



**COMMONWEALTH AIRCRAFT CORPORATION**  
**PTY. LTD.**





---

August, 1953.





# CONTENTS

	Page
Foreword.	1
Introduction.	2
The Wallaby.	3
Three View Layout.	4
Passengers' Requirements.	5
Accommodation. 12 – 15 Passenger Airline Version.	6
An Artist's Impression of the Interior.	7
Executive Version.	8
Executive Version. Accommodation.	9
Executive Version. Interior.	10
Pilot's Viewpoint.	11
Performance. 12 – 15 Passengers.	12
Dimensions.	13
Weights.	14
Variation. 17 Passengers.	15
Power Plant Installation.	16
Cicada Engine.	17
Palas Boost Unit.	18
Fuel System	19
Passenger Entrance and Rear Baggage Compartment.	20
Front Baggage Compartment.	21
Serviceability.	22





## FOREWORD

An entirely satisfactory aircraft for Lesser Airlines has never previously been evolved. This is primarily due to the non-availability of a suitable power plant for such an aircraft.

The unique Cicada engine brings to the smaller commercial aircraft the advantages hitherto available only by the use of higher powered engines. These features include: geared propeller, supercharger, injection carburettor, adequate cylinder head cooling, and three bladed feathering and reversible propeller, all in an engine as small as 450 H.P. for take-off, hence permitting an aircraft conforming with ICAO multi-engined requirements for an all-up weight of 11,600 lb.



# WALLABY

## THE AIRCRAFT FOR LESSER AIRLINES

The Commonwealth Aircraft Corporation Wallaby passenger-freighter aircraft meets all commercial requirements for a highly modern transport of medium dimensions but designed with a large capacity outlook.

In its design, advantage has been taken of the most recent advances in aerodynamics, structural design and operating technique and whilst the aircraft appears conventional in general external appearance, it will be found upon investigation that a number of important features have been embodied.

Three variants of the aircraft are available, each providing a particular type to fill an established need.

12 – 15 PASSENGERS AND FREIGHT  
17 PASSENGERS – SHORT RANGE  
EXECUTIVE VERSION

The cabin is of ample dimensions giving the maximum of comfort to all passengers. The noise level of the power plants is noticeably low and any feeling of close confinement is entirely absent.

The baggage areas will satisfy not only the high density passenger carrier but will also meet the requirements of operations where bulky loads are involved.

By the use of an internally stowed jet engine of low thrust it has been found possible to give an enhanced seating capacity whilst at the same time meeting the ICAO requirements for the case of one engine inoperative, and in addition, providing good take-off and initial climb performance.

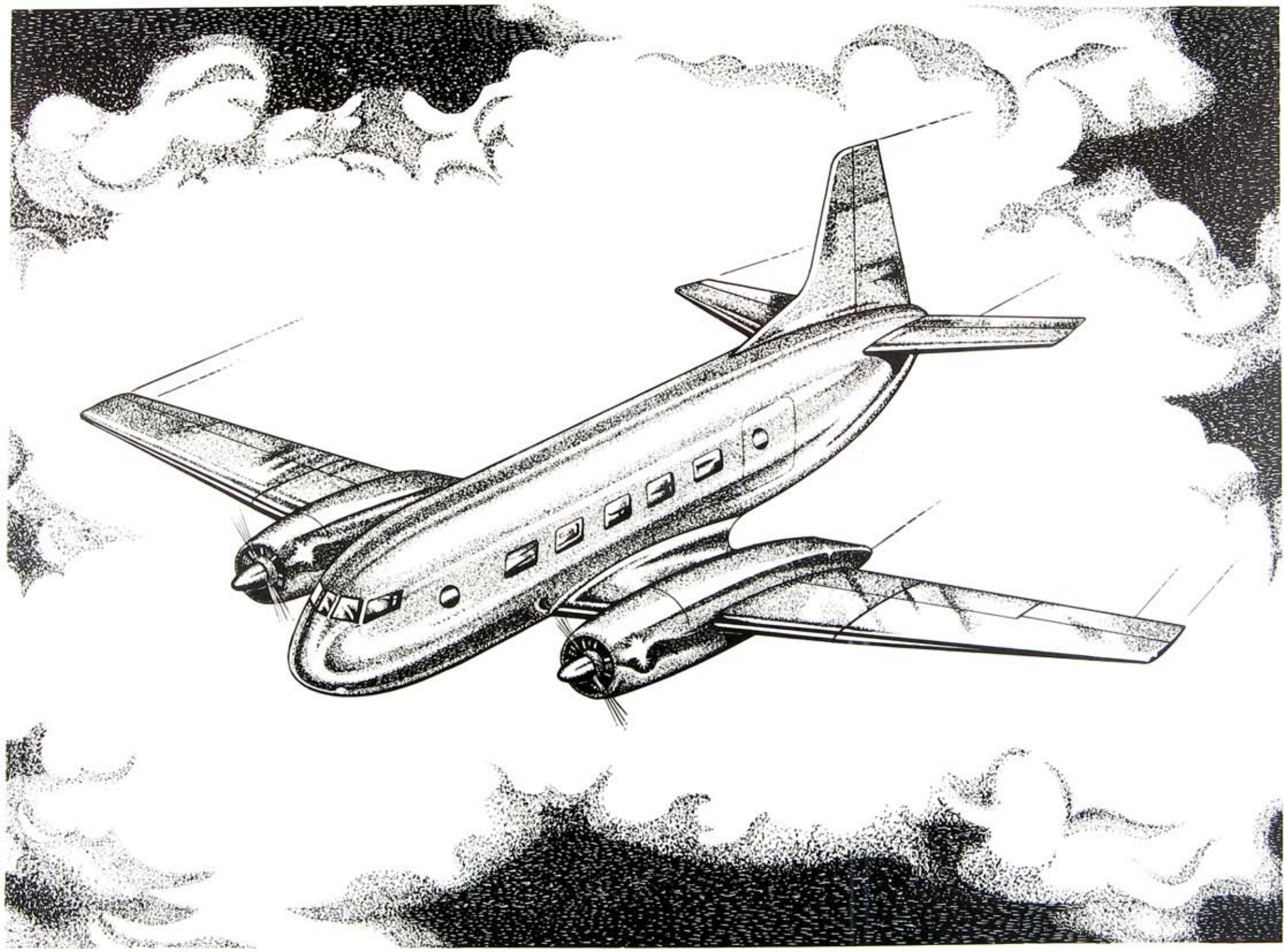
With a touch down speed of only 65 mph. under full load it will be realised that no compromise of the landing conditions has been made.

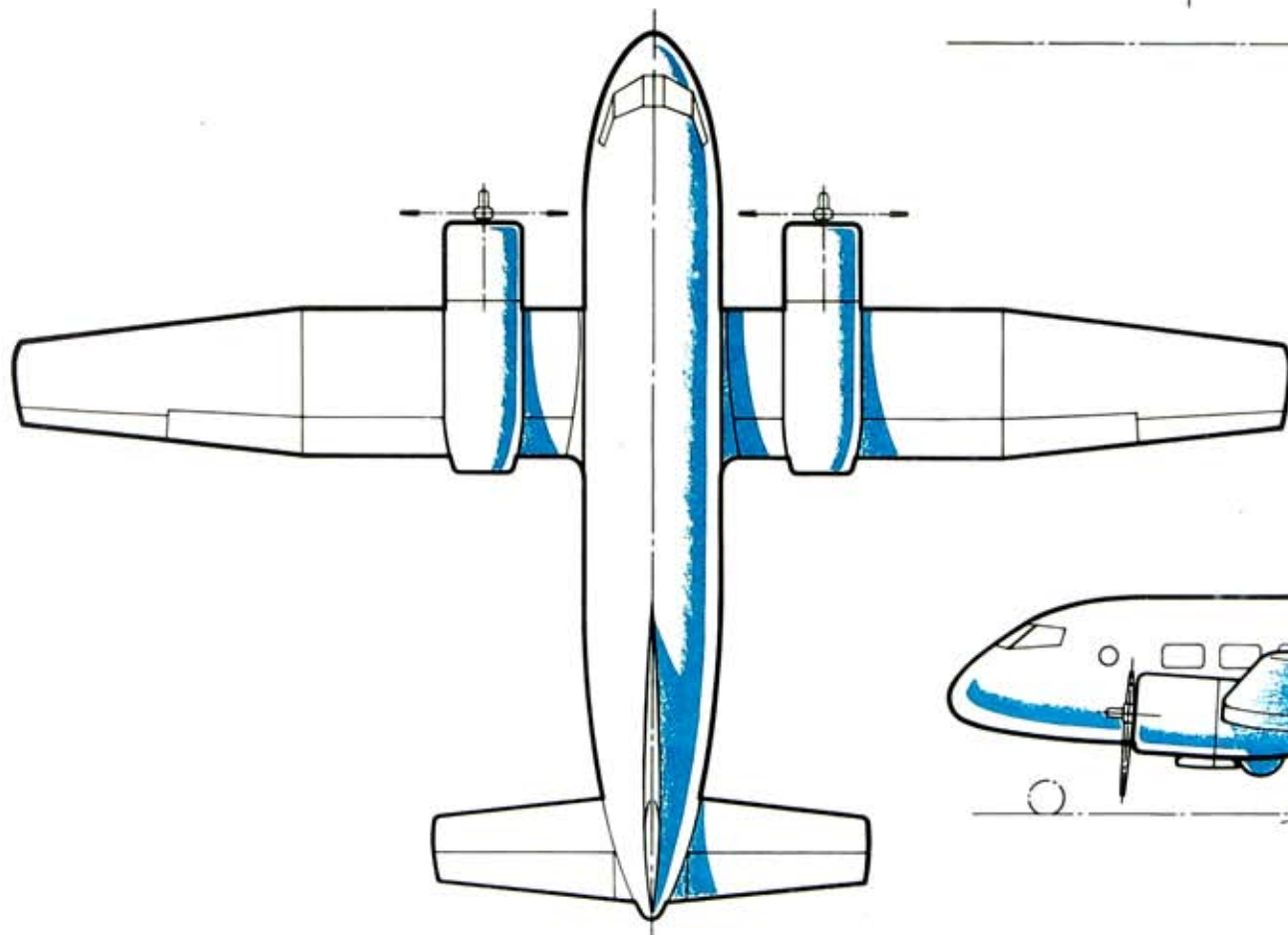
Low maintenance costs and ease of inspection and servicing are essential for aircraft in this category and these considerations have been to the forefront from the earliest stages of the design.

In short, the new aircraft would appear to ideally meet all requirements of a modern medium capacity civil transport for operation in areas of widely differing climatic conditions and from landing strips of limited extent.



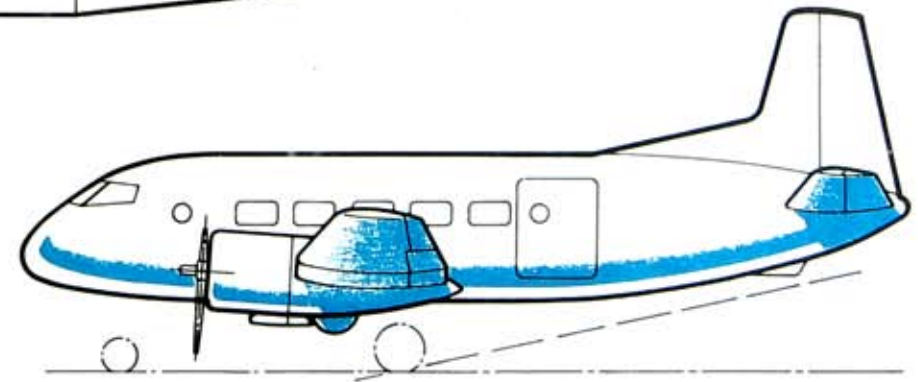






**THREE VIEW LAYOUT**

0 2 4 6 8 10 12 14 16  
SCALE - FEET





# PASSENGERS REQUIREMENTS

*'Good design must feature in all our efforts to obtain custom, and imbue the passengers with a feeling of confidence, a feeling which will be strengthened by relaxing in an atmosphere of comfort—amid surroundings and accessories that are pleasant and in good taste.'*

Airline Spokesman.

Our designers are fully aware of the foregoing statement and of the fact that travellers nowadays demand not only speed with safety but comfort, a distinct feeling of roominess, and the minimum of noise.

## 12 – 15 PASSENGER VERSION.

The pleasing interior of this version is spacious and well lighted and designed to provide the ultimate in passenger comfort and travel relaxation. The cabin is 23 feet long by six feet, three inches wide and has a full six feet headroom.

A glance at the accompanying illustrations will show that the passenger's comfort has been most carefully considered. Individual seats are disposed three abreast, two on the right hand and one on the left, all facing forward. Ample leg room is provided, the distance between seats being 36 inches. The three seats at the rear of the cabin can be folded away with ease when the aircraft is required for longer range operations. An offset gangway runs through the entire length of the cabin from the vestibule at the aft end to the entrance door into the crew's cabin forward.

The passenger's view from his seat is almost as important as his comfort, and this has been fully taken into account in the design of the windows. A row of large and near rectangular shaped

windows is provided on each side giving wide-angle vision as well as a good view downwards.

The light fittings of good design are at the same time simple in appearance and serviced with ease. The semi indirect lighting gives soft, even illumination of the entire cabin.

Special attention has been paid to sound proofing and anti-vibration measures and the noise level has thus been kept to a minimum.

Heating and ventilation have been carefully considered in an aircraft which may operate in a variety of climates.

The toilet compartment is an example of the use of limited space with maximum advantage and is furnished with chemical closet, wash basin, and the usual fittings.

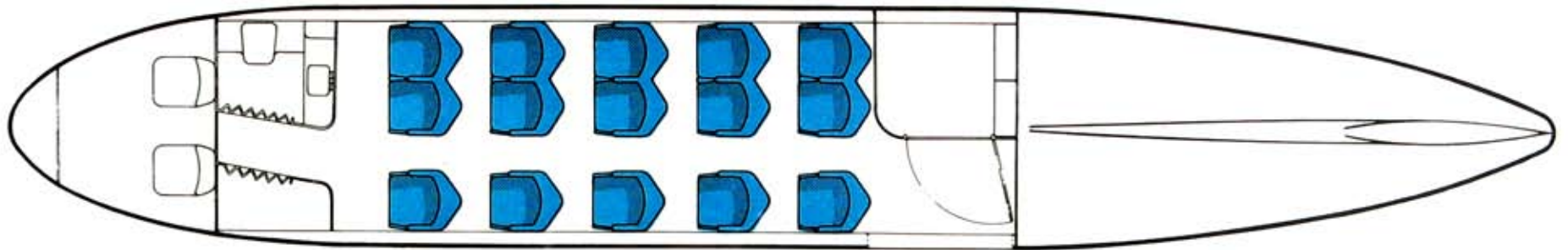
The entrance door is on the left hand side at the rear of the cabin and is of large dimensions, being five feet high by four feet wide. It is hinged at the bottom and folds outwards and downwards and has steps incorporated to facilitate entry and exit.

## 17 PASSENGER VERSION.

This short range version is similar in general furnishing and equipment to that described above but provides for 17 passengers.



# ACCOMMODATION



**AIRLINE VERSION  
12-15 PASSENGERS**





12-15 PASSENGER VERSION

# PASSENGER ACCOMMODATION

AN ARTIST'S  
IMPRESSION OF THE INTERIOR





## EXECUTIVE VERSION

A modern executive aircraft has to meet exacting specifications: layout which provides the necessary degree of comfort to transact negotiations while actually en route, or the relaxation required after business consultations, speed to cut executive travel time to a minimum; safety, reliability, and low operating costs.

A survey of executive aircraft available in the world shows that not one meets all these requirements. A careful study by the Company's designers of the detailed requirements for high-speed executive travel has resulted in this version of the Wallaby now offered.

The cabin is entered by a large well proportioned door. The passenger's first view dispels all previous anticipation of small aircraft austerity. The large cabin made available to the passengers is discreetly but amply furnished; with one capacious double arm chair at the rear and four lounge seats which may be moved as desired; two of these seats may be used for secretarial staff. Adequate table provisions consist of a large hinged table for the executives in the double seat and a smaller hinged table provided for the secretary's typewriter, etc. A conveniently placed telephone may be provided for easy communication between passengers and crew.

The impression of size in the cabin is emphasised by the ten large clear windows which provide an uninterrupted view of the country below. Soft, diffused lighting comes from several semi-indirect lamps hidden from normal view.

Books, brief cases and other light luggage may be placed in luggage racks along each side of the cabin, while coats and hats are accommodated at the rear. The capacious baggage hold carries all passenger travel baggage.

The outside noise level is filtered out by the cabin sound-proofing, enabling conversation to be maintained without raising the pitch of the voice. The whole cabin is air-conditioned. The inside temperature is thermostatically controlled and can be maintained at 65°F even when the outside temperature is exceptionally low. Alternatively, the air-conditioning plant ensures an equable and comfortable temperature in the hottest tropical weather.

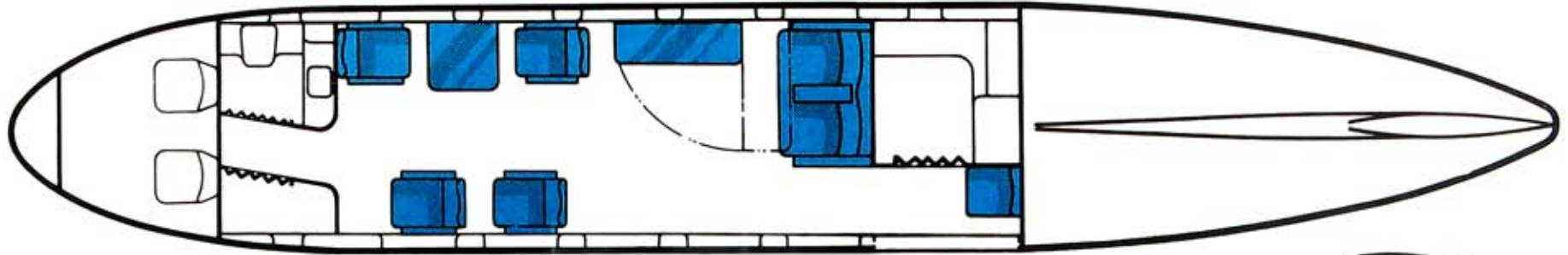
The galley is a self contained compartment in the rear, opposite the entrance door, equipped with electric heater, and refrigerator; ample cupboards are provided. The galley obviates the need for passengers relying on airport catering, since meals may be prepared and served during flight. A seat is provided for the attendant which folds neatly into the rear bulkhead when not in use.

The toilet compartment is located in the forward part of the cabin and is equipped with a chemical closet which may be serviced from the exterior; a hand basin with hot and cold running water and all the usual fittings are also provided.

Individual customer requirements in layout, furnishings, colour and special fittings may be arranged with Commonwealth Aircraft Corporation Pty. Ltd.



# ACCOMMODATION



## EXECUTIVE VERSION







# EXECUTIVE VERSION





# PILOTS VIEWPOINT



Careful thought and study has been given to every detail of the aircraft flight controls and appointments at the pilot's station to give top efficiency at take-off, landing, and all conditions of flight.

Records have proved that a large proportion of mishaps can be traced to poor view from the pilot's cockpit when the aircraft is on the ground. The pilot of the Wallaby has an excellent field of vision and, as the aircraft has a tricycle landing gear, he can see the ground a few feet away from the nose of the aircraft.

The cockpit is planned on generous lines, and is arranged with two side-by-side seats and full dual controls for pilot and co-pilot, who also acts as radio operator. Entry to the cockpit is by way of a communicating door at the forward end of the passengers' cabin, and ample room is provided for the pilots to get in and out of their seats.

The seats are adjustable to accommodate pilots of varying stature.

Dual controls, consisting of the normal control column and swinging rudder pedals are installed, the pedals being adjustable. The control surfaces can be locked direct from a lever on the centre control pedestal and obviates the use of external locking blocks on the surfaces. This lever also locks the throttle lever in the closed position, and thus prevents accidental take-off with the controls locked.

Both pilots have easy access to engine and accessory control levers, flap controls, landing gear controls, and radio and radio navigation controls.

A full range of flight and engine instruments is provided whilst at the same time the layout is clear and simple. Instruments needing external power are electrically operated for ease of maintenance. The instruments can be illuminated for night flying by ultra-violet and red lighting.

Comprehensive V.H.F. radio equipment is installed, and units can be easily withdrawn for maintenance, through a door in the side of the fuselage.

The windscreen and side panels are of non-shatterable glass. Dual electrically operated windscreen wipers are fitted to assure both pilots maximum visibility in inclement weather.



# PERFORMANCE

## 12 - 15 PASSENGERS

### STANDARD CONDITIONS

#### SPEED

MAXIMUM	SEA LEVEL	190 M.P.H.
CRUISE. 62% POWER	8,500 FT.	160 M.P.H.
LANDING. FULL FLAPS	SEA LEVEL	65 M.P.H.

#### CLIMB

R. OF C. CLIMB POWER	SEA LEVEL	1,200 FT./MIN.
R. OF C. ONE ENGINE OUT MAX. T.O. POWER	SEA LEVEL	300 FT./MIN.
R. OF C. ONE ENGINE OUT MAX. CONT. CRUISE POWER	8,500 FT.	110 FT./MIN.

#### TAKE OFF

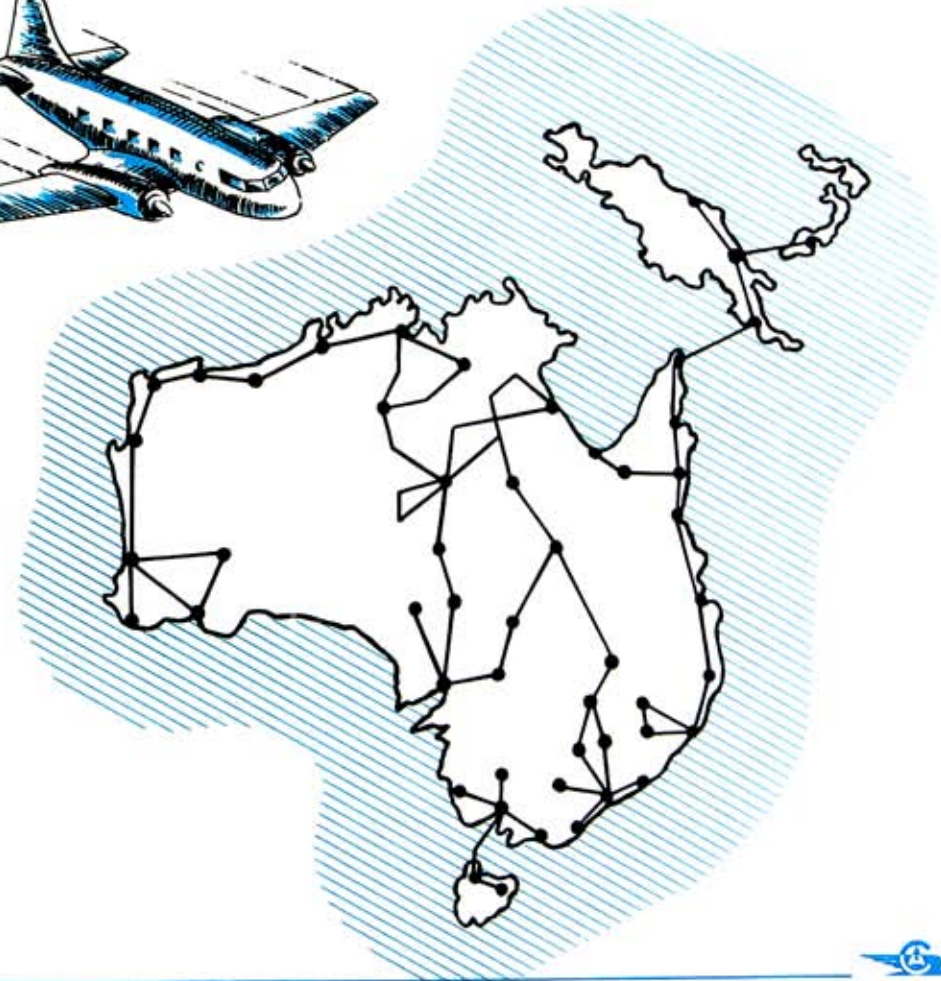
GROUND RUN	SEA LEVEL	390 YARDS
OVER 50 FT.	SEA LEVEL	600 YARDS
OVER 50 FT. ONE ENGINE OUT AT T.O. POINT	SEA LEVEL	900 YARDS

#### LANDING

OVER 50 FT.	450 YARDS
GROUND RUN	200 YARDS

### PASSENGERS

<b>STILL AIR RANGE</b>	<b>12</b>	<b>15</b>
62% POWER	8,500 FT. 720 MI.	400 MI.
<b>ENDURANCE</b>		
62% POWER	8,500 FT. 4.5 HR.	2.5 HR.





# DIMENSIONS

SPAN 64.0 FT.  
 LENGTH 44.5 FT.  
 HEIGHT 18.5 FT.

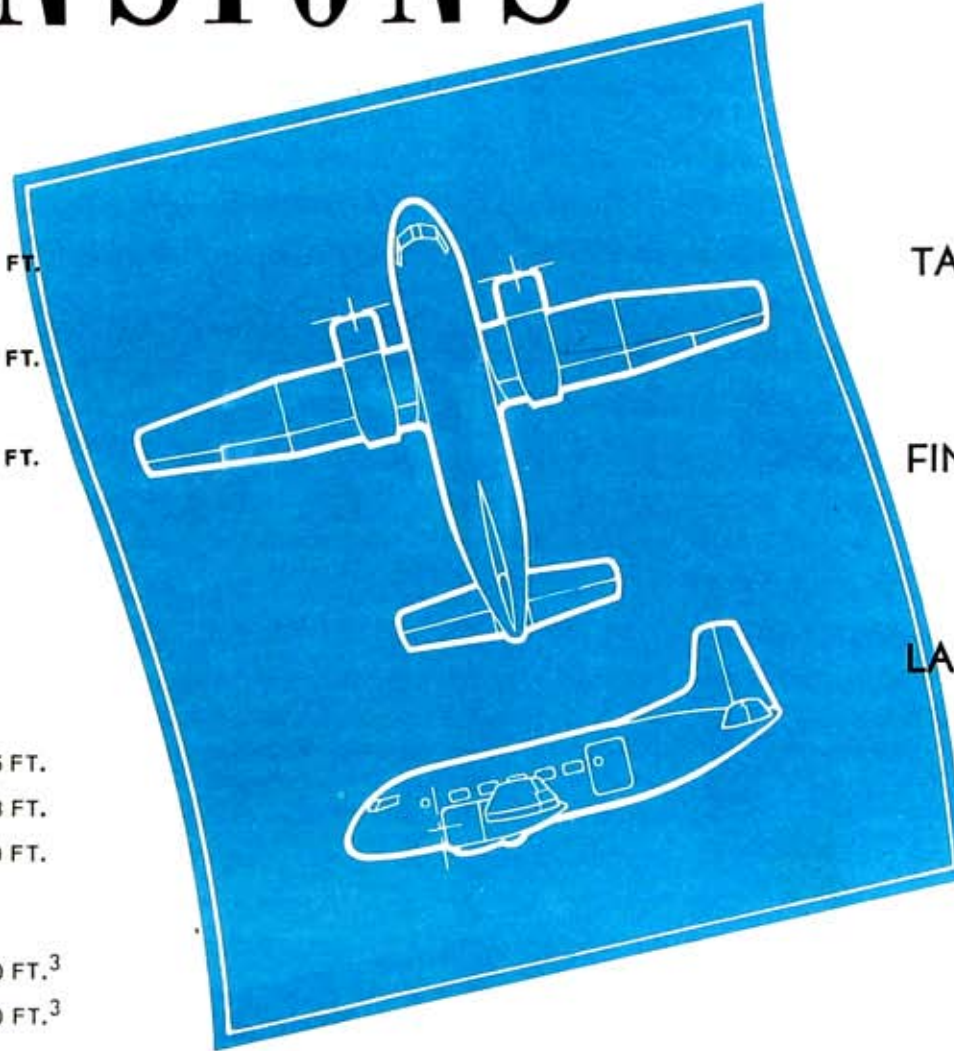
## CAPACITY

### CABIN

LENGTH 19.5 FT.  
 WIDTH 6.3 FT.  
 HEIGHT 6.0 FT.

### BAGGAGE FREIGHT

FRONT 28.0 FT.<sup>3</sup>  
 REAR 60.0 FT.<sup>3</sup>



## WING

AREA 435.0 FT.<sup>2</sup>  
 ASPECT RATIO 9.5  
 SECTION N.A.C.A. 23 SERIES

## TAIL PLANE

AREA 100.0 FT.<sup>2</sup>

## FIN

AREA 50.0 FT.<sup>2</sup>

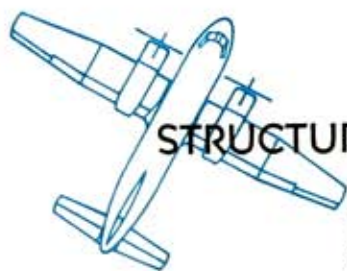
## LANDING GEAR

TRACK 17.0 FT.  
 WHEELBASE 13.5 FT.





# WEIGHTS



## STRUCTURE

WINGS	1,520
FUSELAGE	930
TAIL UNIT	250
LANDING GEAR	600
NACELLES	450
CONTROLS	140



## POWER

C.A.C. CICADA INSTLN.	2,135
PALAS BOOSTER UNIT	210
FUEL SYSTEM	70
OIL SYSTEM	110



## SERVICES

ELECTRICAL	220
HYDRAULICS	80
INSTRUMENTS	80
RADIO	120

3,890



## TARE EMPTY

7,620



## FURNISHINGS

705

SEATS. CREW (2)	30
SEATS. PASSENGER (17)	220
AIR CONDITIONING	100
INSULATION, FITTINGS.	185
UPHOLSTERY, CARPETS.	100
TOILET, PARTITIONS	70

2,525



## USEFUL LOAD

4,000

CREW (2)	340	340
PASSENGERS (12)	1,920	(15) 2,400
BAGGAGE, FREIGHT	360	450
FUEL, GALLS. (180)	1,290	(100) 720
OIL GALLS. (10)	90	(10) 90

500

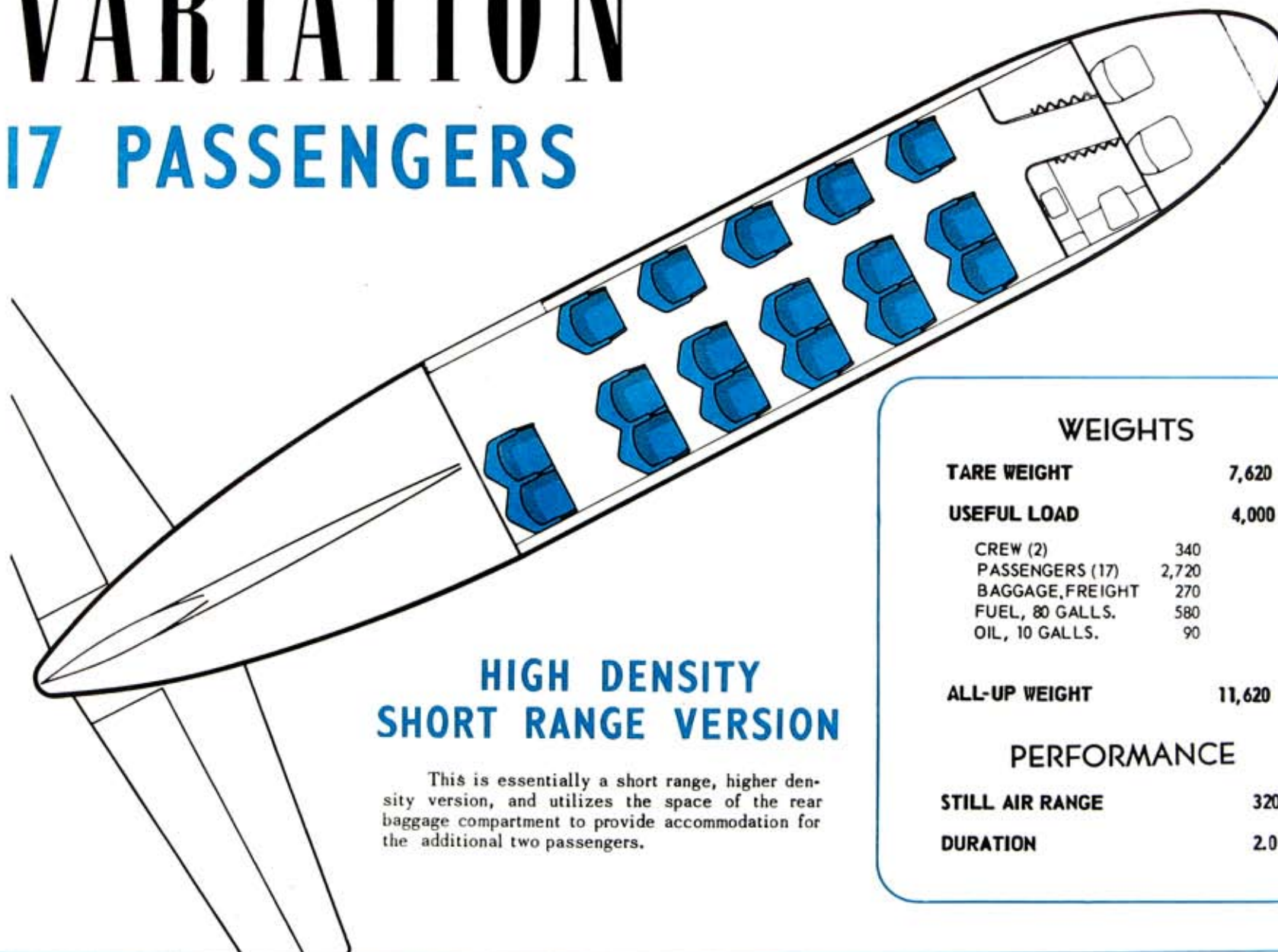


## ALL-UP WEIGHT

11,620 LB.

# VARIATION

## 17 PASSENGERS



### HIGH DENSITY SHORT RANGE VERSION

This is essentially a short range, higher density version, and utilizes the space of the rear baggage compartment to provide accommodation for the additional two passengers.

#### WEIGHTS

<b>TARE WEIGHT</b>	<b>7,620</b>
<b>USEFUL LOAD</b>	<b>4,000</b>
CREW (2)	340
PASSENGERS (17)	2,720
BAGGAGE, FREIGHT	270
FUEL, 80 GALLS.	580
OIL, 10 GALLS.	90
<b>ALL-UP WEIGHT</b>	<b>11,620 LB.</b>

#### PERFORMANCE

<b>STILL AIR RANGE</b>	<b>320 MI.</b>
<b>DURATION</b>	<b>2.0 HR.</b>





# POWER PLANT INSTALLATION

The power plant installation comprises two Cicada engines arranged as quickly replaceable, and interchangeable units. Each engine, complete with its welded steel mountings, fireproof bulkhead, oil tank, oil cooler, and all accessories, is carried on four quick release pick-up points. The units are bolted to the front spar of the wing centre section, while the engine controls, fuel lines, and electric cables are fitted with quick-disconnect couplings.

The engine cowling has a low-drag contour, and consists of four sections hinged at the firewall which may be opened out "petal" fashion for maximum accessibility to the engine and accessories. When closed, they are locked at the dishpan and nose locations with over-centre toggle fasteners, and are held clear of the flexibly mounted engine.

It is not necessary to remove the cowls during an engine change, and to facilitate adjustments during ground running, the side cowls may be left open up to the full throttle position.

An air intake is fitted below the engine cowls.

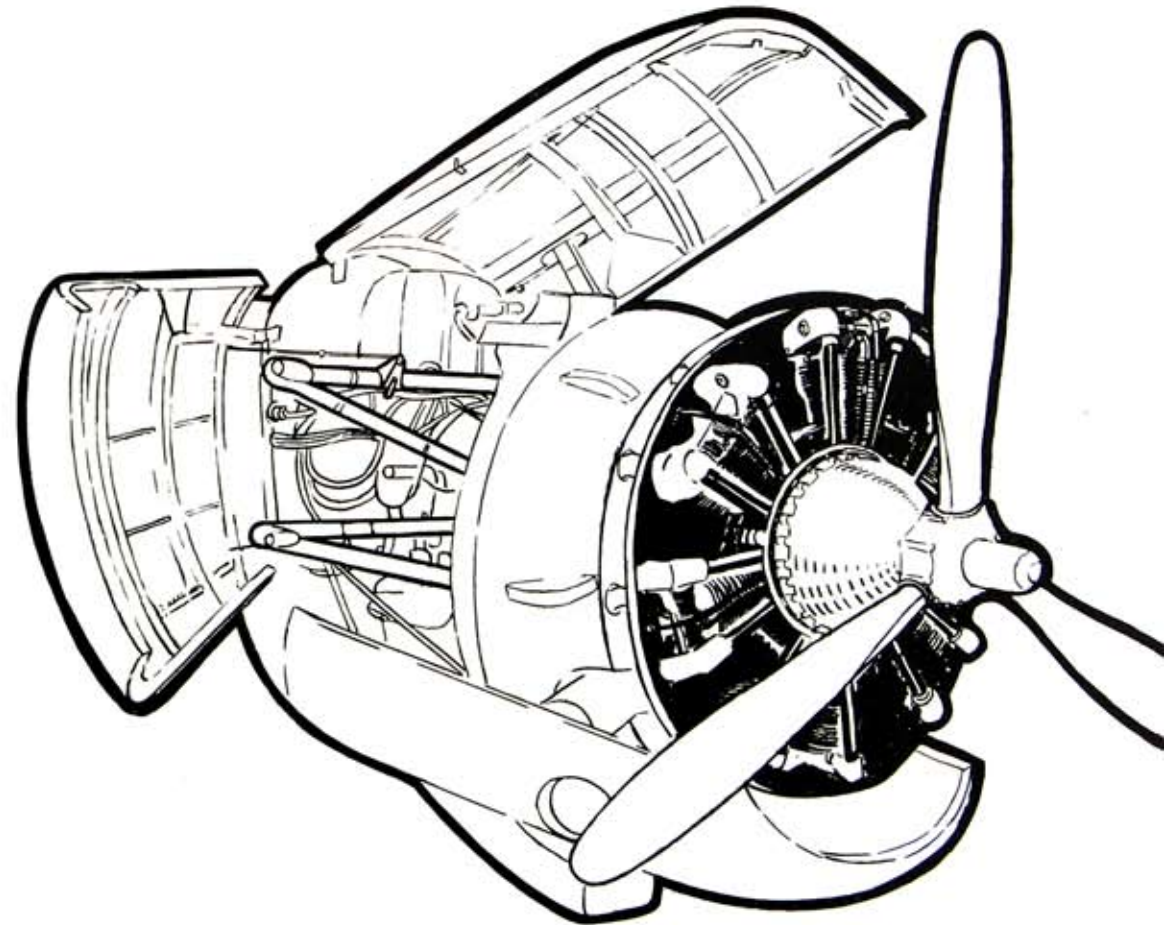
Single exhaust outlets are provided, discharging below the engine; cooling air is exhausted from large flush openings located in each side cowling panel.

The oil system is self contained in the engine quick change unit. The oil tank contains 7.5 gallons, and feeds direct to the engine. Hot oil from the engine is directed through an oil cooler before being returned to the tank.

The fuel system is described in a later page of this brochure.

De Havilland three bladed fully feathering and reversible propellers are fitted.

Engine accessories include direct cranking electric starter, generator, fuel pump, and propeller governor.



# POWER



DIAMETER 3.9 FT.

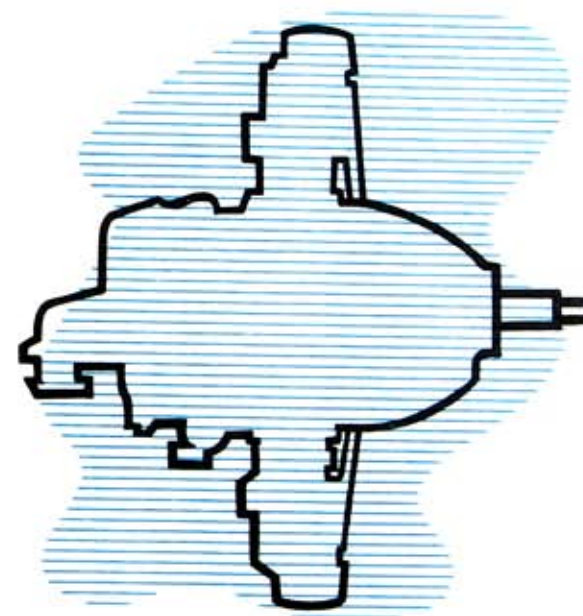
WEIGHT 780 LB.

The Commonwealth Aircraft Corporation Cicada is a seven cylinder radial engine rated at 450 B.H.P. for take-off, wholly designed and manufactured in Australia.

A de Havilland three bladed fully feathering and reversible propeller is fitted.

One of the primary design considerations in the Cicada was to produce a particularly rugged engine which would ensure long life under arduous operating conditions. A vital factor is the extensive use of non-strategic materials which are locally available in the Commonwealth. A particular example in the Cicada is the almost complete elimination of ball and roller races.

A feature of particular interest is the incorporation of an 0.8 to 1.0 reduction gear of simple design. The object is to minimize the noise from high propeller tip speeds which can be particularly objectionable to passengers and crew.



TAKE OFF POWER	SEA LEVEL	450 H.P.
CLIMB POWER	SEA LEVEL	410 H.P.
CRUISE. W.M.	8,500 FT.	320 H.P.
CRUISE. W.M. CONSUMPTION	8,500 FT.	20 G.P.H.





# AUXILIARY POWER

## Palas

The Palas Boost Unit has a small centrifugal compressor and is of generally simple and robust construction. The installation presents no drag when not in operation, being located in the rear fuselage cone, with the air supply through twin suction relief, spring loaded doors.

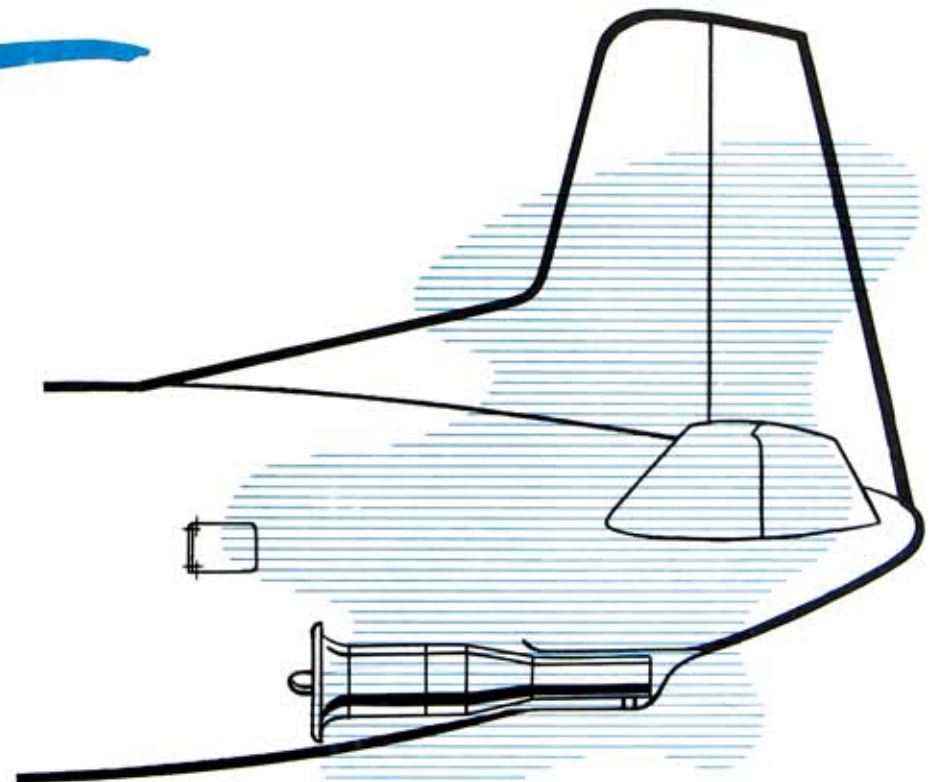
These units have proved successful in improving the pay load capacity of commercial aircraft in Europe and the United States of America.

STATIC THRUST	SEA LEVEL	350 LB.
SPEC. FUEL CONSUMPTION	SEA LEVEL	1.22 LB./LB./HR.

DIAMETER 1.5 FT.

LENGTH 5.25 FT.

WEIGHT 190 LB.



# FUEL

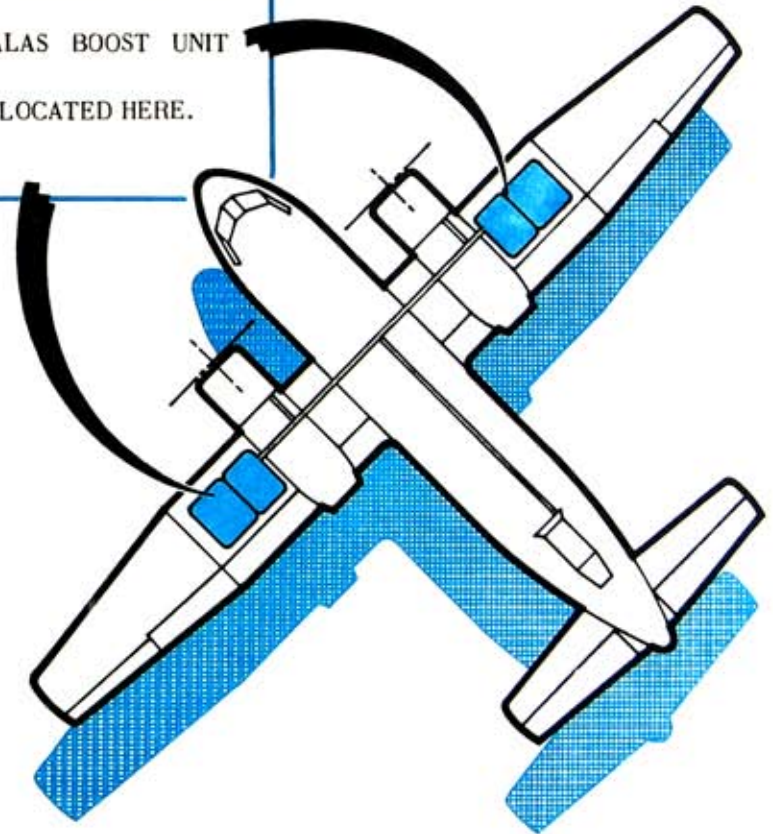
The safety aspect has been well to the forefront in the design of the Wallaby aircraft.

With this object in view the two fuel tanks of crash proof rubber bag type are located one in each wing, between the engine nacelle and the outer wing connection. The tanks are thus placed as far away as possible from the cockpit and passenger cabin, as shown in the adjacent diagram, and present a much reduced fire hazard.

The capacity of each tank is 90 gallons, being divided into two compartments of 40 and 50 gallons, and thereby giving the capacities required for various alternative ranges.

Interconnections to each Cicada engine and to the Palas boost unit will provide for full emergency use.

FUEL TANKS SUPPLYING  
THE TWO CICADA ENGINES  
AND PALAS BOOST UNIT  
ARE LOCATED HERE.





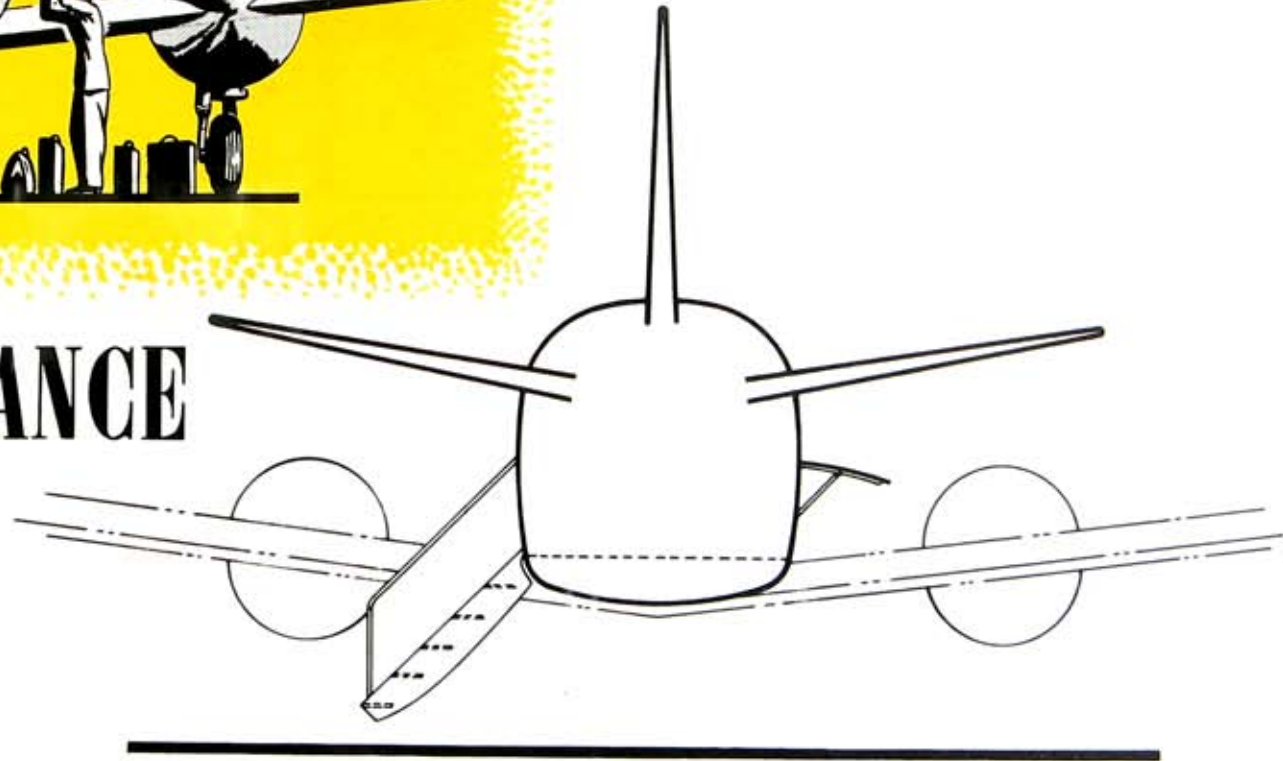
# REAR BAGGAGE

# COMPARTMENT

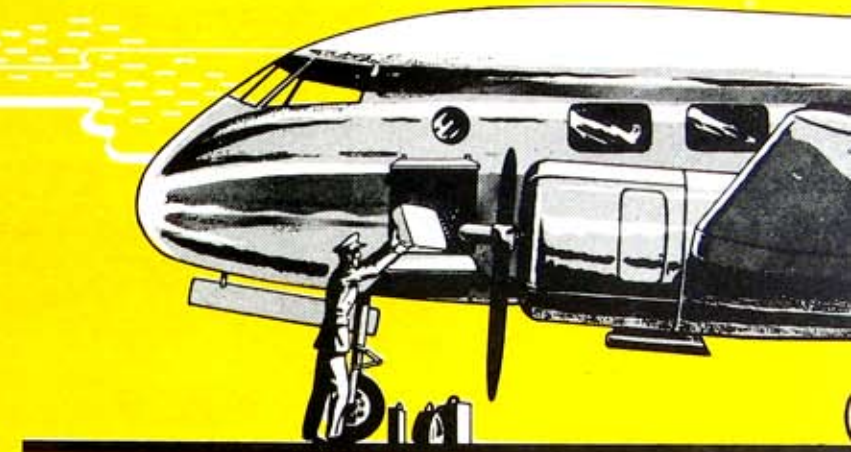
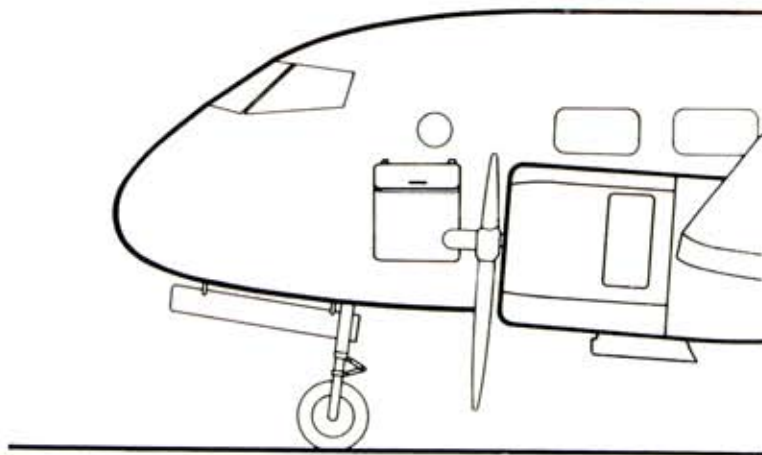


# PASSENGER ENTRANCE

Passengers enter the aircraft by the large area, downwards swinging door. Steps incorporated in this door dispense with the usual ground loading equipment. Hinging the door down to the horizontal provides a level platform for freight handling.



# FRONT BAGGAGE COMPARTMENT



Baggage and freight space is provided in two compartments; one forward of the passenger cabin, and the other at the rear. Access to these compartments is available from both outside and inside the cabin.





## Serviceability

Engine maintenance is assisted by the "petal" type cowlings which give free and uninterrupted access to all items forward of the firewall.



All radio equipment, together with the batteries, is located on either side of the nose wheel well, and is so arranged that it is within easy reach for all necessary inspection and maintenance.

A continuous series of hinged panels underneath the fuselage from front to rear give access to the surface controls.

In addition, the controls for the Palas jet unit are easy of access.

There is, therefore, no need for the cabin floor to be disturbed when making adjustments to the controls, etc.

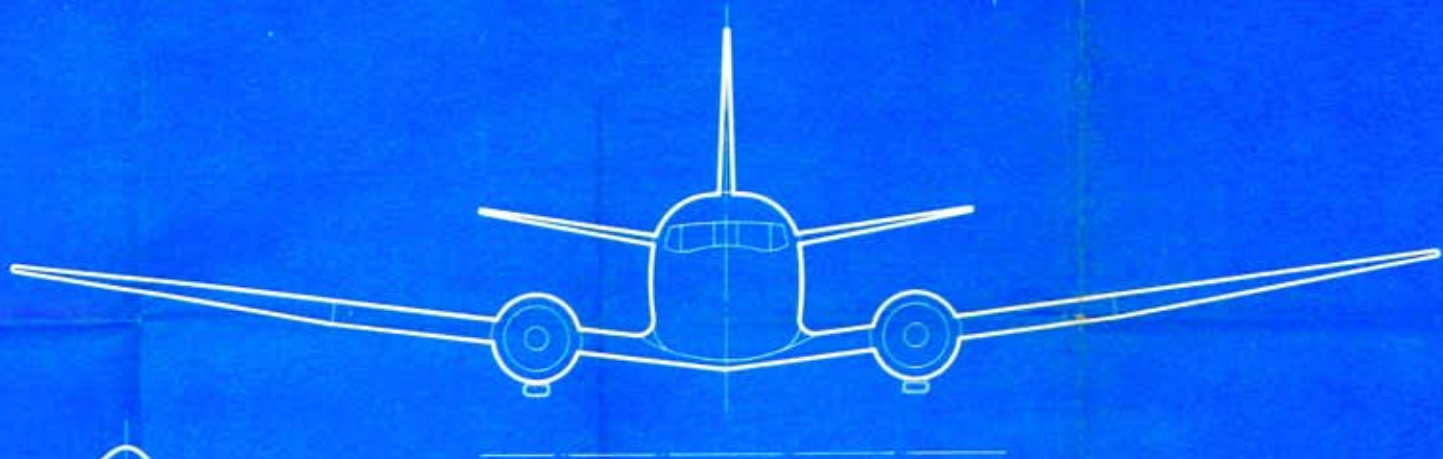




The image features a red airplane with a propeller and a tail fin, shown in three different views: a top-down view at the top, a front view on the left, and a side profile view on the right. The airplane is centered over a yellow circular background with concentric lines. The text "Three View Drawing" is written in a black, cursive font across the middle of the image.

# *Three View Drawing*



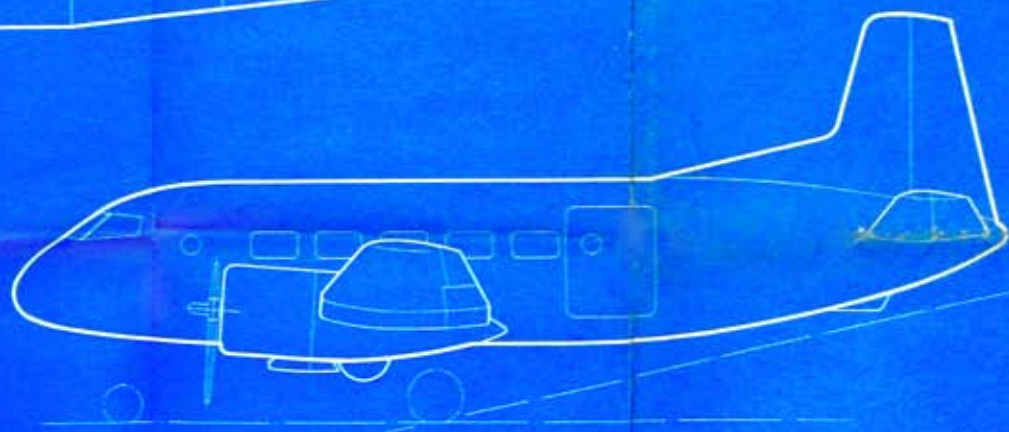
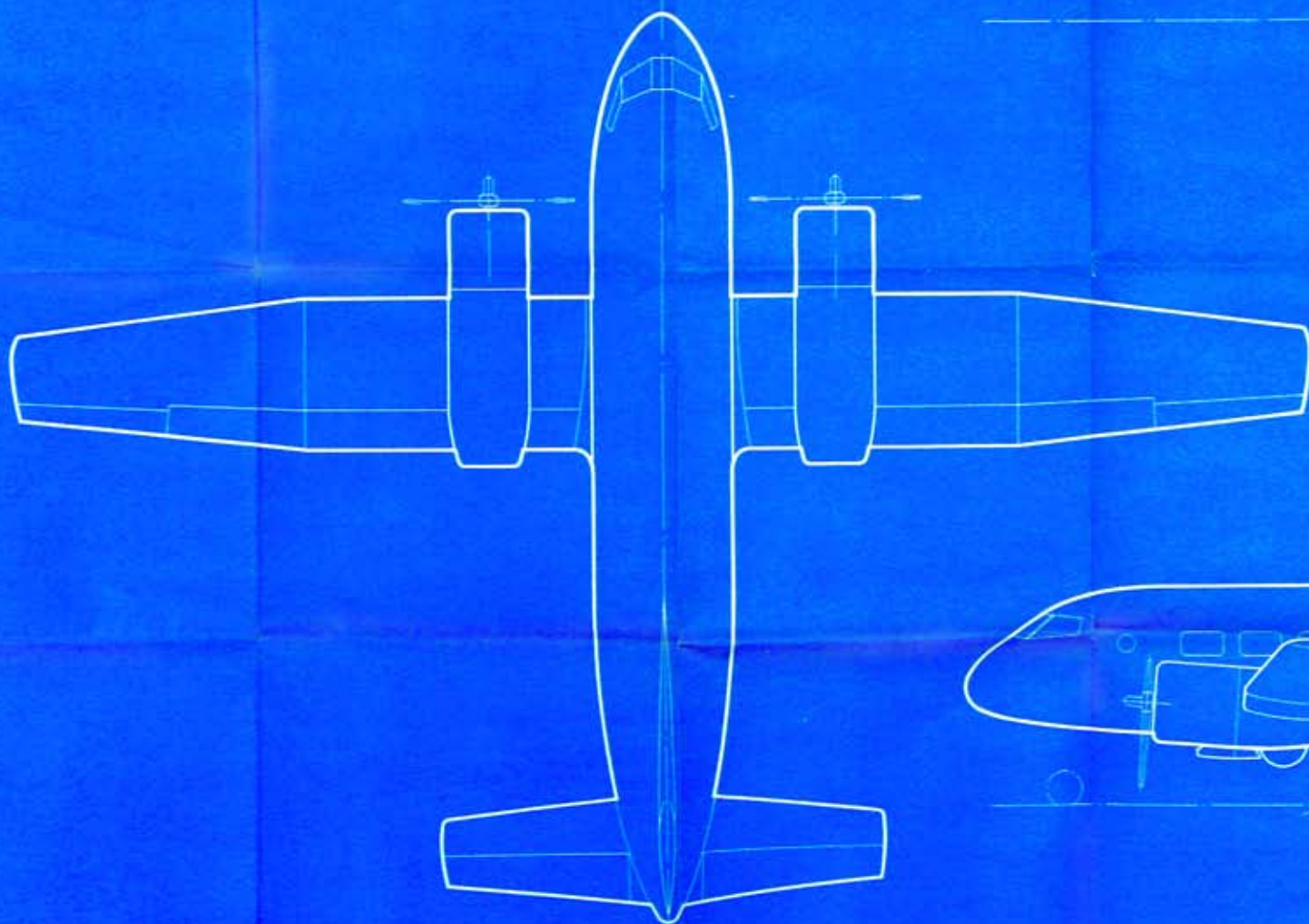


WALLABY

TWIN ENGINE TRANSPORT

COMMONWEALTH AIRCRAFT CORPORATION

PROPRIETARY LIMITED



0 1 2 3 4 5 6 7 8 9 10  
SCALE — FEET