experience with the  
prototype, the most important of

these being slightly increased wing  
area. The production version has a  
wing span of 49 ft., a length of 22.5  
ft., a wing area of 130 sq. ft., and a  
weight of 450 lb.

Performance of the prototype has  
exceeded expectation with a still  
air glide ratio of 34.1. It is expected  
that the refinements being in-  
corporated in the production Viking  
may make possible even better  
performance.

First production models are  
scheduled to leave the Fiberlite  
plant in December and will include  
such advance features as a laminar  
flow airfoil and a quick-release  
safety canopy.

Estimated price of the Viking is  
\$2000 FOB Edmonton, which com-  
pares very favorably with the  
cheapest conventional sailplane  
construction kits currently available.  
These carry a price tag of approxi-  
mately \$1850 FOB the manufacturer's  
plant in the U.S.



Paul Tingskou sits in Viking cockpit; holding canopy is Oscar Peterson



# The Industry



**FIRST FLIGHT OF SHORT BELFAST** freighter took place early last month at Belfast, Northern Ireland. The RAF has ordered ten of the big aircraft, which has a maximum gross weight of 225,000 lb. Maximum payload is over 80,000 lb. The aircraft is powered by R-R Tynes, cruises at 340 mph.

## Reviewing Industry

OTTAWA—Industry Minister Drury said in the Commons Dec. 17 that his department is giving serious study to the Canadian aircraft industry.

He was commenting on a brief to the government by the Air Industries Association of Canada saying the industry is in a precarious position and that unless prompt and effective action is taken by Ottawa now "this situation will deteriorate within two two years."

The Association has already conferred with Mr. Drury and Trade Minister Sharp and plans to see other members of the cabinet, including Prime Minister Pearson.

Meanwhile, it is becoming more and more obvious that Defence Minister Hellyer doesn't plan to launch any major weapons program in this country.

Current plans are to purchase 20 to 30 transport planes in the U.S. to provide the Army with a limited airlift so that it can make a more effective contribution to NATO and the United Nations.

The plane purchases would be made in the U.S. on the understanding that the U.S. place defence orders in Canada of roughly equivalent value.

AIAC says that while the government is stressing the need for secondary industries and exports, the aircraft industry, with a high degree of technicians and capital, is in decline.

The association added: "Canada can ill afford the loss of so high a percentage of its most skilled personnel at a time when the necessity for building a strong and growing economy is so vital."

Amount of research and development funds provided by the Canadian Government compared very poorly with proportionate funds put up by

governments in other countries. There was vacillation in Canada in establishment of roles for the armed forces.

AIAC says weapons and equipment for the Canadian armed forces should be made in Canada. If the Canadian industry were relegated to production-sharing — that is, subcontracts from other countries — it would lose the state of the art and not be able to develop any new equipment.

It says U.S. cancellation of further orders of the Caribou gives rise to doubts about the wisdom of the Canadian industry tailoring its development programs to American requirements.

"It is inevitable that Canadian industry will find it increasingly difficult, if not impossible, to obtain any worthwhile volume of production-sharing defence work from the U.S. notwithstanding the willingness of U.S. defence officials to permit such sharing in the past."

## Mars Water Bomber

VICTORIA—Fairey Aviation Co. of Canada Ltd. at Patricia Bay has been awarded a contract for more than \$250,000 to convert a third Martin Mars flying boat into a water bomber.

The contract was announced by J. O. Hemmingsen, president of Forest Industries Flying Tankers Ltd., a company owned by several major timber concerns on the west coast.

The last four Martin Mars, used by the USN in World War II, were purchased by the B.C. firm for use as flying tankers.

The first to be converted crashed and was destroyed. The second Mars to be fitted out for forest fire control has operated successfully for two seasons.

It and the one now undergoing conversion will both be based on the

West Coast, Mr. Hemmingsen said. He said the firm is no longer considering a proposal to send its single operational Mars tanker to Australia for firefighting duty during B.C. winter.

The plan was perfectly feasible, he said, but there was a danger that extensive use of the aircraft during Australia's fire season could render it due for overhaul just when it is needed in B.C.

## FAA Certifies PT6

MONTREAL — The PT6 lightweight gas turbine designed, developed and now in production at United Aircraft of Canada has been accorded civil certification by the U.S. FAA. The PT6A-6 turboprop version of the powerplant is the unit specifically certificated for a power rating of 578 ESHP.

Seven manufacturers in four countries have ordered PT6 production engines for eight different aircraft and helicopters. Included are the Beech Model 90 King Air, the Potez Model 841, the Pilatus Porter, the Helio U-10, de Havilland of Canada's Turbo-Beaver and twin Otter, the Hiller TL5 and the Piasecki 16H compound helicopter.

## TAL "Exports" Gulfstream

MONTREAL — Timmins Aviation Ltd.'s international reputation in the design and installation of custom executive aircraft interiors is credited with putting the Dorval-based company in the somewhat unusual position of "selling" a new U.S.-built Grumman Gulfstream to an American customer.

Purchaser was the Square D Company of Chicago, Ill., which laid out some \$1.4 million for the Gulfstream which Timmins was offering in its capacity as Canadian distributor for the Grumman Aircraft Engineering Corp. of Bethpage, L.I. About one-quarter of a million dollars on the purchase price represents interior furnishings and installation of electronic apparatus and instrumentation, all carried out here at Timmins Montreal International Airport hangar.

Timmins now estimate that 37 per cent of company business involves manufacture of aircraft interiors and galley equipment. About 23 per cent of total business is export, and the percentage is growing.

## Test CAE Compensator

MONTREAL—The Automatic Permanent Magnetic Compensator designed by Canadian Aviation Electronics to prevent the magnetic field surrounding an aircraft from interfering with sensitive airborne magnetic detection equipment has been flight-tested aboard a helicopter in what is be-



Douglas 2086, shown in an artist's impression, would carry 56-74 passengers at cruising speed of 530 mph.



## Douglas promoting compact jetliner

**I**N APRIL, Douglas Aircraft Co. Inc. unveiled for airline inspection a full-scale cabin mock-up of a new transport designed to extend jet service to communities now served only by propeller-driven aircraft.

The twin-engine "compact jet," designated only as Model 2086, will carry 56 to 74 passengers efficiently between cities 100 to 1000 miles apart and operate from airports with runways less than a mile long, according to Douglas. Speed and comfort will be equal to that of the DC-8.

Douglas officials said the airline inspection was the final step in the company's extensive analysis and survey of the short-to-medium-range transport market.

"Our research indicates there is a definite requirement for about 400 air-

planes of this class during the next five years," said Jackson R. McGowen, vice president & general manager of Douglas' Aircraft Division. "But only the airlines can tell us when they will be ready to make capital outlays."

He made it clear the company will undertake production only when it has assurance of a sound financial program, including orders for enough aircraft to cover all costs.

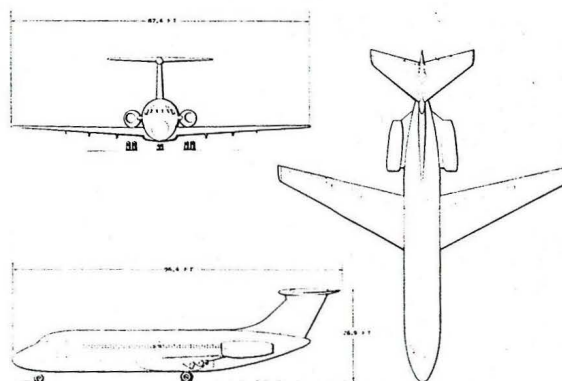
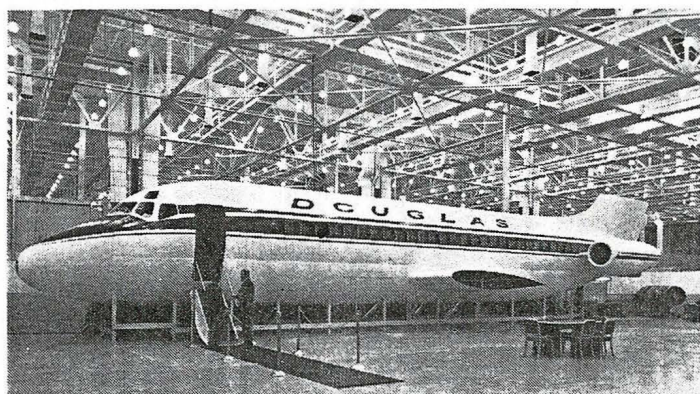
Span of its wings, which are swept back 24 degrees, is 87.4 feet; over-all length is 96.4 feet; and the tail, with horizontal surface mounted in a "T" position on the vertical portion, is slightly less than 26 feet high. The maximum take-off weight is 69,000 pounds; payload, 17,915.

Two Pratt & Whitney JTF10A-6 turbofan engines (10,500 lbs. th.

each) mounted on the aft fuselage give the 2086 a cruising speed of 530 mph.

Entrance to the pressurized cabin is through an integral stair-door located on the left side, just aft of the pilot's compartment. Passenger accommodations are located at each end in order to leave the main cabin uninterrupted. This permits an airline to vary the arrangement to carry 56 first-class, 64 mixed-class or 74 coach passengers.

The new jet will be able to carry the mixed-class capacity of 64 passengers and their baggage 530 miles, or 56 first-class passengers and baggage 930 miles. Direct operating cost for the 250 to 300-mile average route segment of U.S. airlines will be one dollar per mile and even lower for ranges beyond 300 miles.



Full-scale mock-up of proposed Model 2086 has been set up at Douglas' Long Beach plant for airline inspection.





**NEW LONG RANGE BOEING 707** is the -320B, shown during flight test over Seattle. Powered by four 18,000 lb./th. P & W JT3D-3 turbofan engines, the intercontinental 320B has a gross weight of 317,500 lbs. and a maximum passenger payload range, with normal reserves, of over 6000 miles.

## Dollars and Cents

- **Pacific Western Airlines** reports a net profit, after taxes, of \$10,393 for the year ended Dec. 31, 1961, compared to a loss of \$142,013 during the previous year. The 1961 results were yielded on a gross of \$6,796,145, down from \$8,636,884 in 1960. In 1961 passengers carried on main line operations (1960 figures in parentheses) totalled 114,462 (117,401); cargo carried, 6,212,768 lbs. (7,154,835); ton miles flown, 5,092,119 (5,406,035); miles flown, 2,379,773 (2,598,159); charter and contract miles flown, 1,966,688 (1,695,392); Dew Line miles flown, 304,010 (1,431,553).

- **TransAir Ltd.** reports a net profit for the year ended Dec. 31, 1961, of \$110,070, on gross revenues of \$4,207,290. The comparable figures for the previous year were, respectively, \$2,877,496 and \$45,071. Operating expenses in 1961 were \$3,445,810 vs. \$2,433,777 in 1960.

- **Saskatchewan Government Airways** reports a net profit for the year ended Oct. 31, 1961, of \$35,721 on gross revenues of \$850,190. Expenses for the period under review amounted to \$741,533. Revenues as compared to the year previous were down 8.7% but this decline was more than offset by a reduction in operating expenses of 9.58%. Hours flown were down and miles flown declined to 1,276,013 in 1960-61 from 1,374,200 in 1959-60.

- **Canadian Pacific Airlines** reports a whopping net loss in 1961 of \$7.6 million, up from \$4.7 million. The CPR's annual report, in which the CPA results appear, shows that CPA revenues were up by 5.9%, but these were swamped by a rise in expenses of 8.4%. The heavy deficit was blamed on lack of traffic necessary to make full use of turbojet equipment, restricted flight frequencies on the

transcontinental route, a general reduction in fares, and costs associated with the introduction of new aircraft.

- **Okanagan Helicopters Ltd.** and subsidiaries showed a consolidated net profit of \$90,035 for 1961, down from \$261,549 in 1960. Gross revenues at \$3,474,914, up from \$3,384,608, were the highest in company history. The improved revenues were offset by increase in operations and maintenance expenses. During 1961, the company operated 64 helicopters and flew 27,000 hours.

## Canada-U.S. Aviation

Transport Minister Balcer said April 16 his department "hopes" to have more discussions with the U.S. on the bilateral air agreement. The last meeting took place in June 1961.

Mr. Balcer was replying in the Commons to Liberal Lionel Chevrier, who demanded to know why Alitalia on April 13 was granted non-stop or onward rights to Chicago and Los Angeles when no Canadian carrier had similar rights in the U.S.

The Minister said Canada had to offer important advantages to Italy to get landing rights at Rome. Canadian carriers had secured "a very good advantage" in return. Mr. Balcer also said Canada secured some fifth freedom rights between Paris and Rome, though these rights have not yet been exercised.

Earlier, Mr. Chevrier said there is "chaos" in aviation in Canada because the Government won't state a firm position on TCA-CPA competition and because of the decontrol of Class B aircraft. He said he hears the Government intends now to drop its decontrol policy.

Mr. Chevrier said it was Finance Minister Fleming who denied financial assistance to Quebecair and that Mr. Balcer was "slapped down" by

Prime Minister Diefenbaker for promising Quebecair exclusive rights on the north shore of the St. Lawrence.

Mr. Fleming said Mr. Chevrier was talking a "compound of gossip" and "nonsensical speculation". He said Quebecair had "quite overstretched itself" and then come to the Government asking for special assistance. The Government's concern, he said, must be for the public interest, not some private company.

## Two's Better Than One

Like virtually every other important civil air power except Russia, Canada needs at least two major airlines to achieve its proper status in aviation, CPA Pres. G. W. G. McConachie said in a speech in Montreal, April 18.

With the second largest air travel market in the free world, he said, Canada has too much at stake to join the small-time "one-airline club" with such countries as Morocco, the Ivory Coast, Mozambique, Angola and Kenya.

"Like a repetitious and plausible soap commercial, the one-airline pitch sounds pretty convincing until you take a critical look at it. Then you see it's riddled with fallacies," Mr. McConachie told his audience.

The monopoly argument impresses quite a few Canadians who are so modest about their own country they don't recognize its number two ranking in the free world air travel markets.

Coupled with this error is the mistaken impression that TCA and CPA are duplicating each other's international services and thus weakening their own effectiveness in competing with foreign carriers.

He suggested that some who talked glibly about the need for airline merger to avoid duplication should take the trouble to examine the separate international route patterns of the two Canadian airlines.

The present two-airline arrangements, competition within Canada and separate spheres of operation abroad was described by the speaker as "fundamentally a good one." Each airline could draw domestic traffic to feed overseas routes and conversely could channel foreign traffic onto its domestic runs, he explained.

## Thereby Hangs a Tail

The operational experience to date of The Flying Tiger Line with the CL-44 swing-tail freighter, was outlined early in April to the SAE Aeronautic Meeting in New York, by James McLachlan, director of engineering and maintenance for the cargo airline.

Mr. McLachlan's paper, "Current Air Transport Equipment Experience", reported the following:

- "Up to March 1, we had already carried 20 F-104's (two at a time) to



ing out of older types of aircraft coupled with the introduction of new ones has once again caused a decline in work at Canadian repair and overhaul facilities. It is expected, however, that during 1962 a stabilizing effect will be felt within the repair and overhaul sector of the industry, and conditions should remain fairly constant for some time. The introduction of more sophisticated aircraft and equipment will have an effect on the types of facility required."

In R & D, extensive work was done on the proposed Canadian manufacture of a photographic reconnaissance pod for external fitment to the CF-104. Some other NATO countries have indicated interest in the pod.

All operations at Orenda's Malton and Nobel high altitude test facilities were closed down, but such work will continue. Much of the equipment was transferred to NRC in Ottawa, where it will be used for further experimental work.

## Contracts Awarded

Contracts awarded business in excess of \$10,000 by the Department of Defence Production during the period March 1-15, 1962, include the following. The list does not include orders placed by the Department outside Canada, or with other agencies or increases in orders placed earlier—nor do orders classified as secret appear here.

Names appearing in bold face are current AIRCRAFT advertisers.

**Aircraft Industries of Canada Ltd.**, St. Johns, Que., \$758,000 for repair, overhaul, and modification of airframes and airframe components during year ending March 31/63.

**Aircraft Industries of Canada Ltd.**, St. Johns, Que., \$18,000 for aircraft kits during year ending March 31/63.

**Austin Airways Ltd.**, Toronto, \$14,040 for rental of aircraft during year ending March 31/63.

**Boeing of Canada Ltd.**, Arnprior, Ont., \$12,000 for helicopter modification kits during year ending March 31/63.

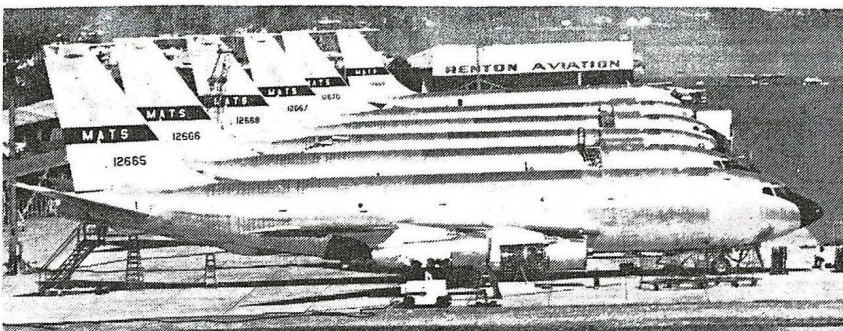
**Boeing of Canada Ltd.**, Arnprior, Ont., \$12,500 for helicopter airframe spares during two years ending March 31/63.

**Boeing of Canada Ltd.**, Arnprior, Ont., \$12,195 for helicopter airframe spares.

**Boeing of Canada Ltd.**, Arnprior, Ont., \$56,006 for revisions of technical publications.



**COMPLETION OF FIRST** of some 30 F-104 simulators by Canadian Aviation Electronics Ltd., was occasion for congratulations from A/M Hugh Campbell, CAS, to CAE Pres. James Tooley. Simulators have been ordered by RCAF, West Germany, Holland, Belgium, and Italy.



**SIX NEW BOEING C-135B STRATOLIFTER** jet logistics support transports are shown prior to delivery to MATS. The C-135B, grossing 275,500 lbs., can carry 41 tons of cargo, or can haul 126 troops over the longest inter-continental routes non-stop. Thirty of the Stratolifters have been ordered for MATS. aircraft is powered by the P & W TF-33 turbopan.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$202,000 for repair, overhaul and modification of jet engine exhaust unit assemblies and special investigations and technical studies during year ending March 31/63.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$150,000 for repair, overhaul and modification of airframes and airframe components during year ending March 31/63.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$10,000 for aircraft modification kits during year ending March 31/63.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$20,000 for helicopter modification kits during year ending March 31/63.

**Bristol Aero-Industries Ltd.**, Winnipeg, \$10,000 for helicopter engineering studies during year ending March 31/63.

**Canadair Ltd.**, Montreal, \$137,024 for slides and transparencies to support aircraft training aids programme.

**Canadian Aviation Electronics Ltd.**, Winnipeg, \$33,000 for third line maintenance of ground radar and ancillary equipment.

**Canadian Aviation Electronics Ltd.**, Montreal, \$35,833 for radar test sets.

**Canadian Pratt & Whitney Aircraft Co. Ltd.**, Longueuil, Que., \$75,500 for repair, overhaul and modification of helicopter airframes and airframe components during year ending March 31/63.

**Canadian Pratt & Whitney Aircraft Co. Ltd.**, Longueuil, Que., \$1,173,000 for repair, overhaul and modification of engines and engine components during year ending March 31/63.

**Canadian Pratt & Whitney Aircraft Co. Ltd.**, Longueuil, Que., \$207,000 for repair, overhaul and modification of jet engines and jet engine components during year ending March 31/63.

**Canadian Pratt & Whitney Aircraft Co. Ltd.**, Longueuil, Que., \$900,000 for repair, overhaul and modification of propellers and aero engine and propeller components during year ending March 31/63.

**Canadian Pratt & Whitney Aircraft Co. Ltd.**, Longueuil, Que., \$50,000 for repair, overhaul and modification of propellers and aero engine and propeller accessories, special investigations and technical studies during year ending March 31/63.

**Computing Devices of Canada Ltd.**, Ottawa, \$233,145 for electronic equipment.

**Computing Devices of Canada Ltd.**, Ottawa, \$17,981 for photographic equipment.

**De Havilland Aircraft of Canada Ltd.**, Downsview, Ont., \$375,000 for repair, overhaul and modification of aero engines during year ending March 31/63.

**De Havilland Aircraft of Canada Ltd.**, Downsview, Ont., \$15,000 for repair and overhaul of aero engine spares during year ending March 31/63.

**De Havilland Aircraft of Canada Ltd.**, Downsview, Ont., \$155,000 for repair, overhaul and modification of propeller components and aero engine spares during year ending March 31/63.

**De Havilland Aircraft of Canada Ltd.**, Downsview, Ont., \$28,000 for aircraft modification kits during year ending March 31/63.

**De Havilland Aircraft of Canada Ltd.**, Downsview, Ont., \$11,485 for aircraft repair parts.

**Dominion Rubber Co. Ltd.**, Kitchener, Ont., \$147,757 for aircraft tires.

**Enamel & Heating Products Ltd.**, Amherst, N.S., \$1,195,000 for repair overhaul and modification of airframe components during year ending March 31/63.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$1,100,000 for repair, overhaul,

modification and storage of aircraft, airframes and airframe components during year ending March 31/63.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$412,000 for repair, overhaul and modification of airframes and airframe components during year ending March 31/63.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$30,000 for repair, overhaul and modification of airframe components during year ending March 31/63.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$25,000 for repair, overhaul and modification of airframe hydraulic units during year ending March 31/63.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$40,000 for aircraft modification kits.

**Fairey Aviation Co., of Canada Ltd.**, Dartmouth, N.S., \$20,000 for engineering and technical assistance up to the third level of maintenance of aircraft.

**Field Aviation Co. Ltd.**, Ottawa, \$37,991 for liferafts.

**Fleet Manufacturing Ltd.**, Fort Erie, Ont., \$20,569 for repair and modification of sonar domes.

**Imperial Oil Ltd.**, Ottawa, \$35,520 for aviation fuel during year ending March 31/63.

**Irvin Air Chute Ltd.**, Fort Erie, Ont., \$99,610 for repair, overhaul and modification of parachutes and parachute components, testing of safety equipment, special investigations and technical studies during year ending March 31/63.

**Jarry Hydraulics Ltd.**, Montreal, \$13,522 for jack and gear box assemblies.

**Northwest Industries Ltd.**, Edmonton, Alta., \$450,000 for repair and overhaul of airframe spares during year ending March 31/63.

**Northwest Industries Ltd.**, Edmonton, Alta., \$150,000 for repair and overhaul of airframes and airframe components during year ending March 31/63.

**Northwest Industries Ltd.**, Edmonton, Alta., \$1,447,000 for repair, overhaul and modification of airframes and airframe components during year ending March 31/63.

**Railway & Power Engineering Corp. Ltd.**, Montreal, \$97,447 for aircraft instruments.

**A. V. Roe Canada Ltd.**, Orenda Engines Div., Toronto, \$2,675,000 for repair, overhaul and modification of aero engines and aero engine components during year ending March 31/63.

**A. V. Roe Canada Ltd.**, Orenda Engines Div., Toronto, \$75,000 for repair and overhaul of aero engine spares and accessories during year ending March 31/63.

**Rolls-Royce of Canada Ltd.**, Montreal, \$33,584,000 for repair, overhaul and modification of aero engines and aero engine components during year ending March 31/63.

**Rolls-Royce of Canada Ltd.**, Montreal, \$1,571,000 for repair and overhaul of aero engines and aero engine components during year ending March 31/63.

**Rolls-Royce of Canada Ltd.**, Montreal, \$260,000 for repair and overhaul of jet engines and spares during year ending March 31/63.

**Rolls-Royce of Canada Ltd.**, Montreal, \$80,000 for repair and overhaul of aero engine spares during year ending March 31/63.

**Sperry Gyroscope Co. of Canada Ltd.**, Montreal, \$67,127 for aircraft instruments.

**Victoria Flying Club**, Sidney, B.C., \$25,000 for maintenance handling and shelter of aircraft during year ending March 31/63.



held all the way down to flare-out. The cross wind turned out to be a no-sweat zephyr and the Tri-Pacer was easy to land.

Easy to land, easy to fly. That's the word that most accurately sums up the Tri-Pacer: "Easy." Both on the ground and in the air, the handling qualities of this workingman's bird (Canadian price \$10,347 for the Custom model) are excellent. It is available as a sea-plane on Edo floats, or as a ski-plane equipped with Federal skis. Though the inter-connect between ailerons and rudder is a trifle strange at first, it is a move towards that future when light planes will be as easy to operate as the family jalop'.

## ACCIDENT INVESTIGATION

(Continued from page 18)

there was no failure of malfunction of the door. A series of interviews with persons who had contact with the

victim from the time he purchased his flight ticket until the accident showed that he "obviously was under the influence of alcohol." He accidentally opened the aircraft door and fell to his death.

**Only Human:** The USAF, the world's most travelled flying organization, has found that pilot error is the primary cause of 48 per cent of its major accidents. Material failure accounted for 24 per cent of the accidents.

The weather, often a prime suspect as the cause of air crashes, was blamed for only six-tenths of one per cent of the total number of accidents.

How successful is the aviation industry in learning from experience? Is the tragic lesson of one accident learned well enough to prevent a second similar accident?

Yes, there are on record many instances where the findings of an in-

vestigation have corrected a situation, and thus prevented further accidents of the same nature. The accident rate of aviation in general is on the downgrade. In the USAF, for example, the number and rate of air accidents declined 11 per cent in a year.

At this moment, there are more than 1,100 USAF aircraft flying somewhere in the world, many of them over Canada. Yet, the USAF's accident rate is at an all-time low of 14 accidents per 100,000 flying hours (conservatively equivalent to 40,000,000 miles flown).

**Downward Trend:** An RCAF spokesman said: "There has been a most definite and steady downward trend, year by year, in the CF-100 accident rate involving fatalities. A similar downward trend applies with regard to all jet flying in the RCAF. The fatal accident rate for 1956-57 for jet flying, including all types of jets, was the lowest since the introduction of jets into the RCAF in 1948."

Certainly, some of the accidents contain a clear lesson. Here is an example taken from RCAF files:

A T-33 crashed shortly after take-off, apparently after rolling out of control. It exploded on impact with the ground and was almost totally destroyed. An investigator minutely studied the wreckage, narrowing the search down to a small spring-loaded piston which assisted control by supplying "feel" to the pilot, compensating for loss of feel induced by hydraulic powered control.

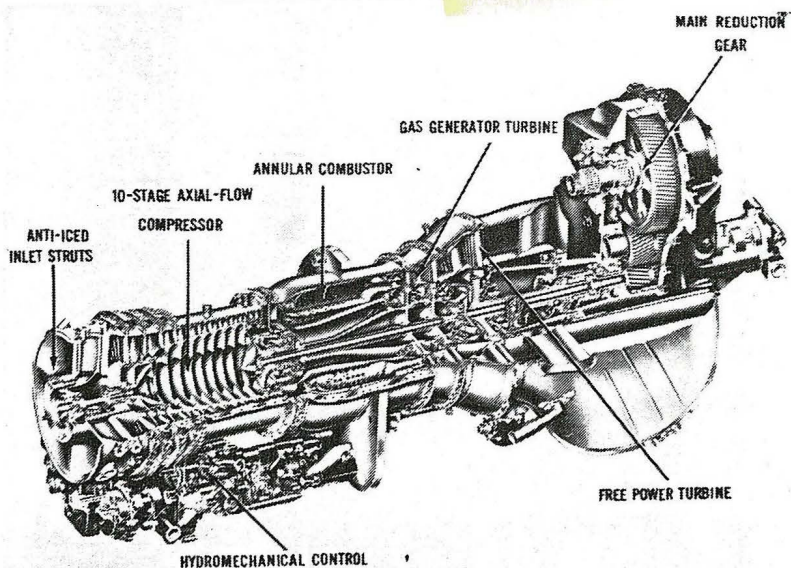
He found that the piston was actually withdrawn beyond its normal travel in its cylinder and jammed against the cylinder wall. This caused the aircraft's ailerons to become jammed hard over, so that the pilot could not stop the airplane's roll.

As a result of this investigation, the RCAF reports, the small component was redesigned and the piston (in its redesigned form) has operated safely and effectively since that time.

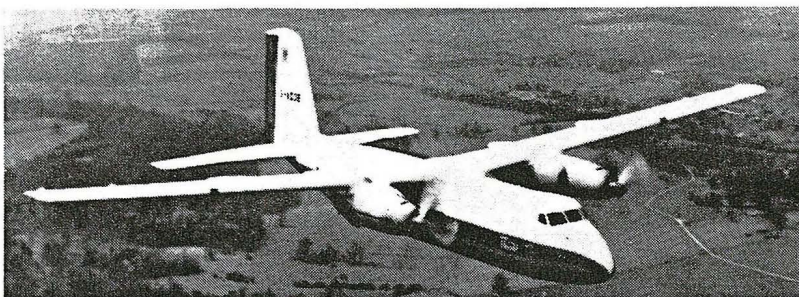
Despite the many corrective measures, air accidents continue to happen, although perhaps at not so alarming a rate as accidents involving new cars, equipped though they are with the best controls that modern automotive science can provide. It is still, according to James T. Pyle, chief of the United States Civil Aeronautics Administration, four times safer to travel by airliner than it is to drive your car.



**KAMAN HU2K-1 HELICOPTER:** Above is a full scale mock-up of the U.S. Navy's HU2K-1 utility helicopter. Winner of a Navy design competition, the HU2K-1 will be powered by a General Electric T-58 gas turbine, shown below. Engine weighs 325 lbs., is 59 inches long, 16 inches in diameter. Preliminary tests reveal that T-58 engine produces 1065 horsepower.







**PROTOTYPE HERALD FLYING:** The first Handley Page Dart Herald branchliner has been carrying out a heavy test flying program, and has already received its provisional C of A. The aircraft has already logged 70 hours. A second prototype is to fly this summer. The Dart Herald, with its excellent take-off and landing performance, is suited for short and medium haul air routes throughout the world.

service organization, has been formed at Montreal's Dorval airport to undertake the planning, installation, testing and service of any electronic system in any aircraft.

Management of Tim-Com Engineering Ltd. includes: R. D. Quart, president; John A. Timmins, vice president; Ian V. Meller, service manager; Donald M. Martin, sales manager.

The facilities of Tim-Com Engineering are said to be capable of executing any assignment from the replacement of a radio tube to the complete installation of a weather radar system. The company is also prepared to plan, supply, install and maintain ground-to-air and ground-to-ground communications, involving both portable and high power equipment, in accordance with DoT regulations.

### CF-100's to Canadair

Several CF-100 5's are to be allocated to Canadair Ltd., to be used for air testing of the Sparrow 2 air-to-air missiles. The Montreal firm is presently producing the missiles under contract to the RCAF. The CF-100's will be flown out of Canadair's Cartierville airfield.

### Electra Anti-Sub Version

Lockheed has announced receipt of a \$2 million research and development contract from the U.S. Navy toward production of a military version of the turboprop Electra. The new patrol aircraft modified to fit the special military assignment, will be the same basically as commercial Electra transports now on the Lockheed production line.

The fuselage will include a plastic tail-stinger housing a MAD unit, which detects submerged metallic objects by noting any deviation in the normal

magnetic fields. This is the same equipment that is carried in Neptune anti-submarine aircraft. Fitted with four Allison T56A engines developing a total of 16,200 hp at take-off, the new turboprop maritime patrol aircraft will have a top speed in excess of 450 mph.

### Bristol-Siddeley Merger

The Bristol Aeroplane Co. Ltd., and Hawker Siddeley Group Ltd., announce, that they have agreed to co-ordinate the activities of their engine companies. To give effect to this agreement a new company, Bristol-Siddeley Engines Ltd., is being formed. It will be jointly owned by the two companies and will have Sir Arnold Hall as its chairman, and Air Commodore F. R. Banks as vice chairman.

The new company is aimed at covering the entire aero-engine field of turboprops, turbojets, ramjets and rocket motors.

### Inco Technical Office

International Nickel Research & Technical Services Ltd. has announced the opening of a Montreal office. To keep pace with growing industrial expansion in Quebec, the Maritimes and Newfoundland, the company will provide technical information and fabrication advice for users of nickel and nickel alloys in these areas.

G. A. Lowles, a native of Montreal and a graduate in chemical engineering from McGill University, has been placed in charge of the new office. Prior to joining The International Nickel Co. of Canada Ltd. in 1948 as a sales engineer, Mr. Lowles held engineering positions with various Canadian chemical and petroleum industries. Since joining Inco he has been concerned with nickel and nickel alloy market developments in the petroleum, petro-

chemical and chemical industry throughout Canada.

Address of the new office is Room 808-9, Dominion Square Building, Montreal.

### CDC-Red Bank

Sale of transistors and vacuum tubes made by Red Bank Div., Bendix Aviation Corp., are to be handled in Canada by Computing Devices of Canada Ltd. Red Bank transistors have been sold by CDC since the start of the year, and the Red Bank line of electron tubes will be added April 1. Both products were formerly handled by Aviation Electric Ltd.

### CARL - Robot Agreement

Canadian Applied Research Ltd., have announced the completion of an agreement with Robot Berning & Co., Dusseldorf, Germany whereby the Canadian company will handle the camera products of this firm for the industrial and scientific field in Canada. Robot Berning & Co., have been manufacturers of amateur and industrial cameras for many years, and are world-renowned for their engineering and workmanship. CARL predicts that Robot automatic cameras will complement the expanding industrial and research program of automation in Canada.

### Fire-Fighting Otter Sold

The New York State Forest Conservation department has purchased a de Havilland DHC-3 Otter for use in fighting forest fires caused by lightning in remote areas. For this application the Otter is to be fitted with rapid-load, rapid-dump tanks which are mounted on the floats. These tanks were developed and successfully tested by the Ontario Department of Lands & Forests in 1957. (See "Airborne Bucket Brigade", *Aircraft*, October 1957.) In addition to the water dropping chore, the Otter can transport fully-equipped eight man fire fighting units to isolated fire sites.

### More CF-100's to Belgium

Delivery of the third group of the 53 CF-100's being supplied to the Belgian Air Force under joint Canadian-U.S. mutual aid arrangements, was made last month. Eleven of the long-range interceptors left Ottawa's Uplands Airport in mid-May bound for Beauvechain in Belgium by way of Goose Bay, Labrador, and Keflavik,



with 30% required by regulations.

This test demonstrated that the Dart R.Da.10 can be approved at this rating to permit flying in prototype aircraft. For this reason, Rolls-Royce are currently offering the engine to aircraft manufacturers for use in military aircraft.

### Manufacturing Agreement

Douglas Randall Ltd., Scarborough, Ont., has been authorized to manufacture and market in Canada the Bourns lead-screw type potentiometers.

These potentiometers, trademarked "Trimpot", a military potentiometer used primarily in guided missiles and aircraft, and "Trimit", which is a commercial potentiometer for use in computers, instruments and similar ground equipment, are manufactured and marketed in the U.S. by Bourns Laboratories Inc., Riverside, Calif.

### Iroquois Pace Up

Orenda Engines Ltd. last month began a 24-hour, three shifts-per-day operation in preparation for production of the Iroquois engine. Centre of the activity at the present time is the machine shops, where many members of Canada's staff are being transferred from final duties on the Orenda program.

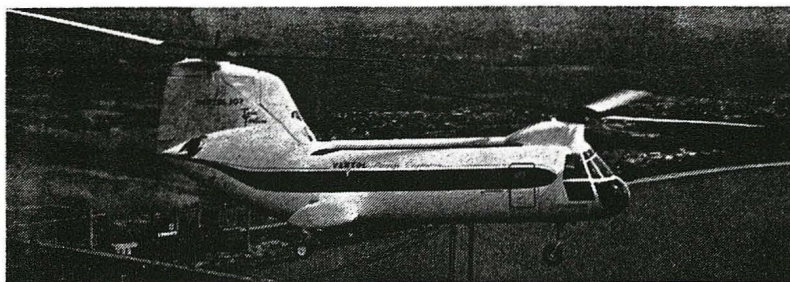
According to an Orenda spokesman, although the tooling-up phase is presently being accelerated, full-scale production of the powerful jet engine is still some time in the future. The engine is scheduled to power the Avro Arrow, of which 37 have been ordered by the Department of Defence Production.

### 1000th DC-6/7

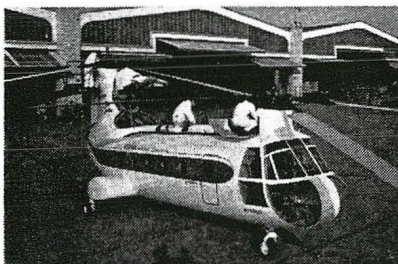
The 1000th airliner of the famed DC-6 and 7 series was delivered recently to United Air Lines by the Douglas Aircraft Company. The DC-7 was the 57th such transport delivered to the airline and the 151st DC-6 and 7 series airliner placed into service by United.

The 1,000 transports were sold to 53 different airlines, 23 domestic and 30 overseas, and to the USAF and the Navy. Of the total, 174 are DC-6's; 60 are DC-6A's; 268 are DC-6B's; 106 are DC-7's; 111 are DC-7B's; 114 are DC-7C's; and 167 are military counterparts.

First DC-6's sold for about \$640,000 in 1947. The larger and more luxurious DC-6B is currently valued at \$1.45



VERTOL MODEL 107: Above, a new transport helicopter that its makers believe will become the DC-3 of helicopter airlines is presently being tested. The all-weather Vertol 107 is powered by two turbine engines, can carry 25 passengers. Lower left: Simple hatch covers and externally-mounted drive shaft make for ease of maintenance. Right: Rear ramp means quick loading of passengers or cargo.



million, and a DC-7C at \$2.3 million. Total value of the 1000 airliners is approximately \$1.3 billion.

Douglas reports that its backlog of undelivered transports of the DC-6 and 7 series aircraft totals 41, with production scheduled to continue through November at the Santa Monica, Calif., plant.

### Jetstar Visits Canada

The Lockheed Jetstar last month visited Canada, giving interested military and commercial observers an unexpected preview of North America's latest small jet transport. Flying at 45,000 feet, the silver and white Jetstar averaged 425 mph to complete the flight from Ottawa to Winnipeg in 2 hrs. 29 mins.

The 10-passenger jet transport was designed by Lockheed as a utility aircraft. The aircraft is powered by two Bristol Orpheus jet engines, each developing 4850 lb. thrust.

### Flying Crane Airborne

Britain's "flying crane" helicopter, the twin-engined turbine Westland Westminster recently made its first flight. It was airborne for 1 hr. 4 mins. and carried out normal helicopter manoeuvres in hovering flight and at slow backward and forward speeds.

Built with a bridge-like open structure of welded tubes, this helicopter is a utility version of a development

designed for inter-city services or troop carrying. In the transport version, it will seat 46 passengers. As a military helicopter, the utility model will be capable of either long range or of lifting heavy weapons. It is thus suitable for anti-submarine operations or freighting missiles or troops.

The Westminster is capable of lifting a load of 6 tons, and is powered by two 2,800 hp Eland engines mounted side by side above the cabin roof and geared to a common rotor shaft. All up weight of the Westminster is nearly 14 tons, making it the largest helicopter project ever undertaken as a private venture by a British company.

### Rolls-Royce in Brazil

Rolls-Royce Ltd. has taken orders worth \$17.5 million from seven South American airlines since 1954 for turbo-prop and turbojet engines, and expect further business as other South American airlines re-equip with turbine-powered transports. By 1960, there will be nearly 150 Rolls-Royce aero engines of these types in airline service in South America arising from present firm orders.

To meet the growing volume of business, Rolls-Royce is investigating sites for the establishment of an overhaul and spares base and have set up a new subsidiary company in Brazil to manage the depot. The base, which will probably be in the Sao Paulo area,



will contain complete overhaul and spares facilities for the whole range of Rolls-Royce engines going into service in South America including modern test beds for running these engines.

The Brazilian base will initially provide overhaul and spares service for the Dart turboprop in the Viscounts ordered by VASP of Brazil; and for the Avon and Conway jets ordered by VARIG for its Sud Aviation Caravelles and Boeing 707-420's. It will also be available for the other customers of Rolls-Royce in South America, including operators of the Company's range of diesel engines.

## Olympus Thrust Increase

An official type test at a static thrust rating of 17,000 lb. has been completed by a Bristol Olympus Mark 201 (B.01.7) turbojet. Highest power previously revealed for the Olympus was 16,000 lb. thrust for the Mark 201 (B.01.6).

## B-70 Valkyrie

The North American B-70 bomber has been officially named the Valkyrie after maidens of great beauty who decided the outcome of battle in Norse mythology. The Mach 3 bomber is scheduled to replace the Boeing B-52 as the USAF's long-range strategic bomber. Cruising at altitudes above 70,000 feet, the B-70 will be capable of speeds better than Mach 3.0.

## Contracts Awarded

Contractors awarded business in excess of \$10,000 by the Department of Defence Production during the period June 1-15, 1958, include the following. The list does not include orders placed by the Department outside Canada, or with other agencies, or increases in orders placed earlier—nor do orders classified as secret appear here.

(Names appearing in bold face are current *Aircraft* advertisers.)

**Aircraft Industries of Canada Ltd.**, St. Johns, Que. \$10,000 for aircraft mobile repair parties during year ending March 31/59.

**Aircraft Industries of Canada Ltd.**, St. Johns, Que. \$11,236 for aircraft modification kits.

**Aviation Electric Ltd.**, Montreal, \$13,356 for aircraft instruments.

**Aviation Electric Ltd.**, Montreal, \$12,000 for technical services during year ending March 31/59.

**Avro Aircraft Ltd.**, Toronto, \$15,630 for aircraft instrument test equipment.

**Avro Aircraft Ltd.**, Toronto, \$468,132 for airframe components.

**Avro Aircraft Ltd.**, Toronto, \$250,000 for airframe components during year ending March 31/59.

**Avro Aircraft Ltd.**, Toronto, \$74,340 for aircraft armament equipment.

**Bancroft Industries Ltd.**, Montreal, \$22,416 for aircraft oxygen equipment.

**Baymar Equipment Co. Ltd.**, Ottawa, \$47,344 for spares for aircraft servicing equipment.

**S. F. Bowser Co. Ltd.**, Ottawa, \$143,637 for spares for aerodrome maintenance equipment.

**Bristol Aircraft (Western) Ltd.**, Winnipeg, \$1,280,000 for repair and overhaul of airframes and airframe components, special investigations and technical studies during year ending March 31/59.

**Canadair Ltd.**, Montreal, \$96,000 for technical services during year ending March 31/59.

**Canadair Ltd.**, Montreal, \$63,800 for airframe components.

**Canadian Aviation Electronics Ltd.**, Montreal, \$45,232 for spares for flight & instrument trainers.

**Canadian Pacific Air Lines Ltd.**, Vancouver, \$3,240,000 for operation of aircraft repair depot.

**Canadian Westinghouse Co. Ltd.**, Ottawa, \$10,000 for repair & overhaul of electronic equipment during year ending March 31/59.

**De Havilland Aircraft of Canada Ltd.**, Toronto, \$10,000 for aircraft mobile repair parties during year ending March 31/59.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, N.S., \$100,000 for repair & overhaul of airframe components, special investigations & technical studies during year ending March 31/59.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, \$73,500 for repair & overhaul of helicopter airframes & airframe components, special investigations & technical studies during year ending March 31/59.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, \$2,280,000 for repair & overhaul of airframes and airframe components,

during year ending March 31/59.

**Fairey Aviation Co. of Canada Ltd.**, Dartmouth, \$20,000 for repair & overhaul of aircraft & aircraft components, special investigations & technical studies during year ending March 31/59.

**Field Aviation Co. Ltd.**, Oshawa, Ont. \$25,000 for maintenance of telecommunications equipment during year ending March 31/59.

**Godfrey Engineering Co. Ltd.**, Montreal, \$146,792 for aircraft maintenance equipment.

**B. F. Goodrich Canada Ltd.**, Kitchener, Ont. \$12,267 for aircraft components.

**Hancock Aircraft Division Ltd.**, Toronto, \$75,000 for re-treading of aircraft tires during year ending March 31/59.

**Orenda Engines Ltd.**, Toronto, \$1,004,000 for modification of aero engines & aero engine components.

**Orenda Engines Ltd.**, Toronto, \$227,000 for modification of aero engines.

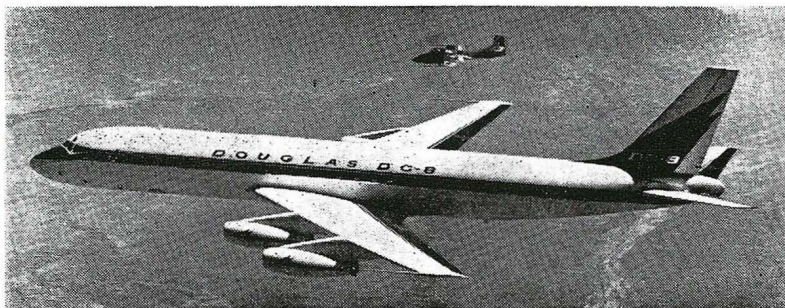
**Railway & Power Engineering Corp. Ltd.**, Montreal, \$12,671, for aero engine components.

**Rolls-Royce of Canada Ltd.**, Montreal, \$10,000 for aircraft mobile repair parties during year ending March 31/59.

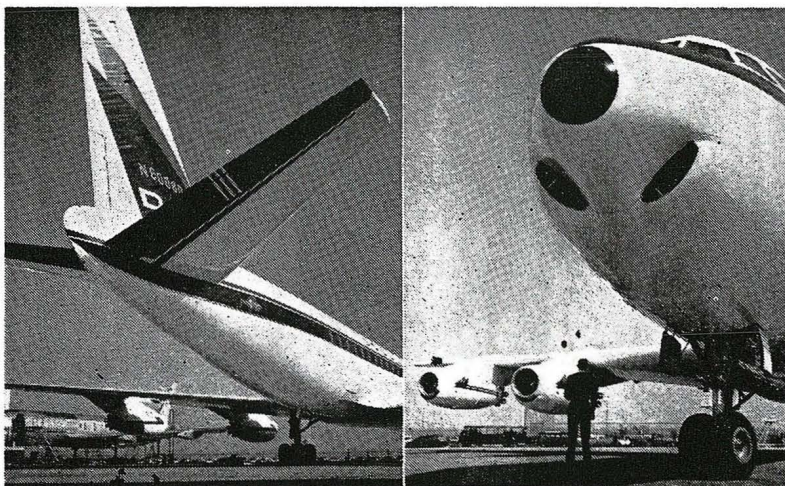
**Rolls-Royce of Canada Ltd.**, Montreal, \$600,000 for repair & overhaul of aero engines & aero engine components, special investigations & technical studies during year ending March 31/59.

**Rolls-Royce of Canada Ltd.**, Montreal, \$24,375 for aero engine components.

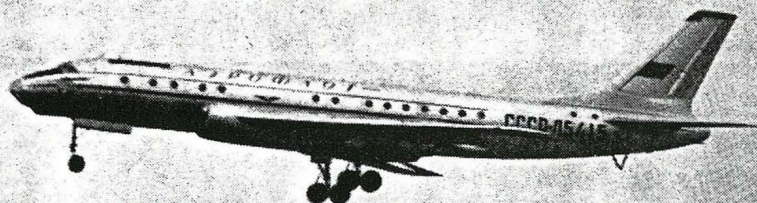
**Standard Aero Engine Ltd.**, Winnipeg, \$70,000 for repair & overhaul of aero engines & aero engine components, special investigations & technical studies during year ending March 31/59.



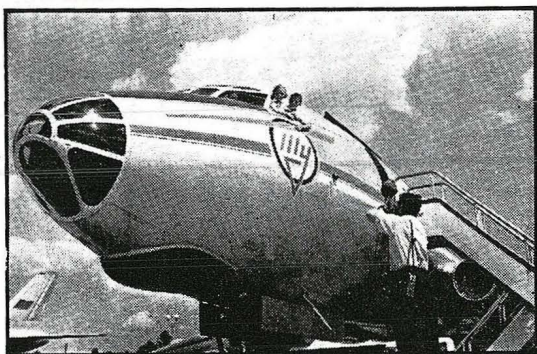
**PROTOTYPE DOUGLAS DC-8:** Seen above on one of its first flights is the 550-mph DC-8 jetliner, which is intended for trans-continental and trans-ocean routes. TCA has ordered 6 of the luxury liners, and expects to have them in service by mid-1960. The TCA version will seat 127 passengers in pressurized comfort, has two galleys for preparation of hot meals, music piped in over PA system.







## A Soviet Selection



Top is a Tu-104 shortly after take-off. Left, the nose section of a Tu-110 transport.

Right, inside a Tu-104 in service on the Trans-Siberian route. Airliner carries 70.



More modern interior of Moskva turboprop transport is evident here. Type can carry 75 to 100.

**D**URING RECENT years, and especially in the post-Sputnik era, it has become commonly accepted that the state of the aviation art in Russia is generally at least as advanced as in the Western World. No longer is it fashionable to regard with condescension Russian aeronautical achievements.

The fact that Russian military aviation can hold its own in any league became obvious several years ago, and now it is becoming equally obvious that great strides are being made by the Soviets in the field of civil air transport as well. Little was known about Russian activity in this field until about two years ago, when a Tu-104 turbojet transport paid a visit to the U.K.

Some Russian civil transports, like the Tu-104, are clearly straightforward adaptations of military bombers. The Tu-104 and the later Tu-110, for example, still retain the greenhouse nose of their military counterparts. Nevertheless, very commendable work is being done in the development of aircraft which are being designed from scratch as transports. Outstanding in this regard is the handsome "Moskva" turboprop transport, which was designed by S. Ilyushin.

Though Soviet civil air transport is said to lack many of the amenities of its Western counterpart, and to be weak in the area of navigation aids and communications, it is apparent that the day is inevitable when it will have to be accepted as generally equal in status to anything the nations of the West have to offer.



Shown fueling is the Mi-6 turbine-powered helicopter. Designed for military, it could have civil application. It has lifted over 13 tons to 7,800 ft.

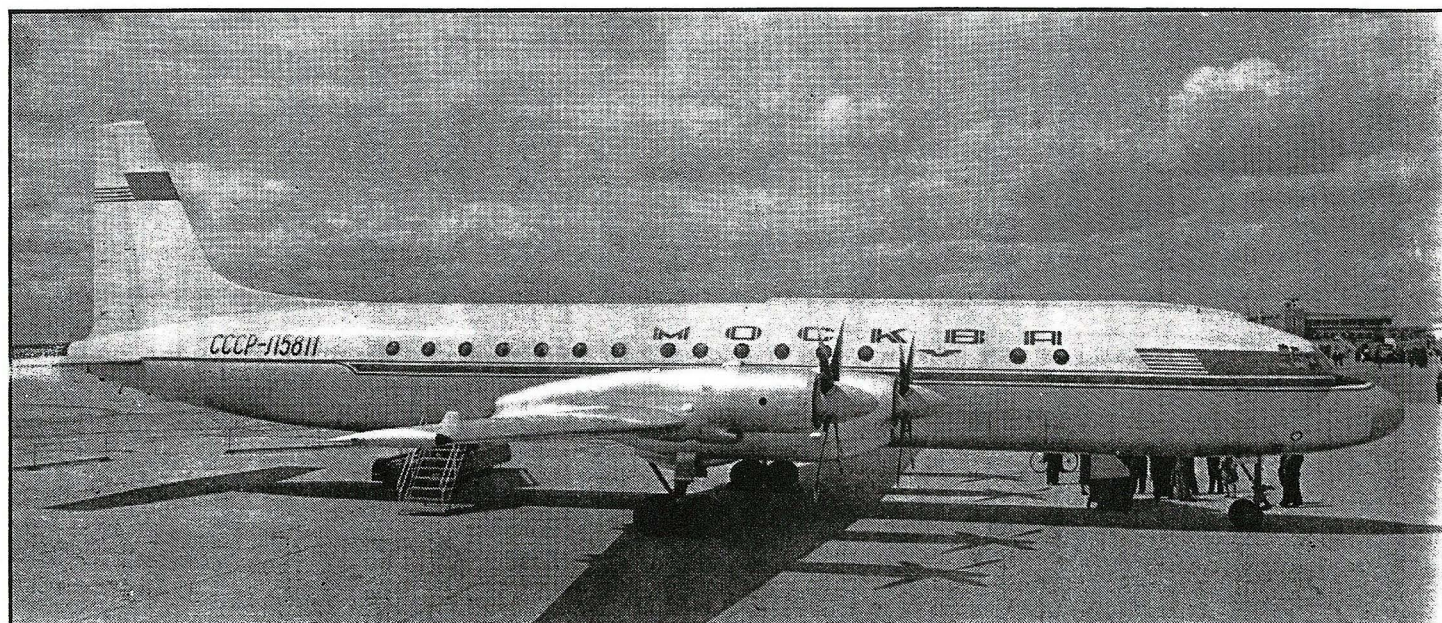


Russia's answer to the DC-3, the IL-14. The IL-14 replaces the similar IL-12, of which some 3,000 have been built.

The Tu-110 transport, powered by four 15,000 lb./th. turbojets and capable of carrying 100 tourist passengers. Full load range is 2000 miles.



Below, the IL-18 Moscow, with four 4,000 ehp turboprop engines. Can carry 75-100 passengers at cruising speed of over 400 mph.





take-off. The crew shut down the engine and reported they were turning around and descending for an emergency landing at Abbotsford. They were in contact with ATC concerning the course they would follow just before the crash occurred.

Because of the rugged terrain, the wreckage was not found until May 12, 1957. Investigation was delayed by the almost inaccessible location, by weather and by mountain snow conditions, until late in August. Some debris was recovered but a large percentage is still buried beneath unstable snow masses or beyond reach in crevasses. From evidence obtained at the scene of the accident, it was found that when the aircraft struck the third peak of Mount Slesse at an altitude of about 7,600 feet, all occupants of the aircraft were killed instantly.

A meteorological briefing had been given to the crew during the late afternoon of December 9. Icing conditions were forecast to be in the mountain regions between 8,000 and 14,000 feet. It was pointed out to the Board that at this time another flight, which had landed at Vancouver in the early afternoon, had experienced light to moderate icing conditions in cloud at 14,000 feet. It was therefore suggested to the crew that the best height for their flight to Calgary would be between 17,000 and 19,000 feet. The weather encountered by the ill-fated aircraft was as forecast and this was verified by other flights.

## Seabee Improvements

For many years the Seabee has needed more wing area to help get off with heavy loads, improve its flying qualities and slow up its glide. A modification developed by a U.S. company is now fully approved and is being offered in Canada by Leavens Bros. Ltd.

The modification consists of extending each wing outboard by about 20 inches and attaching a wing spill plate in lieu of the rounded wing tip.

Seabee owners who have had this conversion carried out are said to be unanimous in their praise of the better performance obtained. Stalling speed at maximum gross weight is decreased 6 mph, while landing and take-off distances are shortened approximately 25% and 15% respectively. Rate of climb has gone up 20% while cruise speed remains essentially unchanged.

This performance data is based on



**LOCKHEED JETSTAR:** Built as a jet utility transport for the USAF, the Lockheed JetStar is seen here cruising peacefully over the California mountains. During normal flight testing program so far, the JetStar has travelled at speeds exceeding 630 mph and to altitudes of 45,000 feet. Prototype here is powered with two Curtiss-Wright TJ37 engines (Bristol Orpheus series).

tests of a standard Seabee which is not equipped with the new metal blade propeller. The addition of a Hartzell propeller results in speed increases of 10 mph with the same power settings.

## Trident II Sets Record

On April 4, the French Trident II, powered by two wing-tip Turbomeca Gabizo jets and a single SEPR 631 rocket engine, set a new climb performance record by reaching an altitude of 49,200 feet in 2 minutes 37 seconds. The flight, which was from Istres Air Base in southern France, was timed by an FAI official using radar. Timing was from brake release to altitude.

The SEPR 631 rocket engine consists of a two combustion chamber unit, having a total thrust of 6,732 pounds at ground level, and 7,524 pounds at 65,600 feet. The Gabizo wing tip jets each produce 2,420 lbs. thrust.

## Parachute Club Elections

Ernie Mueller, of Kingston, Ont., has been elected president of the Parachute Club of Canada. It has also been announced that a team from the Club will present a sky-diving exhibition at the British Columbia Centennial June 15 in Vancouver, and at the same time hold eliminations to decide the members of the team that will represent Canada at the world championship sky-diving competitions to be held in Czechoslovakia in August.

## Halifax Terminal Contract

A contract for the construction of an air terminal building at the new Halifax International Airport has been let by the DoT to The Ellis-Don Ltd.,

London, Ontario. The contract amounted to \$4,389,000; completion date for the project will be August 31, 1959. Runways at the airport are already paved, the longer one being 8,800 feet in length and the shorter one now undergoing extension to make it 7,500 feet long.

The air terminal has been planned to handle anticipated air traffic for the next ten years. The building will be 1,250 feet long and has been designed to include mechanical baggage conveyors. A coffee shop and dining room will be provided and a second floor spectators' deck will command a view of airport operations. Special provision is being made to meet trans-border and trans-Atlantic customs, health and immigration requirements.

## Change of Address

The administration, reservations and sales department of BOAC's Toronto establishment have been moved to more spacious premises at 121 Richmond St. W., Toronto 1. The present ticket and general enquiry office for the public will remain open at 32 King St. W., but all other business will be conducted at the new address.

## Mid-Air Sparks CAB Report

Following the mid-air collision between a military jet and a civilian airliner over Nevada last month, U.S. CAB Chairman James R. Durfee sent the following telegram to the U.S. Congress:

"In view of today's tragic accident over Nevada, the Civil Aeronautics Board wishes to advise that on April 11 it ordered its staff to prepare a special report to the Congress on current airspace problems and CAB safety